

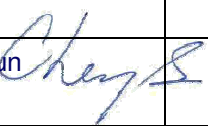




| | |
|---|---|
| TEST REPORT IEC 60950-1 Information technology equipment – Safety – Part 1: General requirements | |
| Report Number..... : SHES160300121201 Date of issue..... : 2016-03-24 Total number of pages 51 pages | |
| Applicant's name GlobTek, Inc. Address..... : 186 Veterans Dr. Northvale, NJ 07647, USA | |
| Test specification: Standard IEC 60950-1: 2005 (Second Edition) + Am 1: 2009 + Am 2: 2013 Test procedure SGS-CSTC Non-standard test method N/A | |
| Test Report Form No. : IEC60950_1F Test Report Form(s) Originator : SGS Fimko Ltd Master TRF Dated 2014-02 Copyright © 2014 IEC System of Conformity Assessment Schemes for Electrotechnical Equipment and Components (IECEE System). All rights reserved. This publication may be reproduced in whole or in part for non-commercial purposes as long as the IECEE is acknowledged as copyright owner and source of the material. IECEE takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context. If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed. This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02. | |
| General disclaimer: The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report. | |
| Test item description..... : Trade Mark..... : Manufacturer Model/Type reference Ratings..... : | ITE Power Supply  GlobTek® ,Inc. Same as applicant GT*41078-*05-USB (Refer to page 6 for details) Input: 100 - 240 Vac; 50 - 60 Hz; 0,3 A DC-Output: 5 V; max. 1,2 A Class II |

| | | |
|--|---|---|
| Testing procedure and testing location: | | |
| <input checked="" type="checkbox"/> | CB Testing Laboratory: | SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. |
| Testing location/ address.....: | | 588 West Jindu Road, Xinqiao Town, Songjiang, 201612 Shanghai, China |
| <input type="checkbox"/> | Associated CB Testing Laboratory: | |
| Testing location/ address.....: | | |
| Tested by (name + signature) | | Lancer Lei  |
| Approved by (name + signature) | | Cherry Sun  |
| | | |
| <input type="checkbox"/> | Testing procedure: TMP/CTF Stage 1: | |
| Testing location/ address.....: | | |
| Tested by (name + signature) | | |
| Approved by (name + signature) | | |
| | | |
| <input type="checkbox"/> | Testing procedure: WMT/CTF Stage 2: | |
| Testing location/ address.....: | | |
| Tested by (name + signature) | | |
| Witnessed by (name + signature).....: | | |
| Approved by (name + signature) | | |
| | | |
| <input type="checkbox"/> | Testing procedure: SMT/CTF Stage 3 or 4: | |
| Testing location/ address.....: | | |
| Tested by (name + signature) | | |
| Witnessed by (name + signature).....: | | |
| Approved by (name + signature) | | |
| Supervised by (name + signature) | | |

List of Attachments (including a total number of pages in each attachment):

Attachment 1 – 4 pages of Photos documents;

Attachment 2 – 2 pages of Circuit diagram and PCB layout;

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 (Second Edition) + Am 1:2009 + Am 2:2013.

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

The power supply (model: GT*41078-*05-USB) was separately certified according to IEC 60950-1: 2005 (Second Edition) + Am 1: 2009 + Am 2: 2013 by Intertek (CB certificate Ref. Certif. No. SE-81488 issued on 15 December 2015, with CB test report Number 151101783SHA-001).

No additional test was considered necessary.

After evaluation, model GTM41078-0605-USB is representative for test, for max. output power, output current and voltage

Test information in report:

Heating test (4.5):

Ta = 40 °C (declared by manufacturer)

Tamb = 40 °C

Tests were carried out at 90 Va.c. and 264 Va.c..

K-type thermocouple used for temperature measurement.

Tests performed (name of test and test clause):

- ☒ 1. GENERAL
- ☒ 2. PROTECTION FROM HAZARDS
- ☒ 3. WIRING, CONNECTIONS AND SUPPLY
- ☒ 4. PHYSICAL REQUIREMENTS
- ☒ 5. ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS
- ☐ 6. CONNECTION TO TELECOMMUNICATION NETWORKS
- ☐ 7. CONNECTION TO CABLE DISTRIBUTION SYSTEMS

Testing location:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

588 West Jindu Road, Xinqiao Town, Songjiang, 201612 Shanghai, China

Summary of compliance with National Differences:**List of countries addressed**

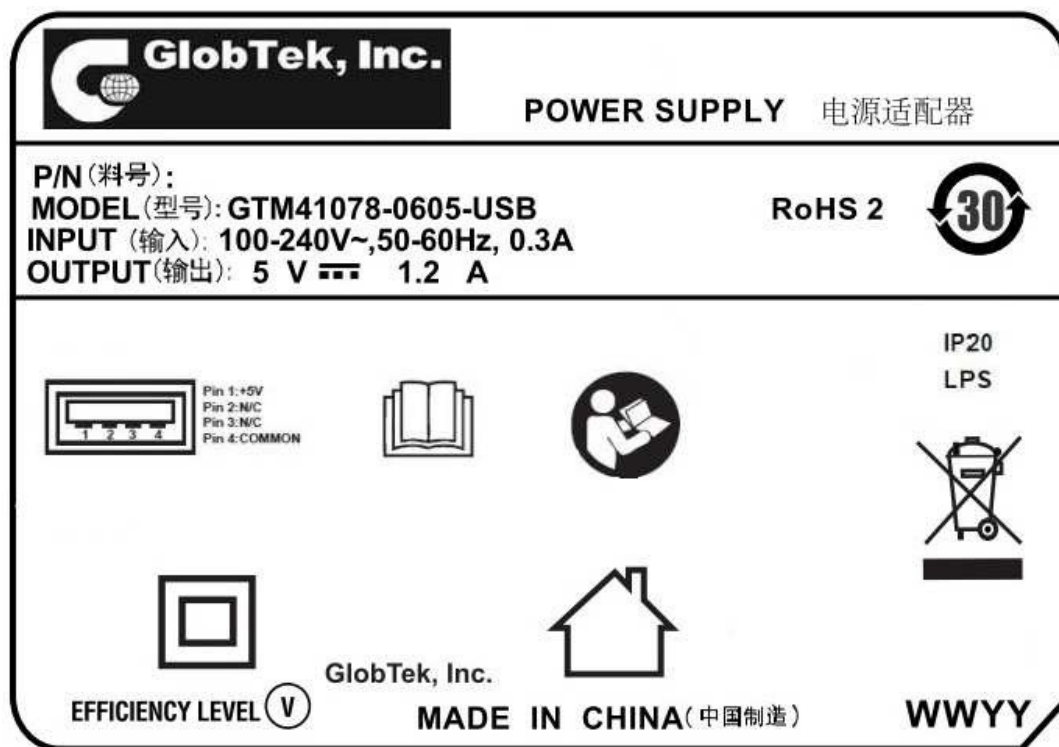
EU Group Differences (EN 60950-1: 2006 + A11: 2009 + A1: 2010 + A12: 2011+ A2: 2013)

The product fulfils the above requirements.

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 National Certification Body that own these marks.

(Additional requirements for markings. See 1.7 NOTE)



Remark: The marking for other models are same as above except model name and output parameters.

| | |
|--|---|
| Test item particulars.....: | |
| Equipment mobility.....: | <input 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 |
| Connection to the mains.....: | <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 |
| Operating condition.....: | <input checked="" type="checkbox"/> continuous <input type="checkbox"/> rated operating / resting time: |
| Access location | <input checked="" type="checkbox"/> operator accessible <input type="checkbox"/> restricted access location |
| Over voltage category (OVC) | <input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other: |
| Mains supply tolerance (%) or absolute mains supply values | ± 10% according to manufacturer |
| Tested for IT power systems | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| IT testing, phase-phase voltage (V) | 230V |
| Class of equipment | <input type="checkbox"/> Class I <input checked="" type="checkbox"/> Class II <input type="checkbox"/> Class III <input type="checkbox"/> Not classified |
| Considered current rating of protective device as part of the building installation (A) | 16 A |
| Pollution degree (PD) | <input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3 |
| IP protection class | IP20 |
| Altitude during operation (m) | ≤ 3000 m |
| Altitude of test laboratory (m) | ≤ 100 m |
| Mass of equipment (kg) | 0,035 kg |
| Possible test case verdicts: | |
| - test case does not apply to the test object.....: N/A | |
| - test object does meet the requirement.....: P (Pass) | |
| - test object does not meet the requirement.....: F (Fail) | |
| Testing.....: | |
| Date of receipt of test item | -- |
| Date (s) of performance of tests | Original test date: 2015-11-20 to 2015-12-08 |
| 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 is used as the decimal separator.

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Unless otherwise stated: (a) the results shown in this document refer only to the sample(s) tested and (b) such sample(s) are retained for 30 Days. This document cannot be reproduced except in full, without prior approval of the company.

Manufacturer's Declaration per sub-clause 4.2.5 of IECCE 02:

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

☒ **Yes**
☐ **Not applicable**

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

Name and address of factory (ies) : GlobTek (Suzhou) Co.,Ltd.

Building 4, 76 Jinling East Road, Suzhou Industrial Park, Suzhou, 215021 Jiangsu, China

General product information:

The product under test is a Class II direct plug-in power adapter with interchangeable plug portion, and its output is rated 5Vdc USB port. Two pieces of outer enclosure are enclosed by ultrasonic welding without screw.

The product can be used with different plug types. EU plug, AU pug, US plug, UK plug, BR plug and AR plug evaluated in the report..

All models of GT*41078-*05-USB are identical to each other except minor differences in transformer secondary winding and secondary circuit.

| | |
|----------------------------------|--|
| Product name | ITE Power Supply |
| Model | GT*41078-*05-USB |
| Explanation of model designation | The 1st "*" part can be 'M' or '-' or 'H' for market identification and not related to safety. The 2nd "*" part denotes the rated output wattage designation, which can be "01" to "06", with interval of 1.) |
| Power rating | Input: 100 - 240 Vac; 50 - 60 Hz; 0,3 A DC-Output: 5 V; max. 1,2 A |
| Functions | The EUT are Class II switching power adaptors for ITE and designed for continuous operation and indoor use only. |

Example of model name and relevant output ratings:

| Model | Output Voltage (Vd.c.) | Output current |
|-------------------|------------------------|----------------|
| GTM41078-0605-USB | 5V | 1,2A |

Abbreviations used in the report:

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


| IEC 60950-1 | | | |
|-------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|---|---------|--|---|
| 1 | GENERAL | | — |
|---|---------|--|---|

| | | | |
|---------|--|---|-----|
| 1.5 | Components | | — |
| 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 | Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of this standard. Components not certified are used in accordance with their ratings and they comply with applicable parts of IEC 60950-1 and the relevant component standard. Components, for which no relevant IEC-standard exists, have been tested under the conditions occurring in the equipment, using applicable parts of IEC 60950-1. | P |
| 1.5.3 | Thermal controls | | N/A |
| 1.5.4 | Transformers | | P |
| 1.5.5 | Interconnecting cables | | N/A |
| 1.5.6 | Capacitors bridging insulation | Refer to appended table 1.5.1. | P |
| 1.5.7 | Resistors bridging insulation | No such resistor. | N/A |
| 1.5.7.1 | Resistors bridging functional, basic or supplementary insulation | | N/A |
| 1.5.7.2 | Resistors bridging double or reinforced insulation between 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 | Class II. | N/A |
| 1.5.9 | Surge suppressors | The VDR is in compliance with Annex Q | P |
| 1.5.9.1 | General | | P |
| 1.5.9.2 | Protection of VDRs | Fuses is connected in series with the VDR. (See appended table 1.5.1) | P |

| IEC 60950-1 | | | |
|-------------|---|---|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 1.5.9.3 | Bridging of functional insulation by a VDR | VDR were located between Line and Neutral after Current Fuse. (See appended table 1.5.1) | P |
| 1.5.9.4 | Bridging of basic insulation by a VDR | | N/A |
| 1.5.9.5 | Bridging of supplementary, double or reinforced insulation by a VDR | | N/A |

| | | | |
|------------|--------------------------------------|----------------------------|-----|
| 1.6 | Power interface | | — |
| 1.6.1 | AC power distribution systems | | P |
| 1.6.2 | Input current | (see appended table 1.6.2) | P |
| 1.6.3 | Voltage limit of hand-held equipment | Not a hand-held equipment. | N/A |
| 1.6.4 | Neutral conductor | | P |

| | | | |
|------------|--|---|-----|
| 1.7 | Marking and instructions | | — |
| 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) | 100 - 240 V | P |
| | Symbol for nature of supply, for d.c. only | | N/A |
| | Rated frequency or rated frequency range (Hz) | 50 - 60 Hz | P |
| | Rated current (mA or A) | 0,3 A | P |
| 1.7.1.2 | Identification markings | | P |
| | Manufacturer's name or trade-mark or identification mark | Trade mark :  GlobTek® ,Inc. | P |
| | Model identification or type reference | GT*41078-*05-USB | P |
| | Symbol for Class II equipment only | Class II symbol used in label. | P |
| | Other markings and symbols | | P |
| 1.7.1.3 | Use of graphical symbols | | P |
| 1.7.2 | Safety instructions and marking | See below. | P |
| 1.7.2.1 | General | | P |
| 1.7.2.2 | Disconnect devices | Plug | P |
| 1.7.2.3 | Overcurrent protective device | Not pluggable equipment type B or permanently connected equipment. | N/A |
| 1.7.2.4 | IT power distribution systems | | P |

| IEC 60950-1 | | | |
|-------------|--|---|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 1.7.2.5 | Operator access with a tool | No tool used for access to operator access area. | N/A |
| 1.7.2.6 | Ozone | Not produce ozone. | N/A |
| 1.7.3 | Short duty cycles | Equipment is designed for continuous operation. | N/A |
| 1.7.4 | Supply voltage adjustment | No voltage adjustment. | N/A |
| | Methods and means of adjustment; reference to installation instructions | | N/A |
| 1.7.5 | Power outlets on the equipment | No power outlet. | N/A |
| 1.7.6 | Fuse identification (marking, special fusing characteristics, cross-reference) | Soldered-in type fuse is provided. Marking adjacent to it states: FS1 T1A/250V FS2 T1A/250V (FS2 is optional) | 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 |
| 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 | No control uses figures. | N/A |
| 1.7.9 | Isolation of multiple power sources | No multiple power source. | N/A |
| 1.7.10 | Thermostats and other regulating devices | No such device. | N/A |
| 1.7.11 | Durability | The marking withstands required tests. | P |
| 1.7.12 | Removable parts | No marking placed on removable parts | P |
| 1.7.13 | Replaceable batteries | | N/A |
| | Language(s) | | — |
| 1.7.14 | Equipment for restricted access locations..... | | N/A |
| 2 | PROTECTION FROM HAZARDS | | — |
| 2.1 | Protection from electric shock and energy hazards | | — |
| 2.1.1 | Protection in operator access areas | | P |

| IEC 60950-1 | | | |
|-------------|---|--|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.1.1.1 | Access to energized parts | | P |
| | Test by inspection | See below. | P |
| | Test with test finger (Figure 2A) | No access. | P |
| | Test with test pin (Figure 2B) | No access. | P |
| | Test with test probe (Figure 2C) | No TNV circuit. | N/A |
| 2.1.1.2 | Battery compartments | | N/A |
| 2.1.1.3 | Access to ELV wiring | No internal wiring at ELV. | N/A |
| | Working voltage (V_{peak} or V_{rms}); minimum distance through insulation (mm) | | — |
| 2.1.1.4 | Access to hazardous voltage circuit wiring | All accessible parts are separated from internal wiring at hazardous voltage by double or reinforced insulation. | N/A |
| 2.1.1.5 | Energy hazards | No energy hazard in operator access area. Checked by means of the test finger. (see appended table) | P |
| 2.1.1.6 | Manual controls | No such part. | N/A |
| 2.1.1.7 | Discharge of capacitors in equipment | No such capacitor. | 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 | | P |
| 2.1.3 | Protection in restricted access locations | | N/A |
| 2.2 | SELV circuits | | — |
| 2.2.1 | General requirements | | 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 | SELV circuits are only connected to other SELV circuits. | P |
| 2.3 | TNV circuits | | — |
| 2.3.1 | Limits | No TNV circuit. | N/A |
| | Type of TNV circuits | | — |

| IEC 60950-1 | | | |
|-------------|--|---|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.3.2 | Separation from other circuits and from accessible parts | | N/A |
| 2.3.2.1 | General requirements | | N/A |
| 2.3.2.2 | Protection by basic insulation | | N/A |
| 2.3.2.3 | Protection by earthing | | N/A |
| 2.3.2.4 | Protection by other constructions : | | N/A |
| 2.3.3 | Separation from hazardous voltages | | N/A |
| | Insulation employed..... : | | — |
| 2.3.4 | Connection of TNV circuits to other circuits | | N/A |
| | Insulation employed..... : | | — |
| 2.3.5 | Test for operating voltages generated externally | | N/A |
| 2.4 | Limited current circuits | | — |
| 2.4.1 | General requirements | Worst case selected: Model GTM41078-0605-USB For bridging capacitor CY1, CY2: 470pF. | P |
| 2.4.2 | Limit values | 0,7 mA | P |
| | Frequency (Hz) : | -- | — |
| | Measured current (mA)..... : | 0,04 mA | — |
| | Measured voltage (V) : | 0,02 V | — |
| | Measured circuit capacitance (nF or μ F) : | The measured charge is < 45 μ C. | — |
| 2.4.3 | Connection of limited current circuits to other circuits | SELV circuit. | P |
| 2.5 | Limited power sources | | — |
| | a) Inherently limited output | | P |
| | b) Impedance limited output | | N/A |
| | 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)..... : | | — |
| | Current rating of overcurrent protective device (A) .. : | | — |
| 2.6 | Provisions for earthing and bonding | | — |

| IEC 60950-1 | | | |
|-------------|---|---|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.6.1 | Protective earthing | Class II. | 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 ²), AWG | | — |
| 2.6.3.3 | Size of protective bonding conductors | | N/A |
| | Rated current (A), cross-sectional area (mm ²), AWG | | — |
| | Protective current rating (A), cross-sectional area (mm ²), AWG | | N/A |
| 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 |
| 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 | Protective devices are integrated in equipment. | P |

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|-------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|-------|--|------------------------------------|-----|
| | Instructions when protection relies on building installation | The equipment is pluggable Type A. | N/A |
| 2.7.2 | Faults not simulated in 5.3.7 | | P |
| 2.7.3 | Short-circuit backup protection | | P |
| 2.7.4 | Number and location of protective devices : | fuses used. | P |
| 2.7.5 | Protection by several devices | | P |
| 2.7.6 | Warning to service personnel : | | N/A |

| | | | |
|------------|---|---------------------------|-----|
| 2.8 | Safety interlocks | | — |
| 2.8.1 | General principles | No safety interlock used. | 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 | Neither natural rubber, materials containing asbestos nor hygroscopic materials are used as insulation. No driving belts or couplings used. | P |
| 2.9.2 | Humidity conditioning | Tested for 120 hrs. | P |
| | Relative humidity (%), temperature (°C) : | 93%, 40 °C | — |
| 2.9.3 | Grade of insulation | Insulation is considered to be functional, basic, supplementary, reinforced or double insulation. | P |
| 2.9.4 | Separation from hazardous voltages | | P |
| | Method(s) used : | Method 1 | — |

| IEC 60950-1 | | | |
|-------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|-------------|---|--|-----|
| 2.10 | Clearances, creepage distances and distances through insulation | | — |
| 2.10.1 | General | | P |
| 2.10.1.1 | Frequency | Considered. | P |
| 2.10.1.2 | Pollution degrees | 2 | P |
| 2.10.1.3 | Reduced values for functional insulation | | P |
| 2.10.1.4 | Intervening unconnected conductive parts | | N/A |
| 2.10.1.5 | Insulation with varying dimensions | | N/A |
| 2.10.1.6 | Special separation requirements | | N/A |
| 2.10.1.7 | Insulation in circuits generating starting pulses | | N/A |
| 2.10.2 | Determination of working voltage | | P |
| 2.10.2.1 | General | | P |
| 2.10.2.2 | RMS working voltage | (See appended table 2.10.2) | P |
| 2.10.2.3 | Peak working voltage | (See appended table 2.10.2) | P |
| 2.10.3 | Clearances | (see appended table 2.10.3 and 2.10.4) | P |
| 2.10.3.1 | General | | P |
| 2.10.3.2 | Mains transient voltages | | P |
| | a) AC mains supply | Overvoltage Category II | 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 | | N/A |
| 2.10.3.5 | Clearances in circuits having starting pulses | | N/A |
| 2.10.3.6 | Transients from a.c. mains supply | | 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 |
| | b) Transients from a telecommunication network : | | N/A |
| 2.10.4 | Creepage distances | (see appended table 2.10.3 and 2.10.4) | P |
| 2.10.4.1 | General | | P |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 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 | (see appended table 2.10.3 and 2.10.4) | 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 | | P |
| 2.10.5.5 | Cemented joints | | N/A |
| 2.10.5.6 | Thin sheet material – General | | P |
| 2.10.5.7 | Separable thin sheet material | Reinforced insulation. | P |
| | Number of layers (pcs) | Min two layers used, each of which complies with the required electric strength test (see appended table 2.10.5) | — |
| 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 | Certified TIW. | P |
| | Working voltage | | P |
| | a) Basic insulation not under stress | | N/A |
| | b) Basic, supplementary, reinforced insulation | | N/A |
| | c) Compliance with Annex U | Triple insulation wire used as secondary winding. | P |
| | Two wires in contact inside wound component; angle between 45° and 90° | Insulation tube | 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 | | N/A |
| | Working voltage | | N/A |
| | - Basic insulation not under stress | | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| | - 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 |
| 3 | WIRING, CONNECTIONS AND SUPPLY | | — |
| 3.1 | General | | — |
| 3.1.1 | Current rating and overcurrent protection | Adequate cross sectional areas on internal wiring. | P |
| 3.1.2 | Protection against mechanical damage | The wires are routed away from sharp edges and parts which could damage insulation. | P |
| 3.1.3 | Securing of internal wiring | Internal wiring is secured against excessive strain, loosening of terminals and damage to the conductor insulation. | P |
| 3.1.4 | Insulation of conductors | | P |
| 3.1.5 | Beads and ceramic insulators | No such component. | N/A |
| 3.1.6 | Screws for electrical contact pressure | | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 3.1.7 | Insulating materials in electrical connections | No contact pressure through insulating material. | N/A |
| 3.1.8 | Self-tapping and spaced thread screws | | N/A |
| 3.1.9 | Termination of conductors | Terminations cannot become displaced so that clearances and creepage distances can be reduced. | P |
| | 10 N pull test | | P |
| 3.1.10 | Sleeving on wiring | | N/A |
| 3.2 | Connection to a mains supply | | — |
| 3.2.1 | Means of connection | | P |
| 3.2.1.1 | Connection to an a.c. mains supply | The equipment is provided with a plug. | 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 | Not permanently connected equipment. | N/A |
| | Number of conductors, diameter of cable and conduits (mm) | | — |
| 3.2.4 | Appliance inlets | Direct plug-in equipment | N/A |
| 3.2.5 | Power supply cords | Direct plug-in equipment | N/A |
| 3.2.5.1 | AC power supply cords | | N/A |
| | Type | | — |
| | Rated current (A), cross-sectional area (mm ²), AWG | | — |
| 3.2.5.2 | DC power supply cords | | N/A |
| 3.2.6 | Cord anchorages and strain relief | | N/A |
| | Mass of equipment (kg), pull (N) | | — |
| | Longitudinal displacement (mm) | | — |
| 3.2.7 | Protection against mechanical damage | Direct plug-in equipment | N/A |
| 3.2.8 | Cord guards | | N/A |
| | Diameter or minor dimension D (mm); test mass (g) | | — |
| | Radius of curvature of cord (mm) | | — |
| 3.2.9 | Supply wiring space | | N/A |
| 3.3 | Wiring terminals for connection of external conductors | | — |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 3.3.1 | Wiring terminals | The equipment is not permanently connected or provided with a non-detachable power supply cord. | N/A |
| 3.3.2 | Connection of non-detachable power supply cords | | N/A |
| 3.3.3 | Screw terminals | | N/A |
| 3.3.4 | Conductor sizes to be connected | | N/A |
| | Rated current (A), cord/cable type, cross-sectional area (mm ²) : | | — |
| 3.3.5 | Wiring terminal sizes | | N/A |
| | Rated current (A), type, nominal thread diameter (mm) : | | — |
| 3.3.6 | Wiring terminal design | | N/A |
| 3.3.7 | Grouping of wiring terminals | | N/A |
| 3.3.8 | Stranded wire | | N/A |

| | | | |
|------------|---|---|-----|
| 3.4 | Disconnection from the mains supply | | — |
| 3.4.1 | General requirement | | P |
| 3.4.2 | Disconnect devices | The plug of direct plug-in is considered to be the disconnect device. | P |
| 3.4.3 | Permanently connected equipment | Not permanently connected equipment. | N/A |
| 3.4.4 | Parts which remain energized | No parts remain energized after the disconnect device is pull out. | P |
| 3.4.5 | Switches in flexible cords | No switch in flexible cord. | N/A |
| 3.4.6 | Number of poles - single-phase and d.c. equipment | Disconnect device disconnects both poles simultaneously. | P |
| 3.4.7 | Number of poles - three-phase equipment | Single phase equipment. | N/A |
| 3.4.8 | Switches as disconnect devices | | N/A |
| 3.4.9 | Plugs as disconnect devices | The plug of direct plug-in is considered to be the disconnect device. | P |
| 3.4.10 | Interconnected equipment | No interconnections using hazardous voltages. | N/A |
| 3.4.11 | Multiple power sources | | N/A |

| | | | |
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| 3.5 | Interconnection of equipment | | — |
| 3.5.1 | General requirements | | P |

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| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|-------|--|-------------------------|-----|
| 3.5.2 | Types of interconnection circuits | SELV and LCC circuit | P |
| 3.5.3 | ELV circuits as interconnection circuits | No ELV interconnection. | N/A |
| 3.5.4 | Data ports for additional equipment | | N/A |

| | | | |
|------------|------------------------------|-------------------------------|-----|
| 4 | PHYSICAL REQUIREMENTS | | — |
| 4.1 | Stability | | — |
| | Angle of 10° | Direct plug in equipment. | N/A |
| | Test force (N) | Not floor-standing equipment. | N/A |

| | | | |
|------------|--|--|-----|
| 4.2 | Mechanical strength | | — |
| 4.2.1 | General | | P |
| | Rack-mounted equipment. | | N/A |
| 4.2.2 | Steady force test, 10 N | No hazard. | P |
| 4.2.3 | Steady force test, 30 N | | N/A |
| 4.2.4 | Steady force test, 250 N | No hazard. | 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 | 73 °C; 7 h | P |
| 4.2.8 | Cathode ray tubes | No cathode ray tube. | N/A |
| | Picture tube separately certified | | N/A |
| 4.2.9 | High pressure lamps | No high pressure lamp. | N/A |
| 4.2.10 | Wall or ceiling mounted equipment; force (N) | Not intended to be mounted on a wall or ceiling. | N/A |

| | | | |
|------------|--|---|-----|
| 4.3 | Design and construction | | — |
| 4.3.1 | Edges and corners | All edges and corners are rounded and smoothed. | P |
| 4.3.2 | Handles and manual controls; force (N) | | N/A |
| 4.3.3 | Adjustable controls | No adjustable control. | N/A |
| 4.3.4 | Securing of parts | | P |
| 4.3.5 | Connection by plugs and sockets | | P |
| 4.3.6 | Direct plug-in equipment | | P |
| | Torque | Max 0,021 Nm | — |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| | Compliance with the relevant mains plug standard | EU plug, AU pug, US plug, UK plug, BR plug, AR plug: Refer to test report 151001819SHA-001 issued by Intertek The other ments have to be checked during national approval. | 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 | No oil and grease. | N/A |
| 4.3.10 | Dust, powders, liquids and gases | Not intend to product dust, or using powders, liquids and gases. | N/A |
| 4.3.11 | Containers for liquids or gases | No such containers used. | N/A |
| 4.3.12 | Flammable liquids | No flammable liquids. | N/A |
| | Quantity of liquid (l) | | N/A |
| | Flash point (°C) | | N/A |
| 4.3.13 | Radiation | | N/A |
| 4.3.13.1 | General | | N/A |
| 4.3.13.2 | Ionizing radiation | No ionizing radiation. | N/A |
| | Measured radiation (pA/kg) | | — |
| | Measured high-voltage (kV) | | — |
| | Measured focus voltage (kV) | | — |
| | CRT markings | | — |
| 4.3.13.3 | Effect of ultraviolet (UV) radiation on materials | No UV lamp used. | N/A |
| | Part, property, retention after test, flammability classification | | N/A |
| 4.3.13.4 | Human exposure to ultraviolet (UV) radiation | No UV radiation. | N/A |
| 4.3.13.5 | 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 |

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| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|------------|--|------------------|-----|
| 4.4 | Protection against hazardous moving parts | | — |
| 4.4.1 | General | No moving parts. | 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 |

| | | | |
|------------|---|---------------------------------------|---|
| 4.5 | Thermal requirements | | — |
| 4.5.1 | General | | P |
| 4.5.2 | Temperature tests | | P |
| | Normal load condition per Annex L | Rated load with continuous operation. | — |
| 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 |

| | | | |
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| 4.6 | Openings in enclosures | | — |
| 4.6.1 | Top and side openings | No opening in the equipment. | P |
| | Dimensions (mm) | | — |
| 4.6.2 | Bottoms of fire enclosures | No opening in the equipment. | P |
| | Construction of the bottommm, dimensions (mm) .. | | — |
| 4.6.3 | Doors or covers in fire enclosures | No cover can be removed by hand. | 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 |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 4.6.4.3 | Use of metallized parts | | N/A |
| 4.6.5 | Adhesives for constructional purposes | | N/A |
| | Conditioning temperature (°C), time (weeks) : | | — |

| | | | |
|------------|--|---|-----|
| 4.7 | Resistance to fire | | — |
| 4.7.1 | Reducing the risk of ignition and spread of flame | | P |
| | Method 1, selection and application of components wiring and materials | (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 | The fire enclosure covers all parts. | P |
| 4.7.2.2 | Parts not requiring a fire enclosure | | N/A |
| 4.7.3 | Materials | | P |
| 4.7.3.1 | General | Components and materials have adequate flammability classification. See appended table 1.5.1. | P |
| 4.7.3.2 | Materials for fire enclosures | The fire enclosure is V-1 material. | P |
| 4.7.3.3 | Materials for components and other parts outside fire enclosures | No parts outside the fire enclosure. | N/A |
| 4.7.3.4 | Materials for components and other parts inside fire enclosures | | P |
| 4.7.3.5 | Materials for air filter assemblies | No air filter. | N/A |
| 4.7.3.6 | Materials used in high-voltage components | No high-voltage component. | N/A |

| | | | |
|------------|--|----------------------------------|-----|
| 5 | ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS | | — |
| 5.1 | Touch current and protective conductor current | | — |
| 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 | Measuring instrument D1 is used. | P |
| 5.1.5 | Test procedure | | P |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.1.6 | Test measurements | | P |
| | Supply voltage (V) | (see appended table 5.1) | — |
| | Measured touch current (mA) | (see appended table 5.1) | — |
| | Max. allowed touch current (mA) | (see appended table 5.1) | — |
| | Measured protective conductor current (mA) | | — |
| | Max. allowed protective conductor current (mA).... | | — |
| 5.1.7 | Equipment with touch current exceeding 3,5 mA | | N/A |
| 5.1.7.1 | General | | N/A |
| 5.1.7.2 | Simultaneous multiple connections to the supply | | N/A |
| 5.1.8 | Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks | No TNV circuit provided | N/A |
| 5.1.8.1 | Limitation of the touch current to a telecommunication network or to a cable distribution system | | N/A |
| | Supply voltage (V) | | — |
| | Measured touch current (mA) | | — |
| | Max. allowed touch current (mA) | | — |
| 5.1.8.2 | Summation of touch currents from telecommunication networks | | N/A |
| | a) EUT with earthed telecommunication ports | | N/A |
| | b) EUT whose telecommunication ports have no reference to protective earth | | N/A |

| | | | |
|------------|--------------------------|--------------------------|---|
| 5.2 | Electric strength | | — |
| 5.2.1 | General | (see appended table 5.2) | P |
| 5.2.2 | Test procedure | (see appended table 5.2) | P |

| | | | |
|------------|--|-------------------------------------|-----|
| 5.3 | Abnormal operating and fault conditions | | — |
| 5.3.1 | Protection against overload and abnormal operation | (see appended table 5.3) | P |
| 5.3.2 | Motors | No motors. | N/A |
| 5.3.3 | Transformers | See Annex C and appended table C.2. | P |
| 5.3.4 | Functional insulation..... | Complies with a), b) and c). | P |
| 5.3.5 | Electromechanical components | No such components. | N/A |
| 5.3.6 | Audio amplifiers in ITE | No audio amplifier. | N/A |
| 5.3.7 | Simulation of faults | (see appended table 5.3) | P |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.3.8 | Unattended equipment | | N/A |
| 5.3.9 | Compliance criteria for abnormal operating and fault conditions | No fire or molten metal occurred and no deformation of enclosure during the tests. | P |
| 5.3.9.1 | During the tests | No fire or molten metal occurred and no deformation of enclosure during the tests. | P |
| 5.3.9.2 | After the tests | Electric strength test made. | P |
| 6 | CONNECTION TO TELECOMMUNICATION NETWORKS | | — |
| 6.1 | Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment | | — |
| 6.1.1 | Protection from hazardous voltages | | N/A |
| 6.1.2 | Separation of the telecommunication network from earth | | N/A |
| 6.1.2.1 | Requirements | | N/A |
| | Supply voltage (V) | | — |
| | Current in the test circuit (mA) | | — |
| 6.1.2.2 | Exclusions | | N/A |
| 6.2 | Protection of equipment users from overvoltages on telecommunication networks | | — |
| 6.2.1 | Separation requirements | | N/A |
| 6.2.2 | Electric strength test procedure | | N/A |
| 6.2.2.1 | Impulse test | | N/A |
| 6.2.2.2 | Steady-state test | | N/A |
| 6.2.2.3 | Compliance criteria | | N/A |
| 6.3 | Protection of the telecommunication wiring system from overheating | | — |
| | Max. output current (A) | | — |
| | Current limiting method | | — |
| 7 | CONNECTION TO CABLE DISTRIBUTION SYSTEMS | | — |
| 7.1 | General | | N/A |
| 7.2 | Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment | | N/A |
| 7.3 | Protection of equipment users from overvoltages on the cable distribution system | | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 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 |

| | | | |
|------------|---|--|-----|
| A | ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE | | — |
| A.1 | Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2) | | N/A |
| A.1.1 | Samples | | — |
| | Wall thickness (mm) | | — |
| A.1.2 | Conditioning of samples; temperature (°C) | | N/A |
| A.1.3 | Mounting of samples | | N/A |
| A.1.4 | Test flame (see IEC 60695-11-3) | | N/A |
| | Flame A, B, C or D | | — |
| A.1.5 | Test procedure | | N/A |
| A.1.6 | Compliance criteria | | N/A |
| | Sample 1 burning time (s) | | — |
| | Sample 2 burning time (s) | | — |
| | Sample 3 burning time (s) | | — |
| A.2 | Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4) | | N/A |
| A.2.1 | Samples, material | | — |
| | Wall thickness (mm) | | — |
| A.2.2 | Conditioning of samples; temperature (°C) | | N/A |
| A.2.3 | Mounting of samples | | N/A |
| A.2.4 | Test flame (see IEC 60695-11-4) | | N/A |
| | Flame A, B or C | | — |
| A.2.5 | Test procedure | | N/A |
| A.2.6 | Compliance criteria | | N/A |
| | Sample 1 burning time (s) | | — |
| | Sample 2 burning time (s) | | — |
| | Sample 3 burning time (s) | | — |
| A.2.7 | Alternative test acc. to IEC 60695-11-5, cl. 5 and 9 | | 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.3 | Hot flaming oil test (see 4.6.2) | | N/A |
| A.3.1 | Mounting of samples | | N/A |
| A.3.2 | Test procedure | | N/A |
| A.3.3 | Compliance criterion | | N/A |
| B | ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2) | | — |
| B.1 | General requirements | | N/A |
| | Position | | — |
| | Manufacturer | | — |
| | Type | | — |
| | Rated values | | — |
| B.2 | Test conditions | | N/A |
| B.3 | Maximum temperatures | | N/A |
| B.4 | Running overload test | | N/A |
| B.5 | Locked-rotor overload test | | N/A |
| | Test duration (days) | | — |
| | Electric strength test: test voltage (V) | | — |
| B.6 | Running overload test for d.c. motors in secondary circuits | | N/A |
| B.6.1 | General | | N/A |
| B.6.2 | Test procedure | | N/A |
| B.6.3 | Alternative test procedure | | N/A |
| B.6.4 | Electric strength test; test voltage (V) | | N/A |
| B.7 | Locked-rotor overload test for d.c. motors in secondary circuits | | N/A |
| B.7.1 | General | | N/A |
| B.7.2 | Test procedure | | N/A |
| B.7.3 | Alternative test procedure | | N/A |
| B.7.4 | Electric strength test; test voltage (V) | | N/A |
| B.8 | Test for motors with capacitors | | N/A |
| B.9 | Test for three-phase motors | | N/A |
| B.10 | Test for series motors | | N/A |
| | Operating voltage (V) | | — |

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|-------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|------------|--|----------------------------------|---|
| C | ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3) | | — |
| | Position | T1: Primary to secondary. | — |
| | Manufacturer | (See appended table 1.5.1) | — |
| | Type | (See appended table 1.5.1) | — |
| | Rated values | (See appended table 1.5.1) | — |
| | Method of protection | Inherent protection | — |
| C.1 | Overload test | (See appended table 5.3) | P |
| C.2 | Insulation | (see appended tables 5.2 and C2) | P |
| | Protection from displacement of windings | (see appended table C.2) | P |

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

| | | | |
|----------|--|--|---|
| E | ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13) | | — |
|----------|--|--|---|

| | | | |
|----------|---|--|---|
| F | ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G) | | — |
|----------|---|--|---|

| | | | |
|------------|---|--|-----|
| G | ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES | | — |
| G.1 | Clearances | | N/A |
| G.1.1 | General | | N/A |
| G.1.2 | Summary of the procedure for determining minimum clearances | | N/A |
| G.2 | Determination of mains transient voltage (V) | | N/A |
| G.2.1 | AC mains supply | | N/A |
| G.2.2 | Earthed d.c. mains supplies | | N/A |
| G.2.3 | Unearthed d.c. mains supplies | | N/A |
| G.2.4 | Battery operation | | N/A |
| G.3 | Determination of telecommunication network transient voltage (V) | | N/A |
| G.4 | Determination of required withstand voltage (V) | | N/A |
| G.4.1 | Mains transients and internal repetitive peaks | | N/A |
| G.4.2 | Transients from telecommunication networks | | N/A |

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|-------------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| G.4.3 | Combination of transients | | N/A |
| G.4.4 | Transients from cable distribution systems | | N/A |
| G.5 | Measurement of transient voltages (V) | | N/A |
| | a) Transients from a mains supply | | N/A |
| | For an a.c. mains supply | | N/A |
| | For a d.c. mains supply | | N/A |
| | b) Transients from a telecommunication network | | N/A |
| G.6 | Determination of minimum clearances : | | N/A |
| H | ANNEX H, IONIZING RADIATION (see 4.3.13) | | — |
| J | ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6) | | — |
| | Metal(s) used : | | — |
| K | ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8) | | — |
| K.1 | Making and breaking capacity | | N/A |
| K.2 | Thermostat reliability; operating voltage (V) : | | N/A |
| K.3 | Thermostat endurance test; operating voltage (V) : | | N/A |
| K.4 | Temperature limiter endurance; operating voltage (V) : | | N/A |
| K.5 | Thermal cut-out reliability | | N/A |
| K.6 | Stability of operation | | N/A |
| L | ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2) | | — |
| L.1 | Typewriters | | N/A |
| L.2 | Adding machines and cash registers | | N/A |
| L.3 | Erasers | | N/A |
| L.4 | Pencil sharpeners | | N/A |
| L.5 | Duplicators and copy machines | | N/A |
| L.6 | Motor-operated files | | N/A |
| L.7 | Other business equipment | | P |
| M | ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1) | | — |
| M.1 | Introduction | | N/A |
| M.2 | Method A | | N/A |

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|-------------|--|---|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| M.3 | Method B | | N/A |
| M.3.1 | Ringing signal | | N/A |
| M.3.1.1 | Frequency (Hz) | | — |
| M.3.1.2 | Voltage (V) | | — |
| M.3.1.3 | Cadence; time (s), voltage (V) | | — |
| M.3.1.4 | Single fault current (mA) | | — |
| M.3.2 | Tripping device and monitoring voltage | | N/A |
| M.3.2.1 | Conditions for use of a tripping device or a monitoring voltage | | N/A |
| M.3.2.2 | Tripping device | | N/A |
| M.3.2.3 | Monitoring voltage (V) | | N/A |
| N | ANNEX N, IMPULSE TEST GENERATORS (see 1.5.7.2, 1.5.7.3, 2.10.3.9, 6.2.2.1, 7.3.2, 7.4.3 and Clause G.5) | | — |
| N.1 | ITU-T impulse test generators | | N/A |
| N.2 | IEC 60065 impulse test generator | | N/A |
| P | ANNEX P, NORMATIVE REFERENCES | | — |
| Q | ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1) | | — |
| | - Preferred climatic categories | Certified VDR used. (see appended table 1.5.1) | P |
| | - Maximum continuous voltage | Certified VDR used. (see appended table 1.5.1) | P |
| | - Combination pulse current | Certified VDR used. (see appended table 1.5.1) | P |
| | Body of the VDR Test according to IEC60695-11-5..... | | P |
| | Body of the VDR. Flammability class of material (min V-1)..... | | P |
| R | ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES | | — |
| R.1 | Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2) | | N/A |
| R.2 | Reduced clearances (see 2.10.3) | | N/A |
| S | ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3) | | — |
| S.1 | Test equipment | | N/A |

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|-------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|-----|--|--|-----|
| S.2 | Test procedure | | N/A |
| S.3 | Examples of waveforms during impulse testing | | N/A |

| | | | |
|----------|---|--|---|
| T | ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2) | | — |
| | | | — |

| | | | |
|----------|---|------------------------------------|---|
| U | ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4) | | — |
| | | The TIW of T1 was certified by UL. | — |

| | | | |
|----------|---|-----------|---|
| V | ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1) | | — |
| V.1 | Introduction | IT and TN | P |
| V.2 | TN power distribution systems | | P |

| | | | |
|----------|--|--|-----|
| W | ANNEX W, SUMMATION OF TOUCH CURRENTS | | — |
| W.1 | Touch current from electronic circuits | | N/A |
| W.1.1 | Floating circuits | | N/A |
| W.1.2 | Earthed circuits | | N/A |
| W.2 | Interconnection of several equipments | | N/A |
| W.2.1 | Isolation | | N/A |
| W.2.2 | Common return, isolated from earth | | N/A |
| W.2.3 | Common return, connected to protective earth | | N/A |

| | | | |
|----------|--|--|---|
| X | ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1) | | — |
| X.1 | Determination of maximum input current | | P |
| X.2 | Overload test procedure | | P |

| | | | |
|----------|--|--|-----|
| Y | ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3) | | — |
| Y.1 | Test apparatus | | N/A |
| Y.2 | Mounting of test samples | | N/A |
| Y.3 | Carbon-arc light-exposure apparatus | | N/A |
| Y.4 | Xenon-arc light exposure apparatus | | N/A |

| | | | |
|----------|--|--|---|
| Z | ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2) | | — |
|----------|--|--|---|

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|-------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|-----------|--|--|---|
| AA | ANNEX AA, MANDREL TEST (see 2.10.5.8) | | — |
|-----------|--|--|---|

| | | | |
|-----------|--|--|---|
| BB | ANNEX BB, CHANGES IN THE SECOND EDITION | | — |
|-----------|--|--|---|

| | | | |
|-----------|---|--|-----|
| CC | ANNEX CC, Evaluation of integrated circuit (IC) current limiters | | — |
| 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 |

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

| | | | |
|-----------|---|--|-----|
| EE | ANNEX EE, Household and home/office document/media shredders | | — |
| 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 |

| 1.5.1 | TABLE: List of critical components | | | | | P |
|-----------------------------------|---|-------------------|----------------------------------|--|-------------------------------------|---|
| Object/part No. | Manufacturer/ trademark | Type/model | Technical data | Standard (Edition / year) | Mark(s) of conformity ¹⁾ | |
| Enclosure & Plug holder | SABIC Innovative Plastics B V | SE1X | Min. V-1, min. 1,5 mm thickness | UL 94 | UL | |
| Alternative | SABIC Innovative Plastics B V | C2950 | Min. V-0, min. 1,5 mm thickness | UL 94 | UL | |
| Alternative | SABIC Innovative Plastics B V | 945(GG) | Min. V-0, min. 1,5 mm thickness | UL 94 | UL | |
| Alternative | SABIC Innovative Plastics B V | CX7211 EXCY0098 | Min. V-1, min. 1,25 mm thickness | UL 94 | UL | |
| Alternative | TEIJIN CHEMICALS LTD | LN-1250P LN-1250G | Min. V-0, min. 1,5 mm thickness | UL 94 | UL | |
| Alternative | CHI MEI Corporation | PA-765A | Min. V-1, min. 1,5 mm thickness | UL 94 | UL | |
| Alternative | CHI MEI Corporation | PC-540 | Min. V-0, min. 1,5 mm thickness | UL 94 | UL | |
| Coupler | GlobTek, Inc. | Q-coupler | Max. 240V, Max. 2.0A | IEC/EN 60950-1 | Tested with appliance | |
| PCB | Interchangeable | Interchangeable | Min. V-0, 1.6mm, 130°C | UL 796 | UL | |
| Fuse (FS1, FS2) (FS2 is optional) | Conquer Electronics Co Ltd | MST | T1A, 250Vac | IEC / EN 60127-1, IEC / EN 60127-2, UL 248 | VDE, UL | |
| Alternative | Ever Island Electric Co Ltd&Walter Electric | 2010 | T1A, 250Vac | IEC / EN 60127-1, IEC / EN 60127-2, UL 248 | VDE, UL | |
| Alternative | Bel Fuse Inc. | RST | T1A, 250Vac | IEC / EN 60127-1, IEC / EN 60127-2, UL 248 | VDE, UL | |

| IEC 60950-1 | | | | | |
|---|---|--------------------------------------|---|--|---------|
| Clause | Requirement + Test | | | Result - Remark | Verdict |
| Alternative | Cooper Bussmann LLC | SS-5 | T1A, 250Vac | IEC / EN 60127-1, IEC / EN 60127-2, UL 248 | VDE, UL |
| Alternative | Das & Sons International Ltd. | 385T series | T1A, 250Vac | IEC / EN 60127-1, IEC / EN 60127-2, UL 248 | VDE, UL |
| Alternative | Shenzhen Lanson Electronics Co. Ltd. | SMT | T1A, 250Vac | IEC / EN 60127-1, IEC / EN 60127-2, UL 248 | VDE, UL |
| Alternative | Walter Electronic Co. Ltd. | ICP series | T1A, 250Vac | IEC / EN 60127-1, IEC / EN 60127-3, UL 248 | VDE, UL |
| Insulation tube on fuse type ICP series | Shenzhen Woer Heat-shrinkable material Co Ltd | REFR RSFR-H RSFR-HPF | 600V, 125°C, VW-1 | UL 224 | UL |
| Alternative | Qifurui Electronics Co | QFR-h | 600V, 125°C, VW-1 | UL 224 | UL |
| Alternative | Dongguan Salipt Co Ltd | SALIPT S-901-300 SALIPT S-901-600 | Min 300V, 125°C, VW-1 | UL 224 | UL |
| Alternative | Guangzhou Kaiheng Enterprise Group | K-2 (+) K-2 (CB) | Min 300V, 125°C, VW-1 | UL 224 | UL |
| Alternative | Changyuan Electronics (Shenzhen) Co Ltd | CB-HFT | Min 300V, 125°C, VW-1 | UL 224 | UL |
| Varistor (MOV1) (optional) | Joyin Co Ltd | 14N471K 10N471K | Max continuous voltage: 300VAC, 6kV/3kA, 40/85/56 | IEC 61051-1, IEC 61051-2, UL 1449 3rd, IEC 60950-1:2005 Annex Q. | VDE, UL |
| Alternative | Centra Science Corp. | 10D471K 14D471K | Max continuous voltage: 300VAC, 6kV/3kA, 40/85/56 | IEC 61051-1, IEC 61051-2, UL 1449 3rd, IEC 60950-1:2005 Annex Q. | VDE, UL |

| IEC 60950-1 | | | | | |
|--|--|--------------------------|--|--|---------|
| Clause | Requirement + Test | | Result - Remark | | Verdict |
| Alternative | Thinking Electronic industrial Co Ltd | TVR14471 TVR10471 | Max continuous voltage: 300VAC, 6kV/3kA, 40/85/56 | IEC 61051-1, IEC 61051-2, UL 1449 3rd, IEC 60950-1:2005 Annex Q. | VDE, UL |
| Alternative | Success Electronics Co Ltd | SVR10D471K SVR14D471K | Max continuous voltage: 300VAC, 6kV/3kA, 40/85/56 | IEC 61051-1, IEC 61051-2, UL 1449 3rd, IEC 60950-1:2005 Annex Q. | VDE, UL |
| Alternative | Ceramate Technical Co Ltd | GNR14D471K GNR10D471K | Max continuous voltage: 300VAC, 6kV/3kA, 40/85/56 | IEC 61051-1, IEC 61051-2, UL 1449 3rd, IEC 60950-1:2005 Annex Q. | VDE, UL |
| Alternative | BRIGHTKING (SHENZHEN) CO LTD | 14D471K 10D471K | Max continuous voltage: 300VAC, 6kV/3kA, 40/85/56 | IEC 61051-1, IEC 61051-2, UL 1449 3rd, IEC 60950-1:2005 Annex Q. | VDE, UL |
| Alternative | Lien Shun Electronics Co Ltd | 14D471K 10D471K | Max continuous voltage: 300VAC, 6kV/3kA, 40/85/56 | IEC 61051-1, IEC 61051-2, UL 1449 3rd, | VDE, UL |
| Alternative | Guangxi New Future Information Industry Co Ltd | 14D471K 10D471K | Max continuous voltage: 300VAC, 6kV/3kA, 40/85/56 | IEC 61051-1, IEC 61051-2, UL 1449 3rd, IEC 60950-1:2005 Annex Q. | VDE, UL |
| Bridging-Capacitor (CY1, CY2) (optional) | TDK-EPC Corporation | CD | Max. 470 pF, Min. 250 V, 25/085/21, Y1 | IEC/EN 60384-14 UL 60384-14 | VDE, UL |
| Alternative | Success Electronics Co Ltd | SE, SB | Max. 470 pF, Min. 250 V, 30/125/56, Y1 | IEC/EN 60384-14 UL 60384-14 | VDE, UL |
| Alternative | Murata Mfg Co Ltd | KX | Max. 470 pF, Min. 250 V, 25/125/21, Y1 | IEC/EN 60384-14 UL 60384-14 | VDE, UL |
| Alternative | Walsin Technology Corp | AH | Max. 470 pF, Min. 250 V, 25/125/21, Y1 | IEC/EN 60384-14 UL 60384-14 | VDE, UL |

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|------------------|-------------------------|-----------------------------------|---|---|----------------|
| Clause | Requirement + Test | | Result - Remark | | Verdict |
| Alternative | JYA-NAY Co Ltd | JN | Max. 470 pF, Min. 250 V, 25/125/21, Y1 | IEC/EN 60384-14 UL 60384-14 | VDE, UL |
| Alternative | Haohua Electronic Co | CT7 | Max. 470 pF, Min. 250 V, 30/125/56, Y1 | IEC/EN 60384-14 UL 60384-14 | VDE, UL |
| Alternative | Hongzhi Enterprises Ltd | Y | Max. 470 pF, Min. 250 V, 25/085/21, Y1 | IEC/EN 60384-14 UL 60384-14 | VDE, UL |
| Alternative | Jerro Electronics Corp | JX-series | Max. 470 pF, Min. 250 V, 40/125/21, Y1 | IEC/EN 60384-14 UL 60384-14 | VDE, UL |
| Optocoupler (U2) | Lite-On | LTV-817 | Dti =0,6mm Ext. dcr=7,8mm, thermal cycling test, 100 °C | IEC/EN 60950-1 EN 60747-5-5 UL 1557 | VDE, UL, Fimko |
| Alternative | Everlight | EL817 | Dti=0,5mm Int. dcr=6,0mm Ext. dcr= 7,7mm, thermal cycling test, 110 °C | IEC/EN 60950-1 EN 60747-5-5 UL 1557 | VDE, UL, Fimko |
| Alternative | Bright Led | BPC-817 BPC-817 S BPC-817 M | Dti=0,4mm Ext. dcr=7,0mm, thermal cycling test, 100 °C | IEC/EN 60950-1 EN 60747-5-5 UL 1557 | VDE, UL, Semko |
| Alternative | Fairchild | FOD817B | Dti=0,6mm Ext. dcr=7,8mm, thermal cycling test, 115 °C | IEC/EN 60950-1 EN 60747-5-5 UL 1557 | VDE, UL, Fimko |

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|---|---|----------------|-----------------|--|--------------------------|
| Clause | Requirement + Test | | Result - Remark | | Verdict |
| Transformer (T1) | GLOBTEK BOAM HAOPUWEI | XF00868 2) | Class A | IEC 60950-1:2005 + A1 + A2 EN 60950-1: 2006 + A11 + A1 + A12+ A2 | Tested with appliance |
| Magnet wire | Pacific Electric Wire & Cable (Shenzhen) Co Ltd | UEWN/U | 130 °C | UL 1446 | UL |
| Alternative | JUNG SHING WIRE CO LTD | UEW-4 UEY-2 | 130 °C | UL 1446 | UL |
| Alternative | JIANGSU HONGLIU MAGNET WIRE TECHNOLOGY CO LTD | 2UEW/130 | 130 °C | UL 1446 | UL |
| Alternative | CHANGZHOU DAYANG WIRE & CABLE CO LTD | 2UEW/130 | 130 °C | UL 1446 | UL |
| Alternative | WUXI JUFENG COMPOUND LINE CO LTD | 2UEWB | 130 °C | UL 1446 | UL |
| Alternative | JIANGSU DARTONG M & E CO LTD | UEW | 130 °C | UL 1446 | UL |
| Alternative | SHANDONG SAINT ELECTRIC CO LTD | UEW/130 | 130 °C | UL 1446 | UL |
| Alternative | ZHEJIANG LANGLI ELECTRIC EQUIPMENTS CO LTD | UEW | 130 °C | UL 1446 | UL |
| Triple insulated wire (Secondary) | GREAT LEOFLON INDUSTRIAL CO LTD | TRW(B) | Min 130 °C | UL 1446 | UL |
| Alternative | COSMOLINK CO LTD | TIW-M | Min 130 °C | UL 1446 | UL |
| Alternative | FURUKAWA ELECTRIC CO LTD | TEX-E | Min 130 °C | UL 1446 | UL |
| Alternative | TOTOKU ELECTRIC CO LTD | TIW-2 | Min 130 °C | UL 1446 | UL |

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|---|---|---------------------|--|-----------------|---------|
| Clause | Requirement + Test | | | Result - Remark | Verdict |
| Bobbin | Chang Chun Plastics Co Ltd | T375J T375HF | Phenolic, V-0, min. thickness 0,45 mm, 150 °C | UL 94 | UL |
| Alternative | Sumitomo Bakelite Co Ltd | PM-9820 | Phenolic, V-0, min. thickness 0,45 mm, 150 °C | UL 94 | UL |
| Alternative | HITACHI CHEMICAL CO LTD | CP-J-8800 | Phenolic, V-0, min. thickness 0,45 mm, 150 °C | UL 94 | UL |
| Tape | 3M Company Electrical Markets DIV (EMD) | 1350F-1, 1350T-1 | Min 130 °C | UL 510 | UL |
| Alternative | Bondtec Pacific Co Ltd | 370S | Min 130 °C | UL 510 | UL |
| Alternative | JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD | PZ CT | Min 130 °C | UL 510 | UL |
| Alternative | JINGJIANG JINGYI ADHESIVE PRODUCT CO LTD | JY25-A | Min 130 °C | UL 510 | UL |
| Alternative | CHANG SHU LIANG YI TAPE INDUSTRY CO LTD | LY-XX | Min 130 °C | UL 510 | UL |
| Supplementary information: 1) Provided evidence ensures the agreed level of compliance. See OD-CB2039. 2) Transformers from all supply sources have the same construction. | | | | | |

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| Clause | Requirement + Test | Result - Remark | Verdict |

| | | |
|--|--------------------------------|---|
| 1.5.1 | TABLE: Opto Electronic Devices | P |
| Manufacturer : Lite-on / Everlight / Bright Led / Fairchild Type..... : LTV-817/ EL817 / BPC-817, PC-817 M, BPC-817 S / FOD817B Separately tested : Certified by VDE, Femko, Semko & UL Bridging insulation : Reinforced insulation External creepage distance..... : 7,8 / 7,7 / 7,0 / 7,8 Internal creepage distance : Compliance with thermal cycling test Distance through insulation..... : 0,6 / 0,5 / 0,4 / 0,6 Tested under the following conditions..... : Reinforced insulation | | |
| Input..... : -- | | |
| Output..... : -- | | |
| supplementary information | | |
| -- | | |

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| Clause | Requirement + Test | Result - Remark | Verdict |

| 1.6.2 | TABLE: Electrical data (in normal conditions) | | | | | | P |
|----------------------------------|--|------------------------|-------|--------|-----------------------|--------------------------|----------|
| U (V) | I (A) | I _{rated} (A) | P (W) | Fuse # | I _{fuse} (A) | Condition/status | |
| Test on GTM41078-0605-USB | | | | | | | |
| 90/50Hz | 0,144 | -- | 8,09 | FS1 | 0,144 | Loaded with 5 V / 1,2 A. | |
| 100/50Hz | 0,133 | 0,3 | 8,02 | FS1 | 0,133 | Loaded with 5 V / 1,2 A. | |
| 240/50Hz | 0,068 | 0,3 | 7,96 | FS1 | 0,068 | Loaded with 5 V / 1,2 A. | |
| 264/50Hz | 0,062 | -- | 7,94 | FS1 | 0,062 | Loaded with 5 V / 1,2 A. | |
| 90/60Hz | 0,152 | -- | 8,10 | FS1 | 0,152 | Loaded with 5 V / 1,2 A. | |
| 100/60Hz | 0,138 | 0,3 | 8,02 | FS1 | 0,138 | Loaded with 5 V / 1,2 A. | |
| 240/60Hz | 0,071 | 0,3 | 7,96 | FS1 | 0,071 | Loaded with 5 V / 1,2 A. | |
| 264/60Hz | 0,062 | -- | 7,94 | FS1 | 0,062 | Loaded with 5 V / 1,2 A. | |
| Supplementary information: | | | | | | | |

| 2.1.1.5 c) 1) | TABLE: max. V, A, VA test | | | | | P |
|--|----------------------------------|-----------------------|-----------------------|-------------------|--|----------|
| Voltage (rated) (V _{d.c.}) | Current (rated) (A) | Voltage (max.) (V) | Current (max.) (A) | VA (max.) (VA) | | |
| Test on GTM41078-0605-USB | | | | | | |
| 5 | 1,2 | 5,2 | 1,5 | 6,8 | | |
| supplementary information: | | | | | | |
| The above measurements are the maximum values (max. V and max. A not obtained at the same time). | | | | | | |

| 2.1.1.5 c) 2) | TABLE: stored energy | | | | | N/A |
|----------------------------|-----------------------------|--------------|--|--|--|------------|
| Capacitance C (μF) | Voltage U (V) | Energy E (J) | | | | |
| -- | -- | -- | | | | |
| supplementary information: | | | | | | |
| | | | | | | |

| | | | | |
|---|---|---|--------|-----------------------------|
| 2.2 | TABLE: evaluation of voltage limiting components in SELV circuits | | | P |
| Component (measured between) | | max. voltage (V) (normal operation) | | Voltage Limiting Components |
| | | V peak | V d.c. | |
| Test on GTM41078-0605-USB | | | | |
| T1 secondary winding | | 26 | -- | -- |
| Fault test performed on voltage limiting components | | Voltage measured (V) in SELV circuits (V peak or V d.c.) | | |

| IEC 60950-1 | | | |
|----------------------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | | | |
| | | | |
| supplementary information: | | | |
| -- | | | |

| 2.5 | TABLE: Limited power sources | | | | | P |
|--|----------------------------------|-------------|---------------------|-------|-------|-------|
| Circuit output tested: | | | | | | |
| Note: Measured Uoc (V) with all load circuits disconnected: | | | | | | |
| Components | Test condition (Single fault) | Uoc (Vd.c.) | I _{sc} (A) | | VA | |
| | | | Meas. | Limit | Meas. | Limit |
| GTM41078-0605-USB | | | | | | |
| Output | Normal condition | 5,2 | 1,5 | 8 | 6,8 | 100 |
| U2 secondary | Sc | 5,2 | 1,5 | 8 | 6,8 | 100 |
| RS14 | Sc | 1) | 1) | 1) | 1) | 1) |
| DS3 | Sc | 1) | 1) | 1) | 1) | 1) |
| DS1 | Sc | 1) | 1) | 1) | 1) | 1) |
| supplementary information: | | | | | | |
| 1) Unit shut down; 2) Oc= open circuit, Sc = short circuit. | | | | | | |

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| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | | |
|--|------------------------------------|-----------------|------------------|----------|
| 2.10.2 | Table: working voltage measurement | | | P |
| Location | | RMS voltage (V) | Peak voltage (V) | Comments |
| Test on GTM41078-0605-USB | | | | |
| T1 pin 1-A | 194 | 403 | -- | |
| T1 pin 1-B | 198 | 379 | -- | |
| T1 pin 2-A | 199 | 343 | -- | |
| T1 pin 2-B | 199 | 347 | -- | |
| T1 pin 3-A | 222 | 436 | -- | |
| T1 pin 3-B | 221 | 436 | -- | |
| T1 pin 4-A | 195 | 343 | -- | |
| T1 pin 4-B | 198 | 363 | -- | |
| Primary – secondary across bridging capacitors | 198 | 345 | -- | |
| U2 pin1-3 | 201 | 349 | -- | |
| U2 pin1-4 | 203 | 349 | -- | |
| U2 pin2-3 | 200 | 349 | -- | |
| U2 pin2-4 | 200 | 349 | -- | |
| supplementary information: | | | | |
| -- | | | | |

| | | | | | | | |
|--|--|--------------|--------------------------------|---------|------------------|---------|----------|
| 2.10.3 and 2.10.4 | TABLE: Clearance and creepage distance measurements | | | | | | P |
| Clearance (cl) and creepage distance (cr) at/of/between: | U peak (V) | U r.m.s. (V) | Required cl (mm) ¹⁾ | cl (mm) | Required cr (mm) | cr (mm) | |
| Functional: | | | | | | | |
| L trace → N trace Before Current Fuse (FS1) | 340 | 240 | 1,8 | 3,7 | 2,5 | 3,7 | |

| IEC 60950-1 | | | | | | |
|--|--------------------|-----|-----|-----------------|-----|---------|
| Clause | Requirement + Test | | | Result - Remark | | Verdict |
| Between fuse (FS1) | 340 | 240 | 1,8 | 3,1 | 2,5 | 3,1 |
| Basic/supplementary: | | | | | | |
| Between two pins of CY1 (basic) | 345 | 240 | 2,3 | 7,0 | 2,5 | 7,0 |
| Between two pins of CY2 (supplementary) | 345 | 240 | 2,3 | 3,0 | 2,5 | 3,0 |
| Reinforced: | | | | | | |
| Plug pin on the connector side to accessible part when the plug portion is plugged in the socket without the power supply body correctly attached. | 340 | 240 | 4,6 | 6,3 | 5,0 | 6,3 |
| Primary circuit to accessible enclosure | 436 | 240 | 4,8 | 5,2 | 5,0 | 5,2 |
| Primary circuit to secondary circuits (PCB trace under T1) | 436 | 240 | 4,8 | 5,3 | 5,0 | 5,3 |
| Primary circuit to secondary circuits (PCB trace under U2) | 349 | 240 | 4,6 | 5,6 | 5,0 | 5,6 |
| Supplementary information: 1) Multiplication factor 1.14 used for altitude 3000m. | | | | | | |

| 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) | |
| Plastic enclosure 1) | 436 | 240 | 3000Vac | 0,4 | Min 1,25 | |
| Tape in transformer (One layer for testing) 1) | 436 | 240 | 3000Vac | Min two layers | Min two layers | |
| Transformer bobbin | 436 | 240 | 3000Vac | 0,4 | Min 0,6 | |
| Photo coupler (U2) 1) | 349 | 240 | 3000Vac | 0,4 | 0,4 | |
| Supplementary information: 1) Tested for all types from all sources. | | | | | | |

| IEC 60950-1 | | | | | | | | | |
|---|----------------------------|---------------|-------------------------|------------------------|---------------|-----------------|---------------|-------------------|---------------|
| Clause | Requirement + Test | | | | | Result - Remark | | | Verdict |
| 4.3.8 | TABLE: Batteries | | | | | | | | N/A |
| The tests of 4.3.8 are applicable only when appropriate battery data is not available | | | | | | -- | | | N/A |
| Is it possible to install the battery in a reverse polarity position? | | | | | | -- | | | N/A |
| | Non-rechargeable batteries | | | Rechargeable batteries | | | | | |
| | Discharging | | Un-intentional charging | Charging | | Discharging | | Reversed charging | |
| | Meas. current | Manuf. Specs. | | Meas. current | Manuf. Specs. | Meas. current | Manuf. Specs. | Meas. current | Manuf. Specs. |
| Max. current during normal condition | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Max. current during fault condition | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | | | | | | | | |
| Test results: | | | | | | | | | Verdict |
| - Chemical leaks | | | | | | -- | | | -- |
| - Explosion of the battery | | | | | | -- | | | -- |
| - Emission of flame or expulsion of molten metal | | | | | | -- | | | -- |
| - Electric strength tests of equipment after completion of tests | | | | | | -- | | | -- |
| Supplementary information: | | | | | | | | | |

| IEC 60950-1 | | | |
|-------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

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

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

| IEC 60950-1 | | | |
|-------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | | | | | |
|---|--------------------------------------|--------------------|---------------------|--------------------|--------|----------------------------------|--|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V): | 90V/ 60Hz | 264V/ 50Hz | — | — | — | — |
| | Ambient T _{min} (°C): | 40 | 40 | — | — | — | — |
| | Ambient T _{max} (°C): | 40 | 40 | — | — | — | — |
| Maximum measured temperature T of part/at.....: | | T (°C) | | | | | Allowed T (°C) T _{ma} =40°C |
| Test on GTM41078-0605-USB | | | | | | | |
| Input plug holder (near blade) | | 60 | 63 | — | — | — | 70 |
| T1 winding | | 87 | 85 | — | — | — | 90 |
| T1 core | | 89 | 84 | — | — | — | 90 |
| C2 | | 77 | 67 | — | — | — | 105 |
| CY1 | | 72 | 68 | — | — | — | 85 |
| CY2 | | 72 | 68 | — | — | — | 85 |
| PCB | | 73 | 63 | — | — | — | 130 |
| U2 | | 67 | 65 | — | — | — | 100 |
| Internal enclosure | | 60 | 63 | — | — | — | -- |
| External enclosure | | 53 | 55 | — | — | — | 95 |
| USB terminal | | 55 | 52 | — | — | — | 95 |
| Supplementary information: For component with temperature marking, allowed T= Tmax + Tamb – Tma(Tma = 40 °C, Tamb= 40 °C) ; | | | | | | | |
| Temperature T of winding: | t ₁ (°C) | R ₁ (Ω) | t ₂ (°C) | R ₂ (Ω) | T (°C) | Allowed T _{max} (°C) | Insulation class |
| -- | -- | -- | -- | -- | -- | -- | -- |
| Supplementary information: | | | | | | | |

| | | | | |
|----------------------------|---|--------------------------|-----------------------------|----------|
| 4.5.5 | TABLE: Ball pressure test of thermoplastic parts | | | P |
| | Allowed impression diameter (mm) | ≤ 2 mm | | — |
| Part | | Test temperature (°C) | Impression diameter (mm) | |
| Plug holder, Type SE1X | | 125 | 1,4 | |
| Plug holder, Type C2950 | | 125 | 1,4 | |
| Plug holder, Type 945GG | | 125 | 1,4 | |
| Plug holder, Type CX7211 | | 125 | 1,4 | |
| Plug holder, Type EXCY0098 | | 125 | 1,3 | |

| IEC 60950-1 | | | |
|----------------------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| Plug holder, Type LN-1250P | | 125 | 1,3 |
| Plug holder, Type LN-1250G | | 125 | 1,4 |
| Plug holder, Type PA-765A | | 125 | 1,3 |
| Plug holder, Type PC-540 | | 125 | 1,3 |
| Supplementary information: | | | |

| 4.7 | TABLE: Resistance to fire | | | | | P |
|--|---------------------------|------------------|----------------|--------------------|----------|---|
| Part | Manufacturer of material | Type of material | Thickness (mm) | Flammability class | Evidence | |
| -- | -- | -- | -- | -- | -- | |
| Supplementary information: Refer to appended table 1.5.1. | | | | | | |

| 5.1 | TABLE: touch current measurement | | | P |
|-------------------------------|----------------------------------|------------|---------------------|---|
| Measured between: | Measured (mA) | Limit (mA) | Comments/conditions | |
| GTM41078-0605-USB | | | | |
| Plastic enclosure(foil) | 0,02 | 0,25 | Normal condition | |
| Output(-) | 0,01 | 0,25 | Normal condition | |
| supplementary information: | | | | |
| 1) supply with 264Va.c./60Hz; | | | | |

| IEC 60950-1 | | | | |
|---|--|--|---------------------|-----------------------|
| Clause | Requirement + Test | | Result - Remark | Verdict |
| 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 / N | | AC | 1500 | No |
| Basic | | | | |
| -- | | -- | -- | -- |
| Reinforced: | | | | |
| Tape of transformer | | AC | 3000 | No |
| Primary circuit to body (RI) | | AC | 3000 | No |
| Primary circuit to secondary circuit (RI) | | AC | 3000 | No |
| Primary winding to secondary winding of T1 (RI) | | AC | 3000 | No |
| Secondary winding to core (RI) | | AC | 3000 | No |
| Supplementary information: All testing Including after Humidity required of clause 2.9, there are including unit, transformer and all material of transformer, see appended tables 1.5.1 | | | | |

| 5.3 | TABLE: Fault condition tests | | | | | P |
|-----------------------------------|---|--------------------|------------------------------|--------|------------------|---|
| | Ambient temperature (°C) | | 25 °C, if not else specified | | — | |
| | Power source for EUT: Manufacturer, model/type, output rating | | -- | | — | |
| Component No. | Fault | Supply voltage (V) | Test time | Fuse # | Fuse current (A) | Observation |
| Test on GTM41078-0605-USB: | | | | | | |
| C5 | s-c | 264 | 30 min | FS1 | 0,02 | Unit shut down immediately. No damage, no hazard. |
| T1 secondary winding | s-c | 264 | 30 min | FS1 | 0,01 | Unit shut down immediately. No damage, no hazard. |
| U2 (1-2) | s-c | 264 | 30 min | FS1 | 0,062 | Normal operation. Max temperature on T1 winding 82,0°C, ambient 24.3°C. no damage, no hazard. |
| U2 (3-4) | s-c | 264 | 30 min | FS1 | 0,02 | Unit shut down immediately. No damage, no hazard. |

| IEC 60950-1 | | | | | | |
|---|--------------------|-----|---------|-----------------|-------|---|
| Clause | Requirement + Test | | | Result - Remark | | Verdict |
| DS3 | s-c | 264 | 30 min | FS1 | 0,01 | Unit shut down immediately. No damage, no hazard. |
| C1 | s-c | 264 | 1s | FS1 | -- | FS1 opened immediately, no hazard. RF. |
| DS2 | s-c | 264 | 30 min | FS1 | 0,02 | Unit shut down immediately. No damage, no hazard. |
| DS1 | s-c | 264 | 30 min | FS1 | 0,02 | Unit shut down immediately. No damage, no hazard. |
| T1 secondary winding | o-l | 90 | 180 min | FS1 | 0,189 | Loaded to 1,5A, max temperature on T1 winding 90,8°C, ambient 24.6°C. no damage, no hazard. |
| Supplementary information: 1) s-c: short circuit, o-c: open circuit, o-l: overload. 2) YC: Cheesecloth charred or flamed NT: Tissue paper remained intact RF: Repeat all fuse result were the same. YT: Tissue paper charred or flamed IP: Internal protection operated (list component) I/P: Input current IP: Internal protection operated (list component) | | | | | | |

| IEC 60950-1 | | | |
|-------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| C.2 | | TABLE: transformers | | | | | | P |
|---|---------------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|---|--|---|
| 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 | Reinforced: Primary to secondary | 436 | 240 | 3000 Va.c. | 4,8 | 5,0 | 0,4 / 2 layers / Annex U | |
| T1 | Reinforced: Secondary winding to core | 436 | 240 | 3000 Va.c. | 4,8 | 5,0 | 0,4 / 2 layers / Annex U | |
| Loc. | Tested insulation | | | Test voltage/ V | Measured clearance / mm | Measured creepage dist./ mm | Measured distance thr. insul. / mm; number of layers | |
| T1 | Reinforced: Primary to secondary | | | 3000 Va.c. | 8,9 | 8,9 | TIW | |
| T1 | Reinforced: Secondary winding to core | | | 3000 Va.c. | 8,9 | 8,9 | TIW | |
| supplementary information: | | | | | | | | |
| All testing Including after Humidity required of clause 2.9, there are including unit, transformer and all material of transformer, see appended tables 1.5.1 | | | | | | | | |

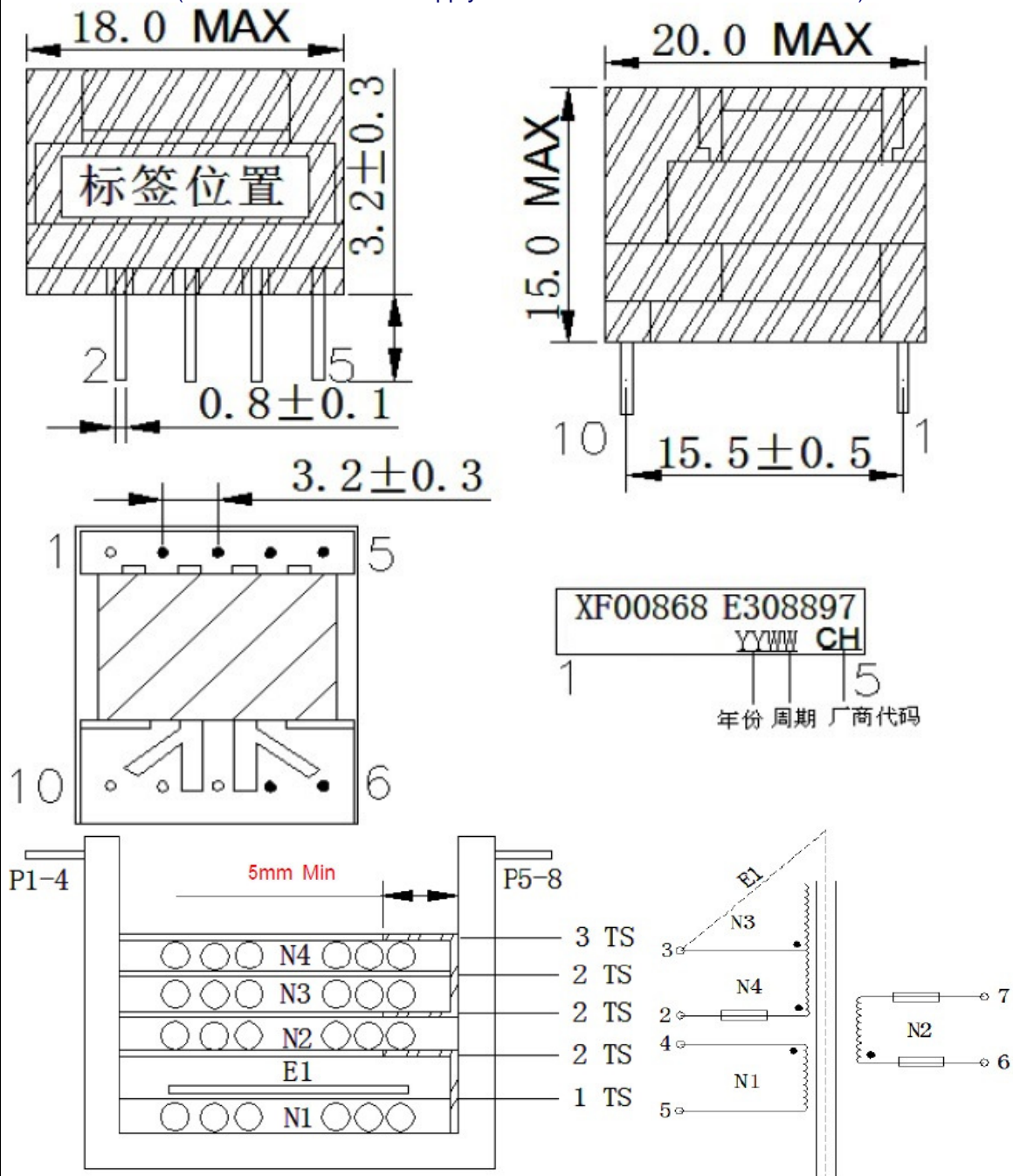
IEC 60950-1

| Clause | Requirement + Test | Result - Remark | Verdict |
|--------|--------------------|-----------------|---------|
|--------|--------------------|-----------------|---------|

C.2 TABLE: transformers

P

Transformer T1 (Transformers from all supply sources have the same construction)



*****End of Test report*****

Attachment 1 Photo documentation

Whole unit



Side view



Attachment 1 Photo documentation

Side view



Plug disassembled



Attachment 1 Photo documentation

Illustration of EN50075 plug

.....



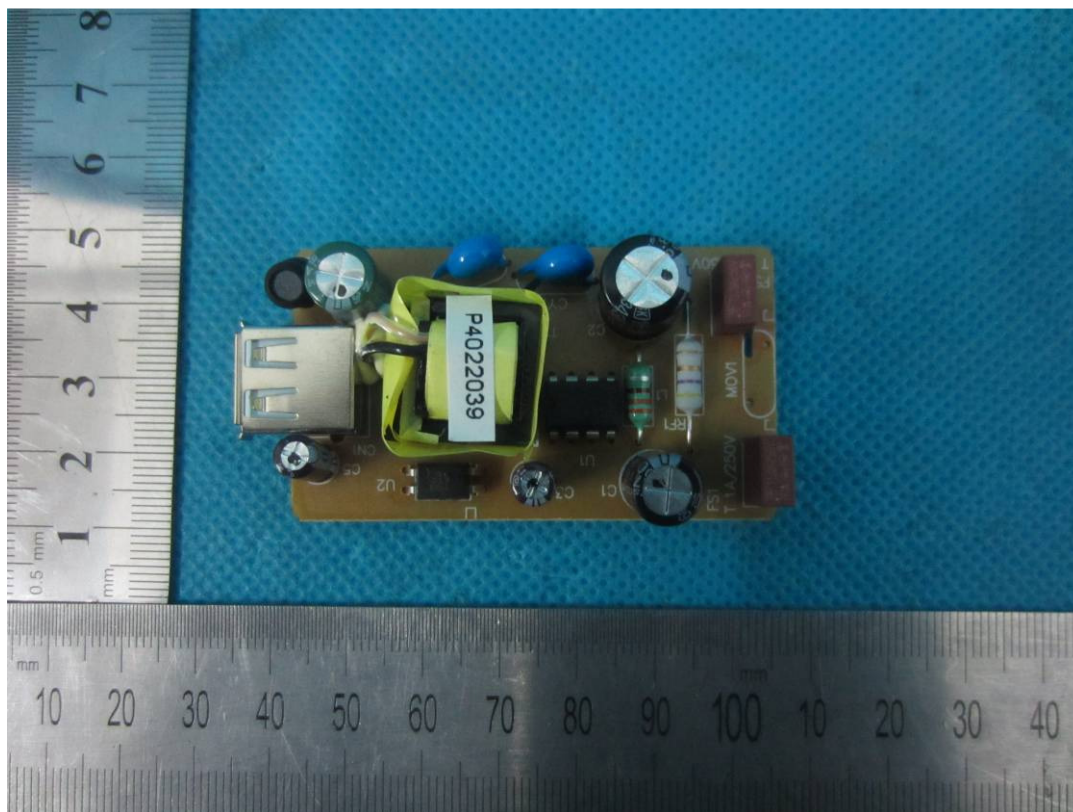
Internal view

.....




Attachment 1 Photo documentation

PCB assembly



PCB assembly

*****End of Attachment 1*****

| | | | | | |
|----------------|---------|----------|---|-------------------------|------------------------------|
| DESIGN | CHECKED | APPROVED |  | TITLE: | DATE |
| dlb xiao | sq chen | sq chen | | UNITS SCALE | DRAWING NO. 3A-06DW05-B01 |
| GlobeTek, Inc. | | | | DRAWING NAME: 061830 | REVISION: 01 |

| IEC60950_1E - ATTACHMENT | | | |
|--------------------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

Attachment 3 Deviation of EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES

| ATTACHMENT TO TEST REPORT IEC 60950-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES Information technology equipment – Safety – Part 1: General requirements | |
|---|---|
| Differences according to.....: | EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013 |
| Attachment Form No.....: | EU_GD_IEC60950_1E |
| Attachment Originator | SGS Fimko Ltd |
| Master Attachment.....: | Date 2013-09 |
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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 4.7.3.1 Note 2 5.1.7.1 Note 3 & 4 5.3.7 Note 1 6 Note 2 & 5 6.1.2.1 Note 2 6.1.2.2 Note 6.2.2 Note 6.2.2.1 Note 2 6.2.2.2 Note 7.1 Note 3 7.2 Note 7.3 Note 1 & 2 G.2.1 Note 2 Annex H Note 2 | | 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_1E - ATTACHMENT | | | |
|--------------------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

Attachment 3 Deviation of EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES

| 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) | Replace the text of NOTE 3 by the following. NOTE 3 The requirements of EN 60065 may also be used to meet safety requirements for multimedia equipment. See IEC Guide 112, Guide on the safety of multimedia equipment. For television sets EN 60065 applies. | | P |
| 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 headphone and earphone. | 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 * | | P |
| 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. | No headphone and earphone. | 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_1E - ATTACHMENT | | | |
|--------------------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

Attachment 3 Deviation of EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES

| IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN) | | | |
|--|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | <p>Zx Protection against excessive sound pressure from personal music players</p> | | N/A |
| | <p>Zx.1 General</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"> – is designed to allow the user to listen to recorded or broadcast sound or video; and – primarily uses headphones or earphones that can be worn in or on or around the ears; and – allows the user to walk around while in use. <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"> – while the personal music player is connected to an external amplifier; or – while the headphones or earphones are not used. <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"> – hearing aid equipment and professional equipment; <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_1E - ATTACHMENT | | | |
|--------------------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

Attachment 3 Deviation of EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES

| 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>Zx.2 Equipment requirements</p> <p>No safety provision is required for equipment that complies with the following:</p> <p>– equipment provided as a package (personal music player with its listening device), where the acoustic output $L_{Aeq,T}$ is ≤ 85 dBA measured while playing the fixed “programme simulation noise” as described in EN 50332-1; and</p> <p>– a personal music player provided with an analogue electrical output socket for a listening device, where the electrical output is ≤ 27 mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise” as described in EN 50332-1.</p> <p>NOTE 1 Wherever the term acoustic output is used in this clause, the 30 s A-weighted equivalent sound pressure level $L_{Aeq,T}$ is meant. See also Zx.5 and Annex Zx.</p> <p>All other equipment shall:</p> <p>a) protect the user from unintentional acoustic outputs exceeding those mentioned above; and</p> <p>b) have a standard acoustic output level not exceeding those mentioned above, and automatically return to an output level not exceeding those mentioned above when the power is switched off; and</p> | | N/A |


| IEC60950_1E - ATTACHMENT | | | |
|--------------------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

Attachment 3 Deviation of EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES

| 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> <p>1) equipment provided as a package (player with its listening device), the acoustic output shall be ≤ 100 dBA measured while playing the fixed "programme simulation noise" described in EN 50332-1; and</p> <p>2) a personal music player provided with an analogue electrical output socket for a listening device, the electrical output shall be ≤ 150 mV measured as described in EN 50332-2, while playing the fixed "programme simulation noise" described in EN 50332-1.</p> <p>For music where the average sound pressure (long term $L_{Aeq,T}$) measured over the duration of the song is lower than the average produced by the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA. In this case T becomes the duration of the song.</p> <p>NOTE 4 Classical music typically has an average sound pressure (long term $L_{Aeq,T}$) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the song and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA.</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 |

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| IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN) | | | |
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| Clause | Requirement + Test | Result - Remark | Verdict |
| | <p>Zx.3 Warning</p> <p>The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following:</p> <ul style="list-style-type: none"> – the symbol of Figure 1 with a minimum height of 5 mm; and – the following wording, or similar: <p>“To prevent possible hearing damage, do not listen at high volume levels for long periods.”</p>  <p>Figure 1 – Warning label (IEC 60417-6044)</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 |
| | Zx.4 Requirements for listening devices (headphones and earphones) | | N/A |
| | <p>Zx.4.1 Wired listening devices with analogue input</p> <p>With 94 dBA sound pressure output $L_{Aeq,T}$, the input voltage of the fixed “programme simulation noise” described in EN 50332-2 shall be ≥ 75 mV.</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 |

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| Clause | Requirement + Test | Result - Remark | Verdict |

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| IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN) | | | |
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| Clause | Requirement + Test | Result - Remark | Verdict |
| | <p>Zx.4.2 Wired listening devices with digital input</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 $L_{Aeq,T}$ of the listening device shall be ≤ 100 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>Zx.4.3 Wireless listening devices</p> <p>In wireless mode:</p> <ul style="list-style-type: none"> – with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and – respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and – with volume and sound settings in the listening device (for example built-in volume level control, additional sound feature like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the abovementioned programme simulation noise, the acoustic output $L_{Aeq,T}$ of the listening device shall be ≤ 100 dBA. <p>NOTE An example of a wireless listening device is a Bluetooth headphone.</p> | | N/A |
| | <p>Zx.5 Measurement methods</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 |

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| IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN) | | | | | | | | | |
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| 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>The equipment is provided with a fuse and complies with a).</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 | <p>This subclause has been declared 'void'.</p> | | — | | | | | | |
| 3.2.3 | <p>Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.</p> | <p>Not permanently connected equipment.</p> | 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><tr><td>Up to and including 6 </td><td>0,75 ^{a)} </td></tr><tr><td>Over 6 up to and including 10 </td><td>(0,75) ^{b)} 1,0 </td></tr><tr><td>Over 10 up to and including 16 </td><td>(1,0) ^{c)} 1,5 </td></tr></table> <p>In the conditions applicable to Table 3B delete the words “in some countries” in condition ^{a)}.</p> <p>In NOTE 1, applicable to Table 3B, delete the second sentence.</p> | Up to and including 6 | 0,75 ^{a)} | Over 6 up to and including 10 | (0,75) ^{b)} 1,0 | Over 10 up to and including 16 | (1,0) ^{c)} 1,5 | <p>No power supply cord provided.</p> | N/A |
| Up to and including 6 | 0,75 ^{a)} | | | | | | | | |
| Over 6 up to and including 10 | (0,75) ^{b)} 1,0 | | | | | | | | |
| Over 10 up to and including 16 | (1,0) ^{c)} 1,5 | | | | | | | | |

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| Clause | Requirement + Test | Result - Remark | Verdict |

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| IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN) | | | |
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| 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. | No ionizing radiation. | N/A |
| Bibliography | Additional EN standards. | | — |

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| ZA | NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS | — |
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| ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN) | | | |
|--|--|--|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 1.2.4.1 | In Denmark , certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets. | Class II. | N/A |
| 1.2.13.14 (A11:2009) | In Norway and Sweden , for requirements see 1.7.2.1 and 7.3 of this annex. | Not intended to be connected to cable distribution system. | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 1.5.7.1 (A11:2009) | In Finland, Norway and Sweden , resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2. | Class II. | N/A |
| 1.5.8 | In Norway , due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V). | Class II. | N/A |
| 1.5.9.4 | In Finland, Norway and Sweden , the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex. | No TNV circuit. | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 1.7.2.1 | <p>In Finland, Norway and Sweden, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet.</p> <p>The marking text in the applicable countries shall be as follows:</p> <p>In Finland: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan"</p> <p>In Norway: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In Sweden: "Apparaten skall anslutas till jordat uttag"</p> | Class II. | N/A |
| 1.7.2.1 (A11:2009) | <p>In Norway and Sweden, the screen of the cable distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation need to be isolated from the screen of a cable distribution system.</p> <p>It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by e.g. a retailer.</p> <p>The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in:</p> <p>"Equipment connected to the protective earthing of the building installation through the mains connection or through other equipment with a connection to protective earthing – and to a cable distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a cable distribution system has therefore to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)."</p> | | |

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| 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):</p> <p>“Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel- TV nettet.”</p> <p>Translation to Swedish:</p> <p>”Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet.”</p> | | N/A |
| 1.7.2.1 (A2:2013) | <p>In Denmark, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet.</p> <p>The marking text in Denmark shall be as follows: In Denmark: “Apparatets stikprop skal tilsluttes en stikkontakt med jord, som giver forbindelse til stikproppens jord.”</p> | Class II. | N/A |
| 1.7.5 1.7.5 (A11:2009) | <p>In Denmark, socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a.</p> <p>For CLASS II EQUIPMENT the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.</p> | | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 1.7.5 (A2:2013) | <p>In Denmark, 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 Norway , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex. | | N/A |
| 2.3.2 | In Finland, Norway and Sweden there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex. | No TNV circuit. | N/A |
| 2.3.4 | In Norway , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex. | No TNV circuit. | N/A |
| 2.6.3.3 | In the United Kingdom , the current rating of the circuit shall be taken as 13 A, not 16 A. | | P |
| 2.7.1 | In the United Kingdom , to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met. | Direct plug-in equipment. | P |
| 2.10.5.13 | In Finland, Norway and Sweden , there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex. | No TNV circuit. | N/A |
| 3.2.1.1 | <p>In Switzerland, supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets:</p> <p>SEV 6532-2.1991 Plug Type 15 3P+N+PE 250/400 V, 10 A</p> | Direct plug-in equipment with EN 50075 plug. | P |

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

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 3.2.1.1 (A2:2013) | <p>In Denmark, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to 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> | Direct plug-in equipment with EN 50075 plug. | P |
| 3.2.1.1 | <p>In Spain, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994.</p> <p>Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994.</p> <p>If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.</p> | Direct plug-in equipment with EN 50075 plug. | P |
| 3.2.1.1 | <p>In the United Kingdom, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations.</p> <p>NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p> | Direct plug-in equipment with UK plug. | P |

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| Clause | Requirement + Test | Result - Remark | Verdict |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 3.2.1.1 | In Ireland , apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997. | Direct plug-in equipment with EN 50075 plug. | P |
| 3.2.4 | In Switzerland , for requirements see 3.2.1.1 of this annex. | | N/A |
| 3.2.5.1 | In the United Kingdom , a power supply cord with conductor of 1,25 mm ² is allowed for equipment with a rated current over 10 A and up to and including 13 A. | | N/A |
| 3.3.4 | In the United Kingdom , the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is: • 1,25 mm ² to 1,5 mm ² nominal cross-sectional area. | | N/A |
| 4.3.6 | In the United Kingdom , the torque test is performed using a socket outlet complying with BS 1363 part 1:1995, including Amendment 1:1997 and Amendment 2:2003 and the plug part of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply. | Direct plug-in equipment. | P |
| 4.3.6 | In Ireland , DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997. | Direct plug-in equipment with EN 50075 plug. | P |

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

| IEC60950_1E - ATTACHMENT | | | |
|--------------------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

Attachment 3 Deviation of EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES

| ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN) | | | |
|--|--|--|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | <p>It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b).</p> <p>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 60384-14: - the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14. | No TNV circuit. | N/A |
| 6.1.2.2 | <p>In Finland, Norway and Sweden, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.</p> | No TNV circuit. | N/A |
| 7.2 | <p>In Finland, Norway and Sweden, 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> | Not intended to be connected to cable distribution system. | N/A |
| 7.3 (A11:2009) | <p>In Norway and Sweden, for requirements see 1.2.13.14 and 1.7.2.1 of this annex.</p> | Not intended to be connected to cable distribution system. | N/A |

| IEC60950_1E - ATTACHMENT | | | |
|--------------------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

Attachment 3 Deviation of EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES
Annex ZD
(informative)

IEC and CENELEC code designations for flexible cords

| Type of flexible cord | Code designations | |
|--|-------------------|----------------------|
| | IEC | CENELEC |
| PVC insulated cords | | |
| 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 |
| Rubber insulated cords | | |
| 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 |
| Cords having high flexibility | | |
| 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 4*****