




Test Report issued under the responsibility of:



| TEST REPORT | |
|--|---|
| IEC 60950-1: 2005 (2nd Edition) | |
| Information technology equipment – Safety – | |
| Part 1: General requirements | |
| Report Reference No. | T223-0127/13 |
| Date of issue | 2013-04-12 |
| Total number of pages | 172 pages |
| CB Testing Laboratory | SIQ – Slovenian Institute of Quality and Metrology Testing Laboratory is accredited by Slovenian Accreditation, Reg. No.: LP-009 |
| Address | Tržaška cesta 2, 1000 Ljubljana, Slovenia |
| Applicant's name | GlobTek, Inc. |
| Address | 186 Veterans Drive Northvale, NJ 07647, USA |
| Manufacturer's name | GlobTek, Inc. |
| Address | 186 Veterans Drive Northvale, NJ 07647, USA |
| Test specification: | |
| Standard | IEC 60950-1:2005 (Second Edition), Am 1: 2009 EN 60950-1:2006 + Am 1:2010 + Am 11:2009 + Am 12:2011 |
| Test procedure | CB Scheme |
| Non-standard test method | N/A |
| Test Report Form No. | IEC60950_1C |
| Test Report Form(s) Originator | SGS Fimko Ltd |
| Master TRF | Dated 2012-08 |
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| 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. | |
| Test item description | Switch Mode Power Supply Unit for Building-in |
| Trade Mark |  GlobTek, Inc. |
| Manufacturer | GlobTek, Inc. |


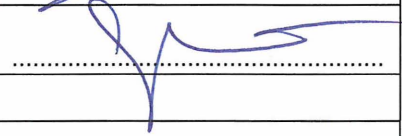
| | |
|----------------------------|---|
| Model/Type reference | : GTM2065yyzz-X.X-F; GTM2065yyzz-X.X-FA “M” could be M or – for market identification, non safety relevant information “yy” means output power in Watts “zz” means output voltage in Volts -X.X is optional and denotes voltage differentiator X.X from rated voltage See next page for details. |
| Ratings | : Input: 100-240 V~; 50-60 Hz; 1,5 A max. (for 65W output models) Input: 100-240 V~; 50-60 Hz; 2,5 A max. (for 80W output models) Output: See next page |

Standard 65 W output models (without air flow):

| Model name | Output voltage (Vdc) | Output current (A) |
|-----------------|----------------------|--------------------|
| GTM2065-333.3-F | 3,3 Vdc | 9,70 A |
| GTM2065-4005-F | 5,0 Vdc | 8,00 A |
| GTM2065-657.5-F | 7,5 Vdc | 8,67 A |
| GTM2065-6509-F | 9,0 Vdc | 7,22 A |
| GTM2065-6512-F | 12,0 Vdc | 5,42 A |
| GTM2065-6515-F | 15,0 Vdc | 4,33 A |
| GTM2065-6518-F | 18,0 Vdc | 3,61 A |
| GTM2065-6524-F | 24,0 Vdc | 2,71 A |
| GTM2065-6536-F | 36,0 Vdc | 1,80 A |
| GTM2065-6548-F | 48,0 Vdc | 1,36 A |

Standard 80 W output models (with 10 CFM air flow):

| Model name | Output voltage (Vdc) | Output current (A) |
|------------------|----------------------|--------------------|
| GTM2065-553.3-FA | 3,3 Vdc | 16,67 A |
| GTM2065-5505-FA | 5,0 Vdc | 11,00 A |
| GTM2065-707.5-FA | 7,5 Vdc | 9,33 A |
| GTM2065-8009-FA | 9,0 Vdc | 8,89 A |
| GTM2065-8012-FA | 12,0 Vdc | 6,67 A |
| GTM2065-8015-FA | 15,0 Vdc | 5,33 A |
| GTM2065-8018-FA | 18,0 Vdc | 4,44 A |
| GTM2065-8024-FA | 24,0 Vdc | 3,33 A |
| GTM2065-8036-FA | 36,0 Vdc | 2,22 A |
| GTM2065-8048-FA | 48,0 Vdc | 1,67 A |

| | | |
|---|--|--|
| Testing procedure and testing location: | | |
| <input checked="" type="checkbox"/> CB Testing Laboratory: | SIQ – Slovenian Institute of Quality and Metrology | |
| Testing location/ address | Tržaška cesta 2, 1000 Ljubljana, Slovenia | |
| <input type="checkbox"/> Associated CB Laboratory: | | |
| Testing location/ address | | |
| Tested by (name + signature).....: | Luka Košir |  |
| Approved by (name + signature) ..: | Boštjan Glavič |  |
| <input type="checkbox"/> Testing procedure: TMP | | |
| Testing location/ address | | |
| Tested by (name + signature).....: | | |
| Approved by (name + signature) ..: | | |
| <input type="checkbox"/> Testing procedure: WMT | | |
| Testing location/ address | | |
| Tested by (name + signature).....: | | |
| Witnessed by (+ signature).....: | | |
| Approved by (+ signature) | | |
| <input type="checkbox"/> Testing procedure: SMT | | |
| Testing location/ address | | |
| Tested by (name + signature).....: | | |
| Approved by (name + signature) ..: | | |
| Supervised by (name + signature): | | |
| <input type="checkbox"/> Testing procedure: RMT | | |
| Testing location/ address | | |
| Tested by (name + signature).....: | | |
| Approved by (name + signature) ..: | | |
| Supervised by (name + signature): | | |

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

1. Test Report
2. National Differences – Enclosure No. 1
3. European Group Differences and National Differences according to EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011 – Enclosure No. 1a
4. Pictures – Enclosure No. 2
5. Schematics, Layouts, Transformer data - Enclosure No. 3

Summary of testing:
Tests performed (name of test and test clause):

See page 7.

Testing location:

SIQ Ljubljana, Tržaška c. 2, SI-1000 Ljubljana, Slovenia

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

Argentina**, Australia, Austria**, Belarus**, Belgium**, Brazil**, Bulgaria**, Canada, China, Croatia**, Czech Republic**, Denmark, Finland, France**, Germany, Greece**, Hungary**, India**, Indonesia**, Ireland, Israel, Italy**, Japan*, Kenya**, Korea, Malaysia**, Mexico**, Netherlands**, New Zealand*, Norway, Poland**, Portugal**, Romania**, Russian Federation**, Saudi Arabia**, Serbia**, Singapore**, Slovakia**, Slovenia**, South Africa**, Spain, Sweden, Switzerland, Thailand**, Turkey**, Ukraine**, United Arab Emirates**, United Kingdom, Uruguay**, USA

* No national differences to IEC 60950-1:2005 (2nd edition) declared

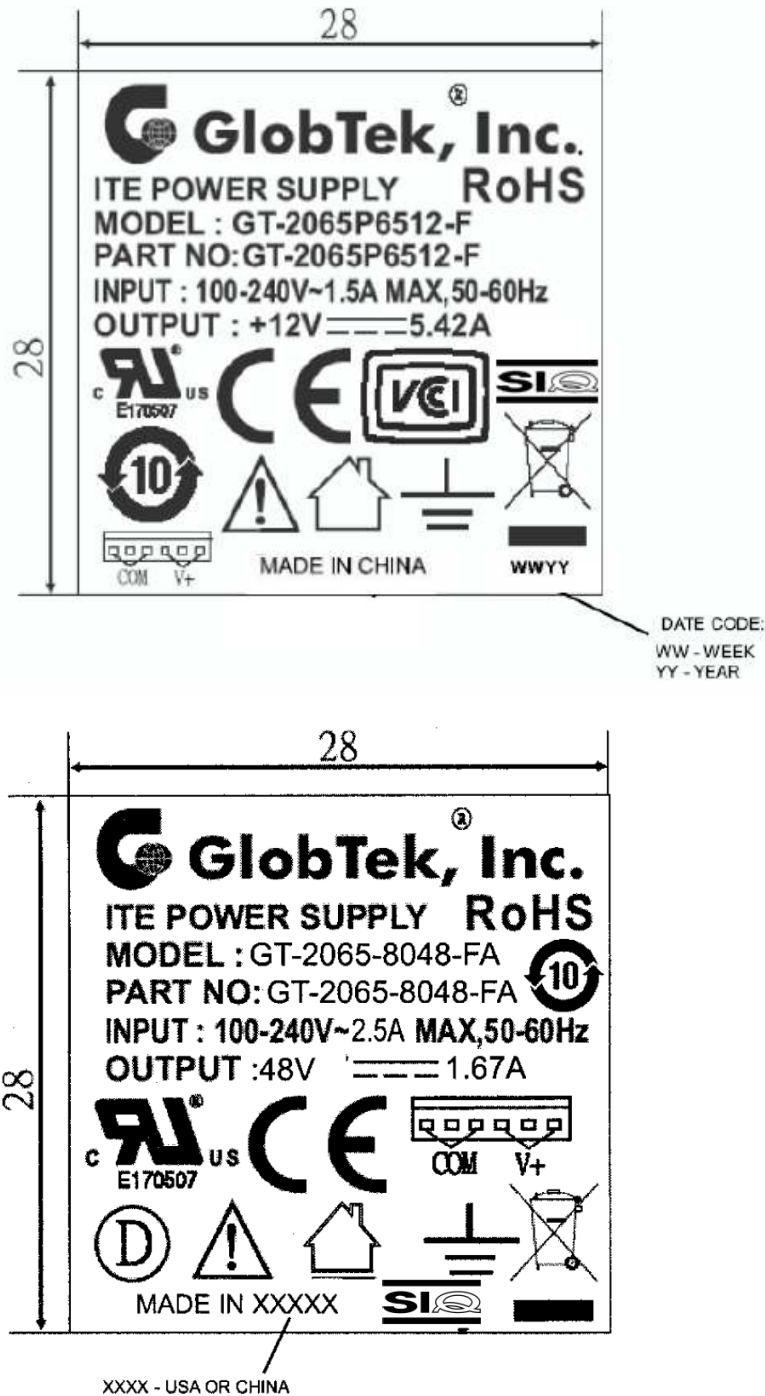
** No national differences to IEC 60950-1:2005 (2nd edition) + A1 or IEC 60950-1:2001 (1st edition) declared

☒ The product fulfils the requirements of EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011 (see Enclosure No. 1a).

Copy of marking plate

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

(Additional requirements for markings. See 1.7 NOTE)



| Overview of the testing done (P = Test passed, N/A test not applicable) | | |
|---|---|----------------|
| Clause | Test | Test Conducted |
| 1.6.2 | Input Test | P |
| 1.7.11 | Durability | P |
| 2.1.1.5 | Energy Hazard Measurements | P |
| 2.1.1.7 | Capacitance Discharge Test | P |
| 2.1.1.8 | Energy hazards – d.c. mains supplies | N/A |
| 2.2.2 | SELV: Hazard Voltage (Circuit) Measurement Test | P |
| 2.2.3 | SELV Reliability testing | P |
| 2.4 | Limited Current Circuit (Bridging components) | P |
| 2.5 | Limited Power Source | P |
| 2.6 | Earthing Test, earth trace test (UL PAG) | N/A |
| 2.9.2 | Humidity Test | P |
| 2.10.2 | Working Voltage measurement on PCB and Transformer | P |
| 2.10.3/2.10.4 | Clearance and Creepage distance measurement | P |
| 2.10.5 | Distance Through Insulation measurement | P |
| 2.10.5.6 | Thin Sheet Material (barriers) | P |
| 2.10.12 | Enclosed and Sealed parts | N/A |
| 4.2.2-4.2.4 | Steady force test, 10N, 30 N, 250 N | P |
| 4.2.5 | Impact test, Fall test, Swing test | N/A |
| 4.2.6 | Drop test | N/A |
| 4.2.7 | Stress relief test; heat test (°C/7 h) | N/A |
| 4.2.10 | Wall or ceiling mounted equipment | N/A |
| 4.3.2 | Handle Test (with USA Deviation) | N/A |
| 4.3.6 | Torque Test for direct plug in Products. Dimensions of the plugs | N/A |
| 4.5.2 | Heating (Temperature) Test | P |
| 4.5.5 | Resistance to abnormal heat (Ball pressure test) | P |
| 5.1 | Touch Current and protective conductor current | P |
| 5.2 | Electric Strength Test | P |
| 5.3 | Abnormal Operating Tests foreseeable misuse: SELV reliability and failure in the voltage regulation Functional insulation, Component faults Overload and short at the outputs | P |

| | |
|---|--|
| Test item particulars: | |
| Equipment mobility.....: | <input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> stationary <input checked="" type="checkbox"/> for building-in <input type="checkbox"/> direct plug-in |
| Connection to the mains | <input type="checkbox"/> pluggable equipment <input type="checkbox"/> type A <input type="checkbox"/> type B <input type="checkbox"/> permanent connection <input type="checkbox"/> detachable power supply cord <input type="checkbox"/> non-detachable power supply cord <input checked="" type="checkbox"/> not directly connected to the mains |
| Operating condition | <input checked="" type="checkbox"/> continuous <input type="checkbox"/> rated operating / resting time: |
| Access location | <input type="checkbox"/> operator accessible <input type="checkbox"/> restricted access location <input checked="" type="checkbox"/> service access area |
| 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% |
| Tested for IT power systems | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| IT testing, phase-phase voltage (V) | / |
| Class of equipment | <input checked="" type="checkbox"/> Class I <input 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) | 16A (20A for north America) |
| Pollution degree (PD) | <input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3 |
| IP protection class | IPX0 |
| Altitude during operation (m) | 2000 |
| Altitude of test laboratory (m) | 300 |
| Mass of equipment (kg) | Approx. 0,23 |
| 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 | 2010-02-01, 2011-07-04, 2011-09-09, 2012-02-09, 2012-09-11 |
| Date(s) of performance of tests | From 2011-09-09 to 2012-10-10 (for IEC 60601-1: 2005 evaluation) From 2013-03-18 to 2013-03-28 (additional tests performed for IEC/EN 60950-1:2005 evaluation) |

General remarks:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.
"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Throughout this report a ☒ comma / ☐ point is used as the decimal separator.

Manufacturer's Declaration per sub-clause 6.2.5 of IEC 60335-1:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided : ☒ Yes ☐ Not applicable

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

Name and address of factory (ies).....: 1) GlobTek, Inc.
186 Veterans Drive Northvale, NJ 07647, USA
2) Globtek (Suzhou) Co., Ltd.
Building 4, No. 76, Jinling East Road, Suzhou Industrial Park, Jiangsu 215021, China

General product information:
Information about the Product:

The power supply GTM2065 series is a switch mode power supply for building-in.
M can be "M" or "-", non safety relevant information.

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 |

Indicate used abbreviations (if any)

Summary of testing:

The component was tested according to the standard IEC 60950-1:2005 (2nd Edition) +A1:2009 and/or EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011.

Additionally the component was also evaluated according to the standards CSA C22.2 No. 60950-1:2007 + A1:2011 and UL60950-1:2007 (2nd Edition) + A1:2011 and fulfils the requirements of these standards.

1. The products were tested to be suitable for connection to 16A or 20A branch circuit. The unit is approved for TN mains star connections. The unit provides internally one fuse F1 in line or two fuses F1 & F2 (one in line and one in neutral)
2. All secondary output circuits are separated from mains by reinforced insulation and rated SELV non hazardous energy levels.
3. Disconnect device is end product consideration.
4. Safety Instructions: Built in product, safety instructions are end product considerations
5. The power supply is rated class I. The power supply shall be properly bonded to the main protective bonding termination in the end product. The earth leakage current is below 3,5 mA. An investigation of the protective bonding has been conducted. Power supply unit can be provided with or without protective earth:
 - With protective earth: PE conductor provided between J7A and J7B. Functionally isolated metal shield provided on bottom side of the power supply unit. Power supply unit is classified as safety Class I.
 - Without protective earth: No PE conductor, no metal shield provided. Capacitors CY1, CY2, CY5, CY6, CY7 and CY8 removed from PCB. Power supply unit complies with Class II construction. Safety Class is end product consideration.
6. The transformers T1 provide reinforced insulation. These transformers are built up to fulfil the requirement of insulation class B (see also list of safety critical components).
7. The equipment has been evaluated for use in a Pollution Degree 2 and overvoltage category II environment and a maximum altitude of 2000 m.
8. A suitable Electrical and Fire enclosure shall be provided in the end equipment.
9. The power supply is intended for operating at ambient temperature up to 45°C (for models without air flow) or 50°C (for models with 10 CFM air flow). Unit was cooled with fan (airflow 10 CFM), placed on the transformer T1 side of the power supply, so the direction of the airflow was towards the transformer T1.
10. Approval within the end product: Leakage current measurement should be verified with the unit built into the end product.

Information for Production testing to be done by the manufacturer:

/

Factory Tests:

The equipment at the conclusion of manufacture, before shipment, is subject to the following production line testing:

(Warning: The factory test(s) specified may present a hazard of injury to personnel and/or property and should only be performed by persons knowledgeable of such hazards and under conditions designed to minimize the possibility of injury.)

Production-line Dielectric Voltage-Withstand Test (CI 5.2): The equipment at the conclusion of manufacture, before shipment, shall withstand for one sec, without breakdown, the application of 1500Vac or 2121Vdc between live parts and exposed non-current-carrying metal parts.

- Production-Line Earthing-Continuity Test Ref (CI 2.6.3.4): Each unit that has a protective earthing connection / conductor shall be tested, as a routine production-line test, to determine that earthing continuity is provided between the protective earthing connection / conductor and the accessible dead metal parts of the unit that are likely to become energized. Any indicating device (an ohmmeter, a battery and buzzer combination or the like) can be used to determine compliance. Only a single test need be made if the accessible metal selected is conductively connected to all other accessible metal.

Additional information for the follow up engineer:


/

| IEC 60950-1/Am1 | | | |
|-----------------|--|--|------------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 1 | GENERAL | | P |
| 1.5 | Components | | P |
| 1.5.1 | General | | P |
| | Comply with IEC 60950-1 or relevant component standard | (see appended table 1.5.1) | P |
| 1.5.2 | Evaluation and testing of components | <p>Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of this standard.</p> <p>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.</p> <p>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> | P |
| 1.5.3 | Thermal controls | No thermal controls. | N/A |
| 1.5.4 | Transformers | (see list of safety critical components table 1.5.1 and the transformer drawings in the Enclosure No. 3) | P |
| 1.5.5 | Interconnecting cables | No interconnecting cables. | N/A |
| 1.5.6 | Capacitors bridging insulation | <p>Reinforced insulation is bridged by capacitors CY3 and CY4. Circuit complies with 2.4; capacitor complies with IEC60384-14 2nd ed., class Y1.</p> <p>Certified capacitors X1 or X2 acc. IEC 60384-14 are used Line to Neutral, certified Y1 or Y2 capacitors acc. IEC 60384-14 are used primary to PE.</p> | P |
| 1.5.7 | Resistors bridging insulation | | N/A |
| 1.5.7.1 | Resistors bridging functional, basic or supplementary insulation | Only functional insulation bridged by resistor.No special precaution required. | N/A |
| 1.5.7.2 | Resistors bridging double or reinforced insulation between a.c. mains and other circuits | | N/A |

| IEC 60950-1/Am1 | | | |
|-----------------|--|--|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 1.5.7.3 | Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable | No such resistors are bridging double/reinforced insulation. | N/A |
| 1.5.8 | Components in equipment for IT power systems | Unit not tested for connection to IT power system. | N/A |
| 1.5.9 | Surge suppressors | | P |
| 1.5.9.1 | General | Surge suppressors comply with Annex Q. | P |
| 1.5.9.2 | Protection of VDRs | Fuse in Line and Neutral is protecting VDR. | P |
| 1.5.9.3 | Bridging of functional insulation by a VDR | Surge suppressors connected Line to Neutral comply with Annex Q. | 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 | No VDR bridging double or reinforced insulation. | N/A |

| | | | |
|------------|--------------------------------------|---|-----|
| 1.6 | Power interface | | P |
| 1.6.1 | AC power distribution systems | TN | P |
| 1.6.2 | Input current | (see appended table 1.6.2) | P |
| 1.6.3 | Voltage limit of hand-held equipment | The equipment is not hand-held. | N/A |
| 1.6.4 | Neutral conductor | Neutral is insulated from earth with basic insulation throughout the equipment. | P |

| | | | |
|------------|---|---|-----|
| 1.7 | Marking and instructions | | P |
| 1.7.1 | Power rating and identification marking | Unit for building-in. The required marking is located on the surface of the bulk capacitor. | 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 Vac | P |
| | Symbol for nature of supply, for d.c. only | | N/A |
| | Rated frequency or rated frequency range (Hz): | 50-60Hz | P |
| | Rated current (mA or A) | 1,5 A max. (for 65W output models) 2,5 A max. (for 80W output models) | P |
| 1.7.1.2 | Identification markings | | P |

| IEC 60950-1/Am1 | | | |
|-----------------|--|---|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Manufacturer's name or trade-mark or identification mark |  | P |
| | Model identification or type reference | See page 1 and page 2. | P |
| | Symbol for Class II equipment only | Safety class is end product consideration. Refer to summary of testing. | N/A |
| | Other markings and symbols | Unit for building-in. | N/A |
| 1.7.2 | Safety instructions and marking | Safety instructions in English. Other languages will be provided when submitted for national approval. | P |
| 1.7.2.1 | General | No precautions are necessary. | P |
| 1.7.2.2 | Disconnect devices | External disconnect device required. End product consideration. | N/A |
| 1.7.2.3 | Overcurrent protective device | Unit provides appropriate overcurrent protective device inside the equipment. | N/A |
| 1.7.2.4 | IT power distribution systems | | N/A |
| 1.7.2.5 | Operator access with a tool | The unit is for built in use not operator accessible. | N/A |
| 1.7.2.6 | Ozone | Unit does not produce ozone. | N/A |
| 1.7.3 | Short duty cycles | The equipment is intended for continuous operation. | N/A |
| 1.7.4 | Supply voltage adjustment | No voltage selector. | N/A |
| | Methods and means of adjustment; reference to installation instructions | | N/A |
| 1.7.5 | Power outlets on the equipment | No standard power outlet. | N/A |
| 1.7.6 | Fuse identification (marking, special fusing characteristics, cross-reference) | Fuse locations and markings: Fuse F1 (F2) and ratings are marked on PCB: T1,5A (65W); 250V T3,5 (80W); 250V | P |
| 1.7.7 | Wiring terminals | Power supply unit is intended for building-in and provided with input connector for connection to the mains (CON 1). | P |
| 1.7.7.1 | Protective earthing and bonding terminals | Terminal for connection of protective bonding conductor is marked with standard earth symbol near the fast on terminal. | P |

| IEC 60950-1/Am1 | | | |
|-----------------|---|--|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 1.7.7.2 | Terminals for a.c. mains supply conductors | The equipment is not permanently connected or provided with a non-detachable power supply cord. Special connector is used for connection to mains. | N/A |
| 1.7.7.3 | Terminals for d.c. mains supply conductors | Not intended for connection to DC mains. | N/A |
| 1.7.8 | Controls and indicators | There are no controls affecting safety. | N/A |
| 1.7.8.1 | Identification, location and marking | No switches provided. | N/A |
| 1.7.8.2 | Colours | No indicators with colors. | N/A |
| 1.7.8.3 | Symbols according to IEC 60417 | There are no switches in the equipment. | N/A |
| 1.7.8.4 | Markings using figures | No controls in the sense of this clause. | N/A |
| 1.7.9 | Isolation of multiple power sources | Only one connection supplying hazardous voltages and energy levels to the equipment. | N/A |
| 1.7.10 | Thermostats and other regulating devices | No thermostats or other regulating devices. | N/A |
| 1.7.11 | Durability | The marking withstands required tests. | P |
| 1.7.12 | Removable parts | No removable parts. | N/A |
| 1.7.13 | Replaceable batteries | No lithium battery in the equipment. | N/A |
| | Language(s) | English. | — |
| 1.7.14 | Equipment for restricted access locations | Equipment not intended for installation in RAL. | N/A |

| IEC 60950-1/Am1 | | | |
|-----------------|---|---|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2 | PROTECTION FROM HAZARDS | | P |
| 2.1 | Protection from electric shock and energy hazards | | P |
| 2.1.1 | Protection in operator access areas | This is a component level power supply. Protection must be checked in the end product. | N/A |
| 2.1.1.1 | Access to energized parts | | N/A |
| | Test by inspection | | N/A |
| | Test with test finger (Figure 2A) | | N/A |
| | Test with test pin (Figure 2B) | | N/A |
| | Test with test probe (Figure 2C) | No TNV circuit. | N/A |
| 2.1.1.2 | Battery compartments | No battery compartment. | N/A |
| 2.1.1.3 | Access to ELV wiring | | N/A |
| | Working voltage (V_{peak} or V_{rms}); minimum distance through insulation (mm) | (see appended table 2.10.5) | — |
| 2.1.1.4 | Access to hazardous voltage circuit wiring | Unit for building-in. End product consideration. | N/A |
| 2.1.1.5 | Energy hazards | Unit for building-in. The output from the power supply not represents an energy hazard. Accessibility of the output must be considered for the end product. | N/A |
| 2.1.1.6 | Manual controls | No shafts of knobs etc. at SELV or hazardous voltage. | N/A |
| 2.1.1.7 | Discharge of capacitors in equipment | The capacitance of the input circuit is $> 0,1\mu F$. The measurements were performed in worst-case condition. | P |
| | Measured voltage (V); time-constant (s) | See appended table 2.1.1.7. | — |
| 2.1.1.8 | Energy hazards – d.c. mains supply | Unit not connected to DC mains. | N/A |
| | a) Capacitor connected to the d.c. mains supply | | N/A |
| | b) Internal battery connected to the d.c. mains supply | | N/A |
| 2.1.1.9 | Audio amplifiers | No audio amplifier within the unit. | N/A |
| 2.1.2 | Protection in service access areas | End product consideration. | N/A |
| 2.1.3 | Protection in restricted access locations | | N/A |

| IEC 60950-1/Am1 | | | |
|-----------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|------------|---|---|---|
| 2.2 | SELV circuits | | P |
| 2.2.1 | General requirements | SELV limits (at accessible parts) are not exceeded under normal condition and after a single fault. | P |
| 2.2.2 | Voltages under normal conditions (V) | Within SELV limits. (See appended table 2.2) | P |
| 2.2.3 | Voltages under fault conditions (V) | Single fault conditions: < 60 Vdc. See enclosed test results. | P |
| 2.2.4 | Connection of SELV circuits to other circuits | SELV circuits are only connected to other SELV circuits and protective earth. | P |

| | | | |
|------------|--|-----------------------------------|-----|
| 2.3 | TNV circuits | | N/A |
| 2.3.1 | Limits | No TNV circuits in the equipment. | N/A |
| | Type of TNV circuits..... | | — |
| 2.3.2 | Separation from other circuits and from accessible parts | | N/A |
| 2.3.2.1 | General requirements | | N/A |
| 2.3.2.2 | Protection by basic insulation | | N/A |
| 2.3.2.3 | Protection by earthing | | N/A |
| 2.3.2.4 | Protection by other constructions | | N/A |
| 2.3.3 | Separation from hazardous voltages | | N/A |
| | Insulation employed | | — |
| 2.3.4 | Connection of TNV circuits to other circuits | | N/A |
| | Insulation employed | | — |
| 2.3.5 | Test for operating voltages generated externally | | N/A |

| | | | |
|------------|--|---------------|-----|
| 2.4 | Limited current circuits | | P |
| 2.4.1 | General requirements | | P |
| 2.4.2 | Limit values | | P |
| | Frequency (Hz)..... | See table 2.4 | — |
| | Measured current (mA) | See table 2.4 | — |
| | Measured voltage (V) | See table 2.4 | — |
| | Measured circuit capacitance (nF or μ F) | See table 2.4 | — |
| 2.4.3 | Connection of limited current circuits to other circuits | | N/A |

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

| | | | |
|------------|--|--|-----|
| 2.5 | Limited power sources | | N/A |
| | a) Inherently limited output | | N/A |
| | b) Impedance limited output | | N/A |
| | c) Regulating network limited output under normal operating and single fault condition | | N/A |
| | d) Overcurrent protective device limited output | | N/A |
| | Max. output voltage (V), max. output current (A), max. apparent power (VA).....: | | — |
| | Current rating of overcurrent protective device (A) ..: | | — |
| | Use of integrated circuit (IC) current limiters : | | — |

| | | | |
|------------|---|---|-----|
| 2.6 | Provisions for earthing and bonding | | P |
| 2.6.1 | Protective earthing | The unit is for built in. End product consideration. | N/A |
| 2.6.2 | Functional earthing | Functional earthing (shield) is separated from hazardous voltages by reinforced insulation. | P |
| 2.6.3 | Protective earthing and protective bonding conductors | | P |
| 2.6.3.1 | General | | N/A |
| 2.6.3.2 | Size of protective earthing conductors | Power Supply cord not provided with the equipment. | N/A |
| | Rated current (A), cross-sectional area (mm ²), AWG.....: | | — |
| 2.6.3.3 | Size of protective bonding conductors | | P |
| | Rated current (A), cross-sectional area (mm ²), AWG.....: | Complies to 2.6.3.4 | — |
| | Protective current rating (A), cross-sectional area (mm ²), AWG.....: | Complies to 2.6.3.4 | — |
| 2.6.3.4 | Resistance of earthing conductors and their terminations; resistance (Ω), voltage drop (V), test current (A), duration (min) | See appended table 2.6. | P |
| 2.6.3.5 | Colour of insulation | All insulated protective earth conductors are colored green and yellow. | P |
| 2.6.4 | Terminals | | P |
| 2.6.4.1 | General | | P |
| 2.6.4.2 | Protective earthing and bonding terminals | Unit provided with male fast on terminal. | P |

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|-----------------|--|---|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Rated current (A), type, nominal thread diameter (mm)..... : | Rated current of equipment: 1,5 A or 2,5 A max. | — |
| 2.6.4.3 | Separation of the protective earthing conductor from protective bonding conductors | | P |
| 2.6.5 | Integrity of protective earthing | End product consideration. | N/A |
| 2.6.5.1 | Interconnection of equipment | No interconnection of equipment. | N/A |
| 2.6.5.2 | Components in protective earthing conductors and protective bonding conductors | There are no switches or over current protective devices in the protective earthing / bonding conductors. | N/A |
| 2.6.5.3 | Disconnection of protective earth | The Power Supply is for built in use. | N/A |
| 2.6.5.4 | Parts that can be removed by an operator | No removable parts. | N/A |
| 2.6.5.5 | Parts removed during servicing | Protective earthed parts cannot be removed in a way, which impair safety. | N/A |
| 2.6.5.6 | Corrosion resistance | No risk of corrosion. End product consideration. | N/A |
| 2.6.5.7 | Screws for protective bonding | No screws for protective bonding used. | N/A |
| 2.6.5.8 | Reliance on telecommunication network or cable distribution system | Protective earthing does not rely on a telecommunication network. | N/A |

| | | | |
|------------|---|---|-----|
| 2.7 | Overcurrent and earth fault protection in primary circuits | | P |
| 2.7.1 | Basic requirements | The unit is rated to be connected to a mains with rating max. 20 A. | P |
| | Instructions when protection relies on building installation | | N/A |
| 2.7.2 | Faults not simulated in 5.3.7 | | P |
| 2.7.3 | Short-circuit backup protection | Adequate protective device. | P |
| 2.7.4 | Number and location of protective devices | One fuse in Line (model “-”) or two fuses in Line and Neutral. | P |
| 2.7.5 | Protection by several devices | Fuses are located in proximity to each other. | P |
| 2.7.6 | Warning to service personnel | Not permanently connected equipment or equipment provided with non-reversible plug. | N/A |

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|-----------------|---|--------------------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.8 | Safety interlocks | | N/A |
| 2.8.1 | General principles | No safety interlock. | 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 | (see appended table 5.2) | N/A |
| 2.8.8 | Mechanical actuators | | N/A |

| | | | |
|------------|---|---|---|
| 2.9 | Electrical insulation | | P |
| 2.9.1 | Properties of insulating materials | Neither natural rubber, materials containing asbestos nor hygroscopic materials are used as insulation. No driving belts or couplings used. | P |
| 2.9.2 | Humidity conditioning | | P |
| | Relative humidity (%), temperature (°C) | Humidity treatment performed for 48h at 91-95%. | — |
| 2.9.3 | Grade of insulation | Insulation is considered to be functional, basic, supplementary, reinforced or double. | P |
| 2.9.4 | Separation from hazardous voltages | | P |
| | Method(s) used | Accessible conductive parts, SELV circuits or TNV circuits are separated from parts at hazardous voltage by double or reinforced insulation (Method 1). | — |

| | | | |
|-------------|--|----------|---|
| 2.10 | Clearances, creepage distances and distances through insulation | | P |
| 2.10.1 | General | | P |
| 2.10.1.1 | Frequency | 50-60 Hz | P |

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|-----------------|---|---|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.10.1.2 | Pollution degrees | Pollution degree 2 | P |
| 2.10.1.3 | Reduced values for functional insulation | Functional insulation Line to Neutral before fuse complies with 2.10.3 & 2.10.4. Other functional insulations comply with 5.3.4 c). | P |
| 2.10.1.4 | Intervening unconnected conductive parts | Distance to unconnected conductive parts considered during evaluation of clearances and creepage distances. | P |
| 2.10.1.5 | Insulation with varying dimensions | No such transformer used. | N/A |
| 2.10.1.6 | Special separation requirements | No TNV circuits. | N/A |
| 2.10.1.7 | Insulation in circuits generating starting pulses | No such circuit. | N/A |
| 2.10.2 | Determination of working voltage | See appended table 2.10.2. | P |
| 2.10.2.1 | General | | P |
| 2.10.2.2 | RMS working voltage | Considered. | P |
| 2.10.2.3 | Peak working voltage | Considered. | P |
| 2.10.3 | Clearances | | P |
| 2.10.3.1 | General | | P |
| 2.10.3.2 | Mains transient voltages | | P |
| | a) AC mains supply | Overvoltage Category II (2500V _{peak}) | P |
| | b) Earthed d.c. mains supplies | Unit not intended for connection to DC mains. | N/A |
| | c) Unearthed d.c. mains supplies | Unit not intended for connection to DC mains. | N/A |
| | d) Battery operation | No battery. | N/A |
| 2.10.3.3 | Clearances in primary circuits | (see appended table 2.10.3 and 2.10.4) | P |
| 2.10.3.4 | Clearances in secondary circuits | (see appended table 2.10.3 and 2.10.4) | P |
| 2.10.3.5 | Clearances in circuits having starting pulses | (see appended table 2.10.3 and 2.10.4) | N/A |
| 2.10.3.6 | Transients from a.c. mains supply | Same transients as for a.c. mains considered for secondary circuits. | 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 | Unit not intended for connection to telecommunication network or cable distribution system. | N/A |

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|-----------------|--|---|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.10.3.9 | Measurement of transient voltage levels | Measurement not relevant. | 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 | | P |
| 2.10.4.1 | General | | P |
| 2.10.4.2 | Material group and comparative tracking index | | P |
| | CTI tests | Material group IIIb) is assumed to be used. | — |
| 2.10.4.3 | Minimum creepage distances | (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 | No such potted components. | N/A |
| 2.10.5.4 | Semiconductor devices | Approved optical insulators are used. See list of critical components. | P |
| 2.10.5.5 | Cemented joints | (see appended table 2.10.3 and 2.10.4) | N/A |
| 2.10.5.6 | Thin sheet material – General | | P |
| 2.10.5.7 | Separable thin sheet material | Main transformer T1 is wrapped with 2 layers of insulating tape. In addition core is insulated from secondary components by 2 layers of tape. Insulating tape inside main transformer T1 is used only for mechanical separation of primary and secondary winding. | P |
| | Number of layers (pcs) | 2 layers of tape around core of transformer. In addition secondary part of transformer is insulated from secondary components by 2 layers of tape. Insulation between primary and secondary winding is used for mechanical separation. | — |
| 2.10.5.8 | Non-separable thin sheet material | No such insulation. | N/A |

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|-----------------|--|---|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.10.5.9 | Thin sheet material – standard test procedure | | N/A |
| | Electric strength test | (see appended table 2.10.5) | — |
| 2.10.5.10 | Thin sheet material – alternative test procedure | | N/A |
| | Electric strength test | (see appended table 2.10.5) | — |
| 2.10.5.11 | Insulation in wound components | Transformers provided with thin sheet material complying with 2.10.5.6. | P |
| 2.10.5.12 | Wire in wound components | Approved triple insulated wire is used inside transformers. See list of critical components. | P |
| | Working voltage | See appended table 2.10.2. | P |
| | a) Basic insulation not under stress | | P |
| | b) Basic, supplementary, reinforced insulation | All used triple insulated wires are in compliance with Annex U. | P |
| | c) Compliance with Annex U | Approved triple insulated wires are used for secondary windings. See list of critical components. | P |
| | Two wires in contact inside wound component; angle between 45° and 90° | No contact between 45° and 90°. | P |
| 2.10.5.13 | Wire with solvent-based enamel in wound components | No TNV circuits. | N/A |
| | Electric strength test | (see appended table 2.10.5) | — |
| | Routine test | | N/A |
| 2.10.5.14 | Additional insulation in wound components | | N/A |
| | Working voltage | | N/A |
| | - Basic insulation not under stress | | N/A |
| | - Supplementary, reinforced insulation | | N/A |
| 2.10.6 | Construction of printed boards | | P |
| 2.10.6.1 | Uncoated printed boards | (see appended table 2.10.3 and 2.10.4) | P |
| 2.10.6.2 | Coated printed boards | (see appended table 2.10.3 and 2.10.4) | N/A |
| 2.10.6.3 | Insulation between conductors on the same inner surface of a printed board | 1 layer PCB. No inner layers. | N/A |
| 2.10.6.4 | Insulation between conductors on different layers of a printed board | Primary and secondary layers do not overlap. | N/A |
| | Distance through insulation | (see appended table 2.10.5) | N/A |
| | Number of insulation layers (pcs)..... | | N/A |

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|-----------------|---|--|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.10.7 | Component external terminations | (see appended table 2.10.3 and 2.10.4) | N/A |
| 2.10.8 | Tests on coated printed boards and coated components | | N/A |
| 2.10.8.1 | Sample preparation and preliminary inspection | | N/A |
| 2.10.8.2 | Thermal conditioning | | N/A |
| 2.10.8.3 | Electric strength test | (see appended table 5.2) | N/A |
| 2.10.8.4 | Abrasion resistance test | | N/A |
| 2.10.9 | Thermal cycling | | N/A |
| 2.10.10 | Test for Pollution Degree 1 environment and insulating compound | | N/A |
| 2.10.11 | Tests for semiconductor devices and cemented joints | | N/A |
| 2.10.12 | Enclosed and sealed parts | | N/A |

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

| | | | |
|----------|--|---|------------|
| 3 | WIRING, CONNECTIONS AND SUPPLY | | P |
| 3.1 | General | | P |
| 3.1.1 | Current rating and overcurrent protection | Adequate cross sectional areas on internal wiring and interconnecting cables. Suitably rated protective device inside the unit. | P |
| 3.1.2 | Protection against mechanical damage | Wire ways are smooth and free from edges. Wires are adequately fixed to prevent excessive strain on wire and terminals and avoiding damage to the insulation of the conductors. | P |
| 3.1.3 | Securing of internal wiring | Internal wiring is secured against excessive strain, loosening of terminals and damage to the conductor insulation. | P |
| 3.1.4 | Insulation of conductors | (see appended table 5.2) | P |
| 3.1.5 | Beads and ceramic insulators | No beads or similar ceramic insulators on conductors. | N/A |
| 3.1.6 | Screws for electrical contact pressure | No such. | N/A |
| 3.1.7 | Insulating materials in electrical connections | No contact pressure through insulating material. | N/A |
| 3.1.8 | Self-tapping and spaced thread screws | Thread-cutting or space thread screws are not used for electrical connections. | N/A |
| 3.1.9 | Termination of conductors | Terminations cannot become displaced so that clearances and Creepage distances can be reduced. | P |
| | 10 N pull test | Considered. | P |
| 3.1.10 | Sleeving on wiring | Sleeves are not used as supplementary insulation. | N/A |

| | | | |
|------------|-------------------------------------|---|------------|
| 3.2 | Connection to a mains supply | | P |
| 3.2.1 | Means of connection | | P |
| 3.2.1.1 | Connection to an a.c. mains supply | Built in Power Supply with approved connector (see list of safety critical components). | P |
| 3.2.1.2 | Connection to a d.c. mains supply | | N/A |
| 3.2.2 | Multiple supply connections | Only one supply connection. | N/A |

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|-----------------|---|--|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 3.2.3 | Permanently connected equipment | The equipment is not intended for permanent connection to the mains. | N/A |
| | Number of conductors, diameter of cable and conduits (mm) | | — |
| 3.2.4 | Appliance inlets | No appliance inlet is used. | N/A |
| 3.2.5 | Power supply cords | | N/A |
| 3.2.5.1 | AC power supply cords | Power supply cord is not provided (built in Power Supply). | 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 | No sharp points or cutting edges on the equipment surfaces. | P |
| 3.2.8 | Cord guards | No cord guards provided. | N/A |
| | Diameter or minor dimension D (mm); test mass (g) | | — |
| | Radius of curvature of cord (mm)..... | | — |
| 3.2.9 | Supply wiring space | The supply wiring space is satisfactory. | P |

| | | | |
|------------|---|--|-----|
| 3.3 | Wiring terminals for connection of external conductors | | N/A |
| 3.3.1 | Wiring terminals | Unit for building-in provided with connector. No wiring terminal provided. | N/A |
| 3.3.2 | Connection of non-detachable power supply cords | Not equipment with special non-detachable power supply cord. | 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 |

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

| | | | |
|-------|---|--|-----|
| | 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 | | N/A |
| 3.4.1 | General requirement | Unit for building-in. Disconnect device is end product requirement. | N/A |
| 3.4.2 | Disconnect devices | See above. | N/A |
| 3.4.3 | Permanently connected equipment | Not permanently connected equipment. | N/A |
| 3.4.4 | Parts which remain energized | No parts remain energized. | N/A |
| 3.4.5 | Switches in flexible cords | | N/A |
| 3.4.6 | Number of poles - single-phase and d.c. equipment | | N/A |
| 3.4.7 | Number of poles - three-phase equipment | | N/A |
| 3.4.8 | Switches as disconnect devices | No switch as disconnect device. | N/A |
| 3.4.9 | Plugs as disconnect devices | | N/A |
| 3.4.10 | Interconnected equipment | No interconnections using hazardous voltages or hazardous energy levels. | N/A |
| 3.4.11 | Multiple power sources | One power source only. | N/A |

| | | | |
|------------|--|--|-----|
| 3.5 | Interconnection of equipment | | P |
| 3.5.1 | General requirements | | P |
| 3.5.2 | Types of interconnection circuits | Output is intended for connection to SELV circuit. | P |
| 3.5.3 | ELV circuits as interconnection circuits | | N/A |
| 3.5.4 | Data ports for additional equipment | | N/A |

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

| | | | |
|----------|------------------------------|------------------------------------|-----|
| 4 | PHYSICAL REQUIREMENTS | | P |
| 4.1 | Stability | | N/A |
| | Angle of 10° | The unit has a mass less than 7kg. | N/A |
| | Test force (N) | Unit for building-in. | N/A |

| | | | |
|------------|--|---|-----|
| 4.2 | Mechanical strength | | P |
| 4.2.1 | General | | P |
| | Rack-mounted equipment. | | N/A |
| 4.2.2 | Steady force test, 10 N | No hazard. See appended table 4.2.2. | P |
| 4.2.3 | Steady force test, 30 N | No internal enclosure. | N/A |
| 4.2.4 | Steady force test, 250 N | Unit is intended for building-in. Enclosure is end product consideration. | N/A |
| 4.2.5 | Impact test | Unit is intended for building-in. | N/A |
| | Fall test | | N/A |
| | Swing test | | N/A |
| 4.2.6 | Drop test; height (mm) | The EUT is not hand-held, direct plug-in or transportable. | N/A |
| 4.2.7 | Stress relief test | Unit for building in. No enclosure provided. | N/A |
| 4.2.8 | Cathode ray tubes | No cathode ray tubes. | N/A |
| | Picture tube separately certified | (see separate test report or attached certificate) | N/A |
| 4.2.9 | High pressure lamps | | N/A |
| 4.2.10 | Wall or ceiling mounted equipment; force (N) | Unit is not intended to be mounted on a wall or ceiling. | N/A |

| | | | |
|------------|--|--|-----|
| 4.3 | Design and construction | | P |
| 4.3.1 | Edges and corners | All edges and corners are rounded and/or smoothed. | P |
| 4.3.2 | Handles and manual controls; force (N) | No knobs, grips, handles, lever, etc. | N/A |
| 4.3.3 | Adjustable controls | No hazardous adjustable controls. | N/A |

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|-----------------|--|---|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 4.3.4 | Securing of parts | No loosening of parts impairing Creepage distances or clearances is likely to occur. | P |
| 4.3.5 | Connection by plugs and sockets | SELV and TNV connectors do not comply with IEC 60320 or IEC 60083. | P |
| 4.3.6 | Direct plug-in equipment | The EUT is not direct plug-in equipment. | N/A |
| | Torque | | — |
| | Compliance with the relevant mains plug standard | | N/A |
| 4.3.7 | Heating elements in earthed equipment | The equipment does not have any heating elements. | N/A |
| 4.3.8 | Batteries | No batteries in the equipment. | 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 | Insulation is not exposed to oil, grease etc. | N/A |
| 4.3.10 | Dust, powders, liquids and gases | The equipment does not generate dust, powder, does not contain liquid or gas. The unit is specified for office environment. | N/A |
| 4.3.11 | Containers for liquids or gases | No containers for liquids or gases in the equipment. | N/A |
| 4.3.12 | Flammable liquids | | 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 | | N/A |
| | Measured radiation (pA/kg) | | — |
| | Measured high-voltage (kV) | | — |
| | Measured focus voltage (kV) | | — |
| | CRT markings | | — |
| 4.3.13.3 | Effect of ultraviolet (UV) radiation on materials | | N/A |

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|-----------------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Part, property, retention after test, flammability classification | | N/A |
| 4.3.13.4 | Human exposure to ultraviolet (UV) radiation | | N/A |
| 4.3.13.5 | Laser (including 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 |

| | | | |
|------------|--|----------------------------|-----|
| 4.4 | Protection against hazardous moving parts | | N/A |
| 4.4.1 | General | | N/A |
| 4.4.2 | Protection in operator access areas | No hazardous moving parts. | 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 | | P |
| 4.5.1 | General | | P |
| 4.5.2 | Temperature tests | | P |
| | Normal load condition per Annex L | Rated load, as specified by Manufacturer. | — |
| 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 |

| | | | |
|------------|-------------------------------|--|-----|
| 4.6 | Openings in enclosures | | N/A |
|------------|-------------------------------|--|-----|

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|-----------------|--|---|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 4.6.1 | Top and side openings | Unit for building in. No enclosure provided. End product consideration. | N/A |
| | Dimensions (mm) : | | — |
| 4.6.2 | Bottoms of fire enclosures | | N/A |
| | Construction of the bottom, dimensions (mm) .. : | | — |
| 4.6.3 | Doors or covers in fire enclosures | | N/A |
| 4.6.4 | Openings in transportable equipment | | N/A |
| 4.6.4.1 | Constructional design measures | | N/A |
| | Dimensions (mm) : | | — |
| 4.6.4.2 | Evaluation measures for larger openings | | N/A |
| 4.6.4.3 | Use of metallized parts | | N/A |
| 4.6.5 | Adhesives for constructional purposes | | N/A |
| | Conditioning temperature (°C), time (weeks)..... : | | — |

| | | | |
|------------|--|---|-----|
| 4.7 | Resistance to fire | | P |
| 4.7.1 | Reducing the risk of ignition and spread of flame | | P |
| | Method 1, selection and application of components wiring and materials | (see appended table 4.7) | P |
| | Method 2, application of all of simulated fault condition tests | (see appended table 5.3) | N/A |
| 4.7.2 | Conditions for a fire enclosure | Component power supply for building-in, fire enclosure must be considered for the end product. | N/A |
| 4.7.2.1 | Parts requiring a fire enclosure | The fire enclosure is required to cover all parts. | N/A |
| 4.7.2.2 | Parts not requiring a fire enclosure | | N/A |
| 4.7.3 | Materials | | P |
| 4.7.3.1 | General | Components and materials have adequate flammability classification. Refer to "List of Critical Components". | P |
| 4.7.3.2 | Materials for fire enclosures | Component power supply for building-in, fire enclosure must be considered for the end product. | N/A |
| 4.7.3.3 | Materials for components and other parts outside fire enclosures | No parts outside the fire enclosure. | N/A |

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|-----------------|---|--|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 4.7.3.4 | Materials for components and other parts inside fire enclosures | Materials are rated V-2 or better or are mounted on a PWB rated V-1 or better. | N/A |
| 4.7.3.5 | Materials for air filter assemblies | No air filters in the equipment. | N/A |
| 4.7.3.6 | Materials used in high-voltage components | No parts exceeding 4kV. | N/A |

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

| | | | |
|----------|---|--|----------|
| 5 | ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS | | P |
| 5.1 | Touch current and protective conductor current | | P |
| 5.1.1 | General | | 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 | According to Fig. 5A | P |
| 5.1.4 | Application of measuring instrument | Measuring instrument D1 was used. | P |
| 5.1.5 | Test procedure | | P |
| 5.1.6 | Test measurements | | P |
| | Supply voltage (V) | | — |
| | Measured touch current (mA) | (see appended table 5.1) | — |
| | Max. allowed touch current (mA) | 0,25mA to unearthed accessible parts (output) 3,5mA to earthed accessible parts | — |
| | Measured protective conductor current (mA) | Not applicable. Measured touch current was lower than 3,5 mA. | — |
| | Max. allowed protective conductor current (mA)... | See above. | — |
| 5.1.7 | Equipment with touch current exceeding 3,5 mA | Measured touch current was less than 3,5 mA. | N/A |
| 5.1.7.1 | General | | N/A |
| 5.1.7.2 | Simultaneous multiple connections to the supply | | N/A |
| 5.1.8 | Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks | | N/A |
| 5.1.8.1 | Limitation of the touch current to a telecommunication network or to a cable distribution system | | N/A |
| | Supply voltage (V) | | — |
| | Measured touch current (mA) | | — |
| | Max. allowed touch current (mA) | | — |
| 5.1.8.2 | Summation of touch currents from telecommunication networks | | N/A |

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

| | | | |
|--|--|--|-----|
| | a) EUT with earthed telecommunication ports: | | N/A |
| | b) EUT whose telecommunication ports have no reference to protective earth | | N/A |

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

| | | | |
|------------|---|---|-----|
| 5.3 | Abnormal operating and fault conditions | | P |
| 5.3.1 | Protection against overload and abnormal operation | (see appended table 5.3) | P |
| 5.3.2 | Motors | (see appended Annex B) | N/A |
| 5.3.3 | Transformers | (see appended Annex C) | P |
| 5.3.4 | Functional insulation: | method a) L to N before the fuse method c) elsewhere | P |
| 5.3.5 | Electromechanical components | | N/A |
| 5.3.6 | Audio amplifiers in ITE: | | N/A |
| 5.3.7 | Simulation of faults | | P |
| 5.3.8 | Unattended equipment | The unit is intended for continuous operation. There is no thermal sensor or cut-off for operational condition. | N/A |
| 5.3.9 | Compliance criteria for abnormal operating and fault conditions | | P |
| 5.3.9.1 | During the tests | No flame, melted metal, no fire- cheese cloth on top and tissue paper on bottom remain clean. | P |
| 5.3.9.2 | After the tests | The tested units passed the electric strenght test. | P |

| IEC 60950-1/Am1 | | | |
|-----------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|----------|---|--------------------------|-----|
| 6 | CONNECTION TO TELECOMMUNICATION NETWORKS | | N/A |
| 6.1 | Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment | | N/A |
| 6.1.1 | Protection from hazardous voltages | | N/A |
| 6.1.2 | Separation of the telecommunication network from earth | | N/A |
| 6.1.2.1 | Requirements | (see appended table 5.2) | N/A |
| | Supply voltage (V) | | — |
| | Current in the test circuit (mA) | | — |
| 6.1.2.2 | Exclusions | | N/A |

| | | | |
|------------|--|--------------------------|-----|
| 6.2 | Protection of equipment users from overvoltages on telecommunication networks | | N/A |
| 6.2.1 | Separation requirements | | N/A |
| 6.2.2 | Electric strength test procedure | | N/A |
| 6.2.2.1 | Impulse test | (see appended table 5.2) | N/A |
| 6.2.2.2 | Steady-state test | (see appended table 5.2) | N/A |
| 6.2.2.3 | Compliance criteria | | N/A |

| | | | |
|------------|---|--|-----|
| 6.3 | Protection of the telecommunication wiring system from overheating | | N/A |
| | Max. output current (A) | | — |
| | Current limiting method | | — |

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

| | | | |
|----------|---|--------------------------|-----|
| 7 | CONNECTION TO CABLE DISTRIBUTION SYSTEMS | | N/A |
| 7.1 | General | | N/A |
| 7.2 | Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment | | N/A |
| 7.3 | Protection of equipment users from overvoltages on the cable distribution system | | N/A |
| 7.4 | Insulation between primary circuits and cable distribution systems | | N/A |
| 7.4.1 | General | | N/A |
| 7.4.2 | Voltage surge test | (see appended table 5.2) | N/A |
| 7.4.3 | Impulse test | (see appended table 5.2) | N/A |

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

| | | | |
|----------|--|---|-----|
| A | ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE | | N/A |
| A.1 | Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2) | Approved materials are used. See list of critical components. | N/A |
| A.1.1 | Samples | | — |
| | Wall thickness (mm) | | — |
| A.1.2 | Conditioning of samples; temperature (°C) | | N/A |
| A.1.3 | Mounting of samples | | N/A |
| A.1.4 | Test flame (see IEC 60695-11-3) | | N/A |
| | Flame A, B, C or D | | — |
| A.1.5 | Test procedure | | N/A |
| A.1.6 | Compliance criteria | | N/A |
| | Sample 1 burning time (s) | | — |
| | Sample 2 burning time (s) | | — |
| | Sample 3 burning time (s) | | — |
| A.2 | Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4) | | N/A |
| A.2.1 | Samples, material | | — |
| | Wall thickness (mm) | | — |
| A.2.2 | Conditioning of samples; temperature (°C) | | N/A |
| A.2.3 | Mounting of samples | | N/A |
| A.2.4 | Test flame (see IEC 60695-11-4) | | N/A |
| | Flame A, B or C | | — |
| A.2.5 | Test procedure | | N/A |
| A.2.6 | Compliance criteria | | N/A |
| | Sample 1 burning time (s) | | — |
| | Sample 2 burning time (s) | | — |
| | Sample 3 burning time (s) | | — |
| A.2.7 | Alternative test acc. to IEC 60695-11-5, cl. 5 and 9 | | N/A |
| | Sample 1 burning time (s) | | — |
| | Sample 2 burning time (s) | | — |
| | 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 |

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

| | | | |
|-------|----------------------|--|-----|
| A.3.2 | Test procedure | | N/A |
| A.3.3 | Compliance criterion | | N/A |

| | | | |
|----------|---|--------------------------|-----|
| B | ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2) | | N/A |
| B.1 | General requirements | No fans provided. | N/A |
| | Position | | — |
| | Manufacturer | | — |
| | Type | | — |
| | Rated values | | — |
| B.2 | Test conditions | | N/A |
| B.3 | Maximum temperatures | (see appended table 5.3) | N/A |
| B.4 | Running overload test | (see appended table 5.3) | N/A |
| B.5 | Locked-rotor overload test | | N/A |
| | Test duration (days) | | — |
| | Electric strength test: test voltage (V) | | — |
| B.6 | Running overload test for d.c. motors in secondary circuits | | N/A |
| B.6.1 | General | | N/A |
| B.6.2 | Test procedure | | N/A |
| B.6.3 | Alternative test procedure | | N/A |
| B.6.4 | Electric strength test; test voltage (V) | | N/A |
| B.7 | Locked-rotor overload test for d.c. motors in secondary circuits | | N/A |
| B.7.1 | General | | N/A |
| B.7.2 | Test procedure | | N/A |
| B.7.3 | Alternative test procedure | | N/A |
| B.7.4 | Electric strength test; test voltage (V) | | N/A |
| B.8 | Test for motors with capacitors | (see appended table 5.3) | N/A |
| B.9 | Test for three-phase motors | (see appended table 5.3) | N/A |
| B.10 | Test for series motors | | N/A |
| | Operating voltage (V) | | — |

| | | | |
|----------|--|---------------------------------|---|
| C | ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3) | | P |
| | Position | T1 Primary to Secondary | — |
| | Manufacturer | See list of critical components | — |

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

| | | | |
|-----|--|--|---|
| | Type | See list of critical components | — |
| | Rated values | Class B, reinforced insulation | — |
| | Method of protection | Primry current regulation. | — |
| C.1 | Overload test | (see appended table 5.3) | P |
| C.2 | Insulation | (see appended table 5.2) | P |
| | Protection from displacement of windings | Triple insulated wire is used. No special precaution is required. | P |

| | | | |
|----------|---|-----------------------------------|-----|
| D | ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4) | | P |
| D.1 | Measuring instrument | Measuring instrument D1 was used. | P |
| D.2 | Alternative measuring instrument | | N/A |

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

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

| | | | |
|----------|--|--|-----|
| G | ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES | | N/A |
| G.1 | Clearances | | N/A |
| G.1.1 | General | | N/A |
| G.1.2 | Summary of the procedure for determining minimum clearances | | N/A |
| G.2 | Determination of mains transient voltage (V) | | N/A |
| G.2.1 | AC mains supply | | N/A |
| G.2.2 | Earthed d.c. mains supplies | | N/A |
| G.2.3 | Unearthed d.c. mains supplies | | N/A |
| G.2.4 | Battery operation | | N/A |
| G.3 | Determination of telecommunication network transient voltage (V) | | N/A |
| G.4 | Determination of required withstand voltage (V) | | N/A |
| G.4.1 | Mains transients and internal repetitive peaks | | N/A |
| G.4.2 | Transients from telecommunication networks | | N/A |
| G.4.3 | Combination of transients | | N/A |
| G.4.4 | Transients from cable distribution systems | | N/A |

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|-----------------|--|---|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 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) | | N/A |
| J | ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6) | | N/A |
| | Metal(s) used | | — |
| K | ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8) | | N/A |
| K.1 | Making and breaking capacity | | N/A |
| K.2 | Thermostat reliability; operating voltage (V) | | N/A |
| K.3 | Thermostat endurance test; operating voltage (V) | | N/A |
| K.4 | Temperature limiter endurance; operating voltage (V) | | N/A |
| K.5 | Thermal cut-out reliability | | N/A |
| K.6 | Stability of operation | (see appended table 5.3) | N/A |
| L | ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2) | | P |
| L.1 | Typewriters | | N/A |
| L.2 | Adding machines and cash registers | | N/A |
| L.3 | Erasers | | N/A |
| L.4 | Pencil sharpeners | | N/A |
| L.5 | Duplicators and copy machines | | N/A |
| L.6 | Motor-operated files | | N/A |
| L.7 | Other business equipment | Rated load, as specified by Manufacturer. | P |
| M | ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1) | | N/A |
| M.1 | Introduction | | N/A |
| M.2 | Method A | | N/A |
| M.3 | Method B | | N/A |

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|-----------------|--|---|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| M.3.1 | Ringing signal | | N/A |
| M.3.1.1 | Frequency (Hz) | | — |
| M.3.1.2 | Voltage (V) | | — |
| M.3.1.3 | Cadence; time (s), voltage (V) | | — |
| M.3.1.4 | Single fault current (mA) | | — |
| M.3.2 | Tripping device and monitoring voltage | | N/A |
| M.3.2.1 | Conditions for use of a tripping device or a monitoring voltage | | N/A |
| M.3.2.2 | Tripping device | | N/A |
| M.3.2.3 | Monitoring voltage (V) | | N/A |
| N | ANNEX N, IMPULSE TEST GENERATORS (see 1.5.7.2, 1.5.7.3, 2.10.3.9, 6.2.2.1, 7.3.2, 7.4.3 and Clause G.5) | | N/A |
| N.1 | ITU-T impulse test generators | | N/A |
| N.2 | IEC 60065 impulse test generator | | N/A |
| P | ANNEX P, NORMATIVE REFERENCES | | — |
| Q | ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1) | | P |
| | a) Preferred climatic categories | Minimum climatic category -10 to +85°C; min. 21 days damp heat steady state test. | P |
| | b) Maximum continuous voltage | 300V | P |
| | c) Pulse current | Min. 6kV/3kA pulse 1,2/50 µs | P |
| R | ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES | | N/A |
| R.1 | Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2) | | N/A |
| R.2 | Reduced clearances (see 2.10.3) | | N/A |
| S | ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3) | | N/A |
| S.1 | Test equipment | | N/A |
| S.2 | Test procedure | | N/A |
| S.3 | Examples of waveforms during impulse testing | | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| T | ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2) | | N/A |
| | | See separate test report. | — |
| U | ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4) | | P |
| | | See list of critical components. All used triple insulated wires are already approved to Annex U. No additional tests considered required. | — |
| V | ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1) | | P |
| V.1 | Introduction | | P |
| V.2 | TN power distribution systems | | P |
| W | ANNEX W, SUMMATION OF TOUCH CURRENTS | | N/A |
| W.1 | Touch current from electronic circuits | | N/A |
| W.1.1 | Floating circuits | | N/A |
| W.1.2 | Earthed circuits | | N/A |
| W.2 | Interconnection of several equipments | | N/A |
| W.2.1 | Isolation | | N/A |
| W.2.2 | Common return, isolated from earth | | N/A |
| W.2.3 | Common return, connected to protective earth | | N/A |
| X | ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1) | | P |
| 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) | | N/A |
| Y.1 | Test apparatus | | N/A |
| Y.2 | Mounting of test samples | | N/A |
| Y.3 | Carbon-arc light-exposure apparatus | | N/A |
| Y.4 | Xenon-arc light exposure apparatus | | N/A |
| Z | ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2) | | N/A |

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

| | | | |
|-----------|--|--|-----|
| AA | ANNEX AA, MANDREL TEST (see 2.10.5.8) | | N/A |
|-----------|--|--|-----|

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

| | | | |
|-----------|---|--|-----|
| CC | ANNEX CC, Evaluation of integrated circuit (IC) current limiters | | N/A |
| CC.1 | General | | N/A |
| CC.2 | Test program 1.....: | | N/A |
| CC.3 | Test program 2.....: | | N/A |

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

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

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

| 1.5.1 | TABLE: list of critical components | | | | | P |
|--|------------------------------------|------------|--|--------------------------------|--|---|
| object/part No. | manufacturer/ trademark | type/model | technical data | standard | mark(s) of conformity ¹⁾ | |
| Fuse (F1, F2) (for 65 W output power) F2 is optional | +Walter | 2010 | Time delay 2 A / 250 Vac Soldered to PCB 8,5 x 4 mm | IEC/EN 60127 (JDYX2) | VDE 40018781 UL E56092 | |
| (alternative) | Conquer | MST | Time delay 2 A / 250 Vac Soldered to PCB 8,5 x 4 mm | IEC/EN 60127 (JDYX2) | VDE 40017118 UL E82636 | |
| (alternative) | Cooper Bussmann | SS-5 | Time delay 2 A / 250 Vac Soldered to PCB 8,5 x 4 mm | IEC/EN 60127 (JDYX2) | VDE 40031800 UL E19180 | |
| (alternative) | Bel Fuse inc. | RST | Time delay 2 A / 250 Vac Soldered to PCB 8,5 x 4 mm | IEC/EN 60127 (JDYX2) | VDE 40011144 UL E20624 | |
| (alternative) | Littelfuse | 392 | Time delay 2 A / 250 Vac Soldered to PCB 8,5 x 4 mm | IEC/EN 60127 (JDYX2) | VDE 126983 UL E67006 | |
| (alternative) | SUN Electric Company | 5T | Time delay 2 A / 250 Vac Soldered to PCB 5 x 20 mm | IEC/EN 60127 (JDYX2) | VDE 40027241 UL E166522 | |
| (alternative) | SUN Electric Company | 5H | Time delay 2 A / 250 Vac Soldered to PCB 5 x 20 mm | IEC/EN 60127 (JDYX2) | VDE 40028239 UL E166522 | |

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|---|-----------------------------|------|---|-------------------------|----------------------------|
| Clause | Requirement + Test | | Result - Remark | | Verdict |
| (alternative) | Walter Electronic Co., Ltd. | TSD | Time delay 2 A / 250 Vac Soldered to PCB 5 x 20 mm | IEC/EN 60127 (JDYX2) | VDE 40001370 UL E56092 |
| Fuse (F1, F2) (for 80 W output power) F2 is optional | + Walter | 2010 | Time delay 3.15 A / 250 Vac Soldered to PCB 8,5 x 4 mm | IEC/EN 60127 (JDYX2) | VDE 40018781 UL E56092 |
| (alternative) | Conquer | MST | Time delay 3,15 A / 250 Vac Soldered to PCB 8,5 x 4 mm | IEC/EN 60127 (JDYX2) | VDE 40017118 UL E82636 |
| (alternative) | Cooper Bussmann | SS-5 | Time delay 3,15 A / 250 Vac Soldered to PCB 8,5 x 4 mm | IEC/EN 60127 (JDYX2) | VDE 40031800 UL E19180 |
| (alternative) | Bel Fuse inc. | RST | Time delay 3,15 A / 250 Vac Soldered to PCB 8,5 x 4 mm | IEC/EN 60127 (JDYX2) | VDE 40011144 UL E20624 |
| (alternative) | Littelfuse | 392 | Time delay 3,15 A / 250 Vac Soldered to PCB 8,5 x 4 mm | IEC/EN 60127 (JDYX2) | VDE 126983 UL E67006 |
| (alternative) | SUN Electric Company | 5T | Time delay 3,15 A / 250 Vac Soldered to PCB 5 x 20 mm | IEC/EN 60127 (JDYX2) | VDE 40027241 UL E166522 |
| (alternative) | SUN Electric Company | 5H | Time delay 3,15 A / 250 Vac Soldered to PCB 5 x 20 mm | IEC/EN 60127 (JDYX2) | VDE 40028239 UL E166522 |

| IEC 60950-1/Am1 | | | | | |
|---------------------------------------|---|----------------|--|----------------------------|----------------------------|
| Clause | Requirement + Test | | Result - Remark | | Verdict |
| (alternative) | Walter Electronic Co., Ltd. | TSD | Time delay 3,15 A / 250 Vac Soldered to PCB 5 x 20 mm | IEC/EN 60127 (JDYX2) | VDE 40001370 UL E56092 |
| Capacitor (CY7, CY8) (optional) | +TDK | CD CS | Min.250 Vac Max.470 pF Min.Y2 | IEC/EN 60384-14 (FOWX2) | VDE 138526 UL E37861 |
| (alternative) | SUCCESS Electronics Co. Ltd. | SE SB SF | Min.250 Vac Max.470 pF Min. Y2 | IEC/EN 60384-14 (FOWX2) | VDE 40008996 UL E114280 |
| (alternative) | JYA-NAY Co., Ltd. | JN JY | Min.250 Vac Max.470 pF Min. Y2 | IEC/EN 60384-14 (FOWX2) | VDE 40001831 UL E201384 |
| (alternative) | Haohua Electronic Co. | CT7 | Min.250 Vac Max.470 pF Min. Y2 | IEC/EN 60384-14 (FOWX2) | VDE 40003902 UL E233106 |
| (alternative) | Welson | WD | Min.250 Vac Max.470 pF Min. Y2 | IEC/EN 60384-14 (FOWX2) | VDE 40016157 UL E104572 |
| (alternative) | CHYUN FUH Electronic Co., Ltd. | CD | Min.250 Vac Max.470 pF Min. Y2 | IEC/EN 60384-14 (FOWX2) | VDE 40001223 UL E202835 |
| (alternative) | Murata Mfg. Co., Ltd. | KX KH | Min.250 Vac Max.470 pF Min. Y2 | IEC/EN 60384-14 (FOWX2) | VDE 40002831 UL E379921 |
| (alternative) | ZHI WEI Electronics Co., Ltd. | DJ | Min.250 Vac Max.470 pF Min. Y2 | IEC/EN 60384-14 (FOWX2) | VDE 40032789 UL E330260 |
| (alternative) | Shantou High-New Technology Developmnt Zone Songtian Enterprise Co., Ltd. | CD | Min.250 Vac Max.470 pF Min. Y2 | IEC/EN 60384-14 (FOWX2) | VDE 40025754 UL E208107 |

| IEC 60950-1/Am1 | | | | | |
|----------------------------|--|-------------|---|---|----------------------------|
| Clause | Requirement + Test | | Result - Remark | | Verdict |
| (alternative) | Walsin Technology Corp. | AH | Min.250 Vac Max.470 pF Min. Y2 | IEC/EN 60384-14 (FOWX2) | VDE 40001804 UL E146544 |
| Capacitor (CX1) (optional) | +Ultra Tech Xiphi Enterprise Co., Ltd. | HQX | Min. 250 Vac Max. 0,15µF Min X2 or X1 | IEC/EN 60384-14 (FOWX2) | VDE 40024534 UL E183780 |
| (alternative) | Dain Electronics Co., Ltd. | MPX | Min. 250 Vac Max. 0,15µF Min X2 or X1 | IEC/EN 60384-14 (FOWX2) | VDE 40018798 UL E147776 |
| (alternative) | Shantou High-New Technology Development Zone Songtian Enterprise Co., Ltd. | MPX | Min. 250 Vac Max. 0,15µF Min X2 or X1 | IEC/EN 60384-14 (FOWX2) | VDE 40034679 UL E208107 |
| (alternative) | Cheng Tung Industrial | CTX | Min. 250 Vac Max. 0,15µF Min X2 or X1 | IEC/EN 60384-14 (FOWX2) | VDE 40022642 UL E193049 |
| (alternative) | Tenta Electric Industrial Co. Ltd. | MEX | Min. 250 Vac Max. 0,15µF Min X2 or X1 | IEC/EN 60384-14 (FOWX2) | VDE 119119 UL E222911 |
| Varistor (VDR1) | +Success Electronics | SVR10D47 1K | 300 Vrms; 385 Vdc diameter: 10 mm | IEC/EN 61051-2 IEC/EN 60950-1 Annex Q (VZCA2) | VDE 40030401 UL E330256 |
| (alternative) | Success Electronics | SVR10D51 1K | 300 Vrms; 385 Vdc diameter: 10 mm | IEC/EN 61051-2 IEC/EN 60950-1 Annex Q (VZCA2) | VDE 40030401 UL E330256 |
| (alternative) | Success Electronics | SVR14D47 1K | 300 Vrms; 385 Vdc diameter: 10 mm | IEC/EN 61051-2 IEC/EN 60950-1 Annex Q (VZCA2) | VDE 40030401 UL E330256 |

| IEC 60950-1/Am1 | | | | | |
|-----------------|--------------------|-----------------|--------------------------------------|--|--------------------------------|
| Clause | Requirement + Test | | | Result - Remark | Verdict |
| (alternative) | Thinking | TVR10471 | 300 Vrms; 385 Vdc diameter: 10 mm | IEC/EN 61051-2 IEC/EN 60950-1 Annex Q (VZCA2) | VDE 5944 UL E314979 |
| (alternative) | Thinking | TVR10511 | 300 Vrms; 385 Vdc diameter: 10 mm | IEC/EN 61051-2 IEC/EN 60950-1 Annex Q (VZCA2) | VDE 5944 UL E314979 |
| (alternative) | Thinking | TVR14471 | 300 Vrms; 385 Vdc diameter: 14 mm | IEC/EN 61051-2 IEC/EN 60950-1 Annex Q (VZCA2) | VDE 5944 UL E314979 |
| (alternative) | Thinking | TVR14511 | 300 Vrms; 385 Vdc diameter: 14 mm | IEC/EN 61051-2 IEC/EN 60950-1 Annex Q (VZCA2) | VDE 5944 UL E314979 |
| (alternative) | Centra | CNR- 10D471K | 300 Vrms; 385 Vdc diameter: 10 mm | IEC/EN 61051-2 IEC/EN 60950-1 Annex Q (VZCA2) | VDE 40008220 UL E316325 |
| (alternative) | Centra | CNR- 10D511K | 300 Vrms; 385 Vdc diameter: 10 mm | IEC/EN 61051-2 IEC/EN 60950-1 Annex Q (VZCA2) | VDE 40008220 UL E316325 |
| (alternative) | Centra | CNR- 14D471K | 300 Vrms; 385 Vdc diameter: 14 mm | IEC/EN 61051-2 IEC/EN 60950-1 Annex Q (VZCA2) | VDE 40008220 UL E316325 |

| IEC 60950-1/Am1 | | | | | |
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| Clause | Requirement + Test | | | Result - Remark | Verdict |
| (alternative) | Joyin Co., Ltd. | JVR10N47 1K | 300 Vrms; 385 Vdc diameter: 10 mm | IEC/EN 61051-2 IEC/EN 60950-1 Annex Q (VZCA2) | VDE 5937 UL E325508 |
| (alternative) | Joyin Co., Ltd. | JVR10N51 1K | 300 Vrms; 385 Vdc diameter: 10 mm | IEC/EN 61051-2 IEC/EN 60950-1 Annex Q (VZCA2) | VDE 5937 UL E325508 |
| (alternative) | Joyin Co., Ltd. | JVR14N47 1K | 300 Vrms; 385 Vdc diameter: 14 mm | IEC/EN 61051-2 IEC/EN 60950-1 Annex Q (VZCA2) | VDE 5937 UL E325508 |
| (alternative) | Ceramate Techn. Co., Ltd. | GNR10D47 1K | 300 Vrms; 385 Vdc diameter: 10 mm | IEC/EN 61051-2 IEC/EN 60950-1 Annex Q (VZCA2) | VDE 40031745 UL E315429 |
| (alternative) | Ceramate Techn. Co., Ltd. | GNR10D51 1K | 300 Vrms; 385 Vdc diameter: 10 mm | IEC/EN 61051-2 IEC/EN 60950-1 Annex Q (VZCA2) | VDE 40031745 UL E315429 |
| (alternative) | Ceramate Techn. Co., Ltd. | GNR14D47 1K | 300 Vrms; 385 Vdc diameter: 14 mm | IEC/EN 61051-2 IEC/EN 60950-1 Annex Q (VZCA2) | VDE 40031745 UL E315429 |
| Resistor bleeding (R1, R2) | Various | Various | Max. 360 kΩ Min. 1/8 W | IEC/EN 60950-1 | Accepted |
| Inductor (LF1) | Globtek | Open type construction. | | IEC/EN 60950-1 | Accepted |
| | Sunycore Electronics Company Ltd | GTM2065-LF1 OD: 19,0 x 17,5 x 22,0 mm | | | |
| | BOAM | Min. 2 x 17 mH | | | |

| IEC 60950-1/Am1 | | | | | |
|----------------------------------|---|------------------------|---|-------------------------------|--------------------------------|
| Clause | Requirement + Test | | | Result - Remark | Verdict |
| | ZhongTong | Class B (130°C) | | | |
| | Hejia | | | | |
| -- Bobbin | +Chang Chung Plastic Co., Ltd. | T375J T375HF | UL94-V0 at minimum 0,45 mm thickness RTI: 150°C | IEC/EN 60950-1 (QMFZ2) | Accepted. UL E59481 |
| -- Insulation tape | +Jingjiang Yahua Pressure Sensitive Glue Co., Ltd. | CT series PZ series | 130°C | IEC/EN 60950-1 (OANZ2) | Accepted. UL E165111 |
| Capacitor (CX2) (optional) | +Ultra Tech Xiphi Enterprise Co., Ltd. | HQX | Min. 250 Vac Max. 0,15 µF Min X2 or X1 | IEC/EN 60384-14 (FOWX2) | VDE 40024534 UL E183780 |
| (alternative) | Dain Electronics Co., Ltd. | MPX | Min. 250 Vac Max. 0,15 µF Min X2 or X1 | IEC/EN 60384-14 (FOWX2) | VDE 40018798 UL E147776 |
| (alternative) | Shantou High- New Technology Development Zone Songtian Enterprise Co., Ltd. | MPX | Min. 250 Vac Max. 0,15 µF Min X2 or X1 | IEC/EN 60384-14 (FOWX2) | VDE 40034679 UL E208107 |
| (alternative) | Cheng Tung Industrial | CTX | Min. 250 Vac Max. 0,15 µF Min X2 or X1 | IEC/EN 60384-14 (FOWX2) | VDE 40022642 UL E193049 |
| (alternative) | Tenta Electric Industrial Co. Ltd. | MEX | Min. 250 Vac Max. 0,15 µF Min X2 or X1 | IEC/EN 60384-14 FOWX2) | VDE 119119 UL E222911 |
| Resistor (RT1) | + Nanjing Btvop Electronics Co., Ltd. | MF71 | 2,5 W Ø 8,0 mm 5 Ω at 25°C | IEC/EN 60950-1 | Accepted. |
| (alternative) | + NTC | SCK | 2,5 W Ø 8,0 mm 5 Ω at 25°C | IEC/EN 60950-1 | Accepted. |

| IEC 60950-1/Am1 | | | | | |
|---------------------------------------|--|-----------------------------------|---------------------------------------|-------------------------------|----------------------------|
| Clause | Requirement + Test | | | Result - Remark | Verdict |
| Capacitor (CY1, CY2) (optional) | + TDK | CD CS | Min.250 Vac Max.1000 pF Min. Y2 | IEC/EN 60384-14 (FOWX2) | VDE 138526 UL E37861 |
| (alternative) | SUCCESS Electronics Co. Ltd. | SE SB SF | Min.250 Vac Max.1000 pF Min. Y2 | IEC/EN 60384-14 (FOWX2) | VDE 40008996 UL E114280 |
| (alternative) | JYA-NAY Co., Ltd. | JN JY | Min.250 Vac Max.1000 pF Min. Y2 | IEC/EN 60384-14 (FOWX2) | VDE 40001831 UL E201384 |
| (alternative) | Haohua Electronic Co. | CT7 | Min.250 Vac Max.1000 pF Min. Y2 | IEC/EN 60384-14 (FOWX2) | VDE 40003902 UL E233106 |
| (alternative) | Welson | WD | Min.250 Vac Max.1000 pF Min. Y2 | IEC/EN 60384-14 (FOWX2) | VDE 40016157 UL E104572 |
| (alternative) | CHYUN FUH Electronic Co., Ltd. | CD | Min.250 Vac Max.1000 pF Min. Y2 | IEC/EN 60384-14 (FOWX2) | VDE 40001223 UL E202835 |
| (alternative) | Murata Mfg. Co., Ltd. | KX KH | Min.250 Vac Max.1000 pF Min. Y2 | IEC/EN 60384-14 (FOWX2) | VDE 40002831 UL E37921 |
| (alternative) | ZHI WEI Electronics Co., Ltd. | DJ | Min.250 Vac Max.1000 pF Min. Y2 | IEC/EN 60384-14 (FOWX2) | VDE 40032789 UL E330260 |
| (alternative) | Shantou High- New Technology Developmnt Zone Songtian Enterprise Co., Ltd. | CD | Min.250 Vac Max.1000 pF Min. Y2 | IEC/EN 60384-14 (FOWX2) | VDE 40025754 UL E208107 |
| (alternative) | Walsin Technology Corp. | AH | Min.250 Vac Max.1000 pF Min. Y2 | IEC/EN 60384-14 (FOWX2) | VDE 40001804 UL E146544 |
| Inductor | GlobTek | Magnet wire wound on ferrite core | | IEC/EN | Accepted. |

| IEC 60950-1/Am1 | | | | | |
|----------------------------|--|--|--|------------------------|-----------------------------|
| Clause | Requirement + Test | | | Result - Remark | Verdict |
| (LF2) | Sunycore Electronics Company Ltd. | GTM2065-LF2 OD (approximately): 16,0 x 9,0 x 7,0 mm (core) | | 60950-1 | |
| | BOAM | Min. 2x50uH | | | |
| | ZhongTong | Class B (130°C) | | | |
| | Hejia | | | | |
| -- Wire | + Wuxi Huajia Electrical Wires Co., Ltd. | + 2UEW | 130°C 0,50 mm | IEC/EN 60950-1 (OBMW2) | Accepted. UL E226829 |
| Inductor (LF2) (alternate) | GlobTek/Suny core/BOAM/Z hongTong/Heji a | Magnet wire wound on ferrite core GTM2065-LF2 OD (approximately): 12,7 x 7,9 x 6,35 mm (core) Min. 5mH Class B (130°C) | | IEC/EN 60950-1 | Accepted. |
| -- Wire | + Wuxi JunFengf | + 2UEW | 130°C 0,50 mm | IEC/EN 60950-1 (OBMW2) | Accepted. UL E206882 |
| Inductor (L1) | Globtek | Magnet wire wound on bobbin | | IEC/EN 60950-1 | Accepted |
| | Sunycore | GTM2065-L1 | | | |
| | Electronics Company Ltd. | OD: 26,0 x 20 x 2,0 mm Min. 12 mH Class B (130°C) | | | |
| | BOAM | | | | |
| | ZhongTong | | | | |
| | Hejia | | | | |
| -- Bobbin | + Chang Chun | T375J T375HF | Rated min. 94V-1 at min thickness 0,45 mm RTI 150°C | IEC/EN 60950-1 (QMFZ2) | Accepted. UL E59481 |
| -- Wire | + Wuxi Huajia Electrical Wires Co., Ltd. | 2UEW | 0,50 mm 130°C | IEC/EN 60950-1 (OBMW2) | Accepted. UL E226829 |
| Inductor | Globtek | Magnet wire wound on ferrite core | | IEC/EN | Accepted. |

| IEC 60950-1/Am1 | | | | | |
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| Clause | Requirement + Test | | | Result - Remark | Verdict |
| (L1) (alternative) | Sunycore Electronics Company Ltd. | GTM2065-L1 Min. 90uH Class B (130°C) | | 60950-1 | |
| | BOAM | | | | |
| | ZhongTong | | | | |
| | Hejia | | | | |
| -- Wire | + Dong Yang Electronics Ind Co., Ltd. | + 2UEW | 130°C 0,65 mm | IEC/EN 60950-1 (OBMW2) | Accepted. UL E102761 |
| | Shanghai Asia Pacific Electric Co., Ltd. | 2UEW | 130°C 0,65 mm | IEC/EN 60950-1 (OBMW2) | Accepted. UL E214423 |
| -- Tube | + Shenzhen Woer Heat-Shrinkable Material Co., Ltd. | -- | Ø 21 mm 125°C | IEC/EN 60601-1 (YDPU2) | Accepted. UL E203950 |
| Diode bridge (BD1) | DIOTEC Electronics Corp. | SBU 6J | Min. 600 V Min. 6 A Min. 150°C | IEC/EN 60950-1 (QQQX2) | Accepted. UL E124962 |
| | Various | Various | Min. 600 V Min. 4 A Min. 130°C | IEC/EN 60950-1 (QQQX2) | Accepted. UL approved. |
| Capacitor (C1) | Samxon | KM series | Max. 150 µF Min. 400 V Min. 105°C 18,0 x 35,0 mm | IEC/EN 60950-1 | Accepted. |
| | Various | Various | Max. 150 µF Min. 400 V Min. 105°C 18,0 x 35,0 mm | IEC/EN 60950-1 | Accepted. |
| Transistor (Q1) | Various | Various | Min. 10 A Min. 600 V | IEC/EN 60601-1 | Accepted. |

| IEC 60950-1/Am1 | | | | | |
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| Clause | Requirement + Test | | Result - Remark | | Verdict |
| Optocoupler (U2, U4) | Lite-On | LTV-817 | Dti > 0,6mm, Int cr > 5,2mm, Ext cr > 7,8mm, Isolation 3000Vac min., 100°C min., Thermal cycling test | IEC/EN 60950-1 VDE 0884 (FPQU2) | VDE 94722, FI UL E113898 |
| | Fairchild | H11A817B | Dti = 0,7mm, int. cr. =5,2mm, ext. cr./cl. =7,8/7,4mm, Isolation 3000Vac, Min., 100°C min., | IEC/EN 60950-1 VDE0884 (FPQU2) | VDE 104801 UL E90700 |
| | Fairchild | FOD817C | Dti = 0,7mm, int. cr. =5,2mm, ext. cr./cl. =7,8/7,4mm, Isolation 3000Vac, Min., 100°C min., | IEC/EN 60950-1 VDE0884 (FPQU2) | VDE 104801 UL E90700 |
| | Everlight Electronics Co., Ltd. | EL817 | Dti >0,5mm, int. cr > 6,0mm, ext. cr > 7,7mm, Isolation 3000Vac min., 100°C min., Thermal cycling test | IEC/EN 60950-1 VDE 0884 GB4943.1- 2011 (FPQU2) | VDE 132249, FI CQC UL E214129 |
| | Cosmo Electronics Corp. | K1010 | Dti > 0,4mm, Int cr > 5,3mm, Ext cr > 8,0mm, Isolation 3000Vac min., 100°C min., Thermal cycling test | IEC/EN 60950-1 VDE 0884 GB4943.1- 2011 (FPQU2) | VDE 101347, FI CQC UL E169586 |

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|---------------------------------------|--------------------------------|---------|--|--|---|
| Clause | Requirement + Test | | Result - Remark | | Verdict |
| | Cosmo Electronics Corp. | KP1010 | Dti > 0,4mm, Int cr > 5,3mm, Ext cr > 8,0mm, Isolation 3000Vac min., 100°C min., Thermal cycling test | IEC/EN 60950-1 VDE 0884 GB4943.1-2011 (FPQU2) | VDE 101347, FI UL E169586 |
| | Bright LED Electronics Corp. | BPC-817 | Dti > 0,4mm, Int cr > 5,0mm, Ext cr > 7,8mm, Isolation 3000Vac min., 100°C min., | IEC/EN 60747-1 IEC/EN 60950-1 (FPQU2) | VDE 40007240 CSA 218896 UL E64380 |
| Capacitor (CY3, CY4) (optional) | + TDK | CD | Min.250 Vac Max.470 pF Min. Y1 | IEC/EN 60384-14 (FOWX2) | VDE 138526 UL E37861 |
| (alternative) | SUCCESS Electronics Co. Ltd. | SE | Min.250 Vac Max.470 pF Min. Y1 | IEC/EN 60384-14 (FOWX2) | VDE 40008996 UL E114280 |
| (alternative) | JYA-NAY Co., Ltd. | JN | Min.250 Vac Max.470 pF Min. Y1 | IEC/EN 60384-14 (FOWX2) | VDE 40001831 UL E201384 |
| (alternative) | Haohua Electronic Co. | CT7 | Min.250 Vac Max.470 pF Min. Y1 | IEC/EN 60384-14 (FOWX2) | VDE 40003902 UL E233106 |
| (alternative) | Welson | WD | Min.250 Vac Max.470 pF Min. Y1 | IEC/EN 60384-14 (FOWX2) | VDE 40016157 UL E104572 |
| (alternative) | CHYUN FUH Electronic Co., Ltd. | CD | Min.250 Vac Max.470 pF Min. Y1 | IEC/EN 60384-14 (FOWX2) | VDE 40001223 UL E202835 |
| (alternative) | Murata Mfg. Co., Ltd. | KX | Min.250 Vac Max.470 pF Min. Y1 | IEC/EN 60384-14 (FOWX2) | VDE 40002831 UL E379921 |

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| Clause | Requirement + Test | | | Result - Remark | Verdict |
| (alternative) | ZHI WEI Electronics Co., Ltd. | DJ | Min.250 Vac Max.470 pF Min. Y1 | IEC/EN 60384-14 (FOWX2) | VDE 40032789 UL E330260 |
| (alternative) | Shantou High-New Technology Developmnt Zone Songtian Enterprise Co., Ltd. | CD | Min.250 Vac Max.470 pF Min. Y1 | IEC/EN 60384-14 (FOWX2) | VDE 40025754 UL E208107 |
| (alternative) | Walsin Technology Corp. | AH | Min.250 Vac Max.470 pF Min. Y1 | IEC/EN 60384-14 (FOWX2) | VDE 40001804 UL E146544 |
| Transformer (T1) | Open type construction GTM2065403.3 GTM20654005 GTM2065657.5 GTM20656509 GTM20656512 GTM20656515 GTM20656518 GTM20656524 GTM20656536 GTM20656548 +GlobTek or BOAM or Hejia or ZhongTong Primary: enamelled copper wire Secondary: triple insulated wire: + Great Leoflon, TRW-B (VDE 136581, (OBJT2) UR E211989) or + COSMOLINK CO., LTD., TIW-M (VDE 138053, (OBJT2) UR E213764) or + FURUKAWA, TEX-E (VDE 006735, (OBJT2) UR E206440) Bobbin: Phenolic, (QMFZ2) UR E59481, type +T373HF, T375J from Chang Chun, rated min. 94V-1 at min thickness 0,45 mm, RTI 150°C or (QMFZ2) UR E41429, type PM-9820 from Sumitomo Bakelite, rated 94V-0 at min. 0,16 mm thickness, measured thickness: 0,5 mm; RTI=150°C or equivalent Class B | | | IEC/EN 60950-1 | Accepted. |

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| Clause | Requirement + Test | | | Result - Remark | Verdict |
| Capacitor (C101, C102, C103, C104) | Samxon | KM series | Max. 1000uF Min. 16Vdc (for models with output voltage below 16Vdc) Min. 35 V (for models with output voltage below 35 Vdc) Min. 50 V (for other models) Min. 105°C 10,0 x 20,0 mm | IEC/EN 60950-1 | Accepted. |
| | Various | Various | Max. 1000uF Min. 16Vdc (for models with output voltage below 16Vdc) Min. 35 V (for models with output voltage below 35 Vdc) Min. 50 V (for other models) Min. 105°C 10,0 x 20,0 mm | IEC/EN 60950-1 | Accepted. |
| Inductor (L100) | GlobTek | Choke GTM2065-4*12 Min. 0,7 µH Class B (130°C) | | IEC/EN 60950-1 | Accepted. |
| | Sunycore Electronics Company Ltd. | | | | |
| | BOAM | | | | |
| | ZhongTong | | | | |
| | Hejia | | | | |
| -- Wire | + Dong Yang Electronics Ind Co., Ltd. | + 2UEW | 130°C 0,8 mm | IEC/EN 60950-1 (OBMW2) | Accepted. UL E102761 |
| | Shanghai Asia Pacific Electric Co., Ltd. | 2UEW | 130°C 0,8 mm | IEC/EN 60950-1 (OBMW2) | Accepted. UL E214423 |
| Capacitor (CY5, CY6) (optional) | + TDK | CD | Min.250 Vac Max.1000 pF Min. Y2 | IEC/EN 60384-14 (FOWX2) | VDE 138526 UL E37861 |

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| Clause | Requirement + Test | | Result - Remark | | Verdict |
| (alternative) | SUCCESS Electronics Co. Ltd. | SE | Min.250 Vac Max.1000 pF Min. Y2 | IEC/EN 60384-14 (FOWX2) | VDE 40008996 UL E114280 |
| (alternative) | JYA-NAY Co., Ltd. | JN | Min.250 Vac Max.1000 pF Min. Y2 | IEC/EN 60384-14 (FOWX2) | VDE 40001831 UL E201384 |
| (alternative) | Haohua Electronic Co. | CT7 | Min.250 Vac Max.1000 pF Min. Y2 | IEC/EN 60384-14 (FOWX2) | VDE 40003902 UL E233106 |
| (alternative) | Welson | WD | Min.250 Vac Max.1000 pF Min. Y2 | IEC/EN 60384-14 (FOWX2) | VDE 40016157 UL E104572 |
| (alternative) | CHYUN FUH Electronic Co., Ltd. | CD | Min.250 Vac Max.1000 pF Min. Y2 | IEC/EN 60384-14 (FOWX2) | VDE 40001223 UL E202835 |
| (alternative) | Murata Mfg. Co., Ltd. | KX | Min.250 Vac Max.1000 pF Min. Y2 | IEC/EN 60384-14 (FOWX2) | VDE 40002831 UL E379921 |
| (alternative) | ZHI WEI Electronics Co., Ltd. | DJ | Min.250 Vac Max.1000 pF Min. Y2 | IEC/EN 60384-14 (FOWX2) | VDE 40032789 UL E330260 |
| (alternative) | Shantou High-New Technology Development Zone Songtian Enterprise Co., Ltd. | CD | Min.250 Vac Max.1000 pF Min. Y2 | IEC/EN 60384-14 (FOWX2) | VDE 40025754 UL E208107 |
| (alternative) | Walsin Technology Corp. | AH | Min.250 Vac Max.1000 pF Min. Y2 | IEC/EN 60384-14 (FOWX2) | VDE 40001804 UL E146544 |
| Input connector (CON1) | + Molex Electronics | A-41791 series 26-60-4030 | UL94-V0 7 A / 250 Vac per contact 2 pins | IEC/EN 60601-1 (ECBT2) | Accepted. UL E29179 |

| IEC 60950-1/Am1 | | | | | |
|---|-----------------------------------|------------------------------|---|------------------------|--------------------------|
| Clause | Requirement + Test | | Result - Remark | | Verdict |
| Output connector (CON3) | + Molex Electronics | A-42227 series 26-60-4060 | UL94-V0 4 A / 250 Vac per contact 6 pins | IEC/EN 60601-1 (ECBT2) | Accepted. UL E29179 |
| | Joint Tech Electronic | A2542 series | UL94-V0 4 A / 250 Vac per contact 6 pins | IEC/EN 60950-1 (ECBT2) | Accepted. UL E179987 |
| Printed circuit board (PCB) | Yuanman Printed Circuit Co., Ltd. | 1V0 | Min. UL94-V0 Min. 130°C 127,0 x 76,0 mm Min. thickness: 1,6 mm | IEC/EN 60950-1 (ZPMV2) | Accepted. UL E74757 |
| | Various | Various | Min. UL94-V0 Min. 130°C 127,0 x 76,0 mm Min. thickness: 1,6 mm | IEC/EN 60950-1 (ZPMV2) | Accepted. UL approved |
| EMC shield (for models with protective earth) | Cheerful | 02 | Min. UL94-V0 Min. 130°C Copper provided on outer side. 127,0 x 76,0 mm Min. thickness: 1,0 mm Distance between edge and cooper: 4,8 mm | IEC/EN 60950-1 (ZPMV2) | Accepted. UL E19724 |
| | Various | Various | Min. UL94-V0 Min. 130°C Copper provided on outer side. 127,0 x 76,0 mm Min. thickness: 1,0 mm Distance between edge and cooper: 4,8 mm | IEC/EN 60950-1 (ZPMV2) | Accepted. UL approved |
| PE conductor (for models with protective earth) | Various | Various | Min. 18 AWG Min. 80°C Green/yellow insulation | IEC/EN 60950-1 (AVLV2) | Accepted UL approved |

| IEC 60950-1/Am1 | | | | |
|--|--------------------|---|-------------------|----------|
| Clause | Requirement + Test | | Result - Remark | Verdict |
| Heatsink (for D101) | Various | Aluminium GTM2065-HS1 OD: 50,0 x 19,0 x 24,0 mm | IEC/EN 60950-1 | Accepted |
| Heatsink (for Q1) | Various | Aluminium GTM2065-HS1 OD: 50,0 x 19,0 x 24,0 mm | IEC/EN 60950-1 | Accepted |
| 1) ¹⁾ Provided evidence ensures the agreed level of compliance. See OD-CB2039. 2) + means, that components from other vendor and other model number, but with the same or better/higher rating and equivalent approvals are accepted 3) T1/LF1/LF2/L1/L100 from different manufacturers have the same construction. | | | | |

| IEC 60950-1/Am1 | | | |
|-----------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | | |
|---|---|---------------------|-----------------------|---|
| 1.5.1 | TABLE: Opto Electronic Devices | | | P |
| Manufacturer | Lite On | Fairchild | Everlight Electronics | |
| Type..... | LTV-817 | H11A817B FOD817C | EL817 | |
| Separately tested..... | Tested by the requirement of IEC/EN 60950 | | | |
| Bridging insulation | Reinforced | | | |
| External creepage distance | >7,8mm | >7,8mm | >7,7mm | |
| Internal creepage distance | >5,2mm | >5,2mm | >6,0mm | |
| Distance through insulation | >0,6mm | >0,7mm | >0,5mm | |
| Tested under the following conditions | | | | |
| Input..... | Primary | | | |
| Output..... | SELV | | | |
| supplementary information | | | | |
| See list of critical components. | | | | |

| | | |
|---|---|------------------------------|
| Manufacturer | Cosmo Electronics | Bright LED Electronics Corp. |
| Type..... | K1010 KP1010 | BPC-817 |
| Separately tested..... | Tested by the requirement of IEC/EN 60950 | |
| Bridging insulation | Reinforced | |
| External creepage distance | >8,0mm | >7,8mm |
| Internal creepage distance | >5,3mm | >5,0mm |
| Distance through insulation | >0,4mm | >0,4mm |
| Tested under the following conditions | | |
| Input..... | Primary | |
| Output..... | SELV | |
| supplementary information | | |
| See list of critical components. | | |

| IEC 60950-1/Am1 | | | |
|-----------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| 1.6.2 | TABLE: electrical data (in normal conditions) | | | | | P |
|---|--|-------------|--------------|-------|-----------------------|------------------|
| fuse # | I _{rated} (A) | U (V) | P (W / VA) | I (A) | I _{fuse} (A) | condition/status |
| Model GTM2065-553.3-FA | | | | | | |
| F1/F2 | -- | 90 (50 Hz) | 45,3 / 82,5 | 0,91 | 0,91 | Normal condition |
| F1/F2 | 2,5 | 100 (50 Hz) | 44,8 / 84,9 | 0,85 | 0,85 | Normal condition |
| F1/F2 | -- | 240 (50 Hz) | 44,8 / 102,2 | 0,42 | 0,42 | Normal condition |
| F1/F2 | -- | 264 (50 Hz) | 45,6 / 104,7 | 0,40 | 0,40 | Normal condition |
| F1/F2 | -- | 90 (60 Hz) | 45,3 / 85,3 | 0,94 | 0,94 | Normal condition |
| F1/F2 | -- | 100 (60 Hz) | 44,9 / 86,5 | 0,86 | 0,86 | Normal condition |
| F1/F2 | 2,5 | 240 (60 Hz) | 44,8 / 101,3 | 0,42 | 0,42 | Normal condition |
| F1/F2 | -- | 264 (60 Hz) | 45,7 / 103,7 | 0,39 | 0,39 | Normal condition |
| Model: GTM2065-8048-FA | | | | | | |
| F1/F2 | -- | 90 (50 Hz) | 78,6 / 130,2 | 1,44 | 1,44 | Normal condition |
| F1/F2 | 2,5 | 100 (50 Hz) | 77,6 / 132,3 | 1,32 | 1,32 | Normal condition |
| F1/F2 | -- | 240 (50 Hz) | 76,2 / 163,2 | 0,68 | 0,68 | Normal condition |
| F1/F2 | -- | 264 (50 Hz) | 77,6 / 168,9 | 0,64 | 0,64 | Normal condition |
| F1/F2 | -- | 90 (60 Hz) | 78,6 / 131,9 | 1,46 | 1,46 | Normal condition |
| F1/F2 | -- | 100 (60 Hz) | 77,6 / 133,4 | 1,33 | 1,33 | Normal condition |
| F1/F2 | 2,5 | 240 (60 Hz) | 76,1 / 162,7 | 0,68 | 0,68 | Normal condition |
| F1/F2 | -- | 264 (60 Hz) | 77,7 / 167,8 | 0,63 | 0,63 | Normal condition |
| Comment: The steady-state input current did not exceed the rated current at the rated voltage by more than 10% under the maximum normal load. | | | | | | |

| IEC 60950-1/Am1 | | | |
|-----------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| 2.1.1.5 c) 1) | TABLE: max. V, A, VA test | | | | P |
|----------------------------|----------------------------------|-----------------------|-----------------------|-------------------|---|
| Voltage (rated) (V) | Current (rated) (A) | Voltage (max.) (V) | Current (max.) (A) | VA (max.) (VA) | |
| Model: GTM2065-333.3-F | | | | | |
| 3,3 | 9,7 | 3,3 | 19,0 | 62,7 | |
| Model: GTM2065-6548-F | | | | | |
| 48,0 | 1,36 | 48,4 | 2,7 | 121,3 | |
| | | | | | |
| supplementary information: | | | | | |
| No energy hazard (<240VA) | | | | | |

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

| | | | | | |
|---|---|---------------|-------------------------------|------------|---|
| 2.1.1.7 | TABLE: Discharge of capacitors in the primary circuit | | | | P |
| <i>The unit was connected to 264.V a.c., 50 Hz. A storage oscilloscope was connected across the external point of disconnection of the mains supply. With all switches in the unit initially set to the off position, the unit was disconnected from the supply source. The voltage at the time of disconnection, Vo, and the voltage Vtc at 1 second was recorded.</i> | | | | | |
| Model | Location | Time Constant | Measured voltage after 1 sec. | Condition | |
| GTM2065-8048-FA | L to N | 92,6 ms | 0 V | Rated load | |
| GTM2065-8048-FA | L to N | 204 ms | 16,0 V | No load | |
| | | | | | |
| Comments: The voltage across the line capacitor did decay to less than 37 percent of it's original value in 1 second. | | | | | |

| IEC 60950-1/Am1 | | | |
|-----------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | | |
|---|---|--|--------|-----------------------------|
| 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. | |
| Model: GTM2065-8048-FA | | | | |
| Transformer T1 (Pin 7,8 to Pin 10,11) | | 352,0Vpeak/ 92,52Vrms | -- | D101 |
| Transformer T1 (Pin 7,8 to D101 Cathode) | | 52,00Vpeak/ 47,64Vrms | -- | L100 |
| Transformer T1 (Pin 7,8 to L100 out) | | 49,60 | 47,66 | SELV |
| Model: GTM2065-8036-FA | | | | |
| Transformer T1 (Pin 7,8 to Pin 10,11) | | 273 Vpeak / 72,6 Vrms | -- | Diode D101 |
| Transformer T1 (Pin 7,8 to D101 Cathode) | | 40 Vpeak/ 35,5 Vrms | -- | SELV |
| Model: GTM2065-8024-FA | | | | |
| Transformer T1 (Pin 7,8 to Pin 10,11) | | 132 Vpeak / 46,9 Vrms | -- | Diode D101 |
| Transformer T1 (Pin 7,8 to D101 Cathode) | | 29 Vpeak/ 24,0 Vrms | -- | SELV |
| Fault test performed on voltage limiting components | | Voltage measured (V) in SELV circuits (V peak or V d.c.) | | |
| D101 (GTM2065-XX48-F(A)) | | Output switched off immediately. No hazard. No output voltage peaks. Unit damaged. Same results with load and no load. | | |
| L100 (GTM2065-XX48-F(A)) | | No effect on function. No output voltage peaks. Same results with load and no load. | | |
| supplementary information: | | | | |
| | | | | |

| IEC 60950-1/Am1 | | | |
|-----------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | |
|---|--|---|
| 2.4 | TABLE: Limited current circuit | P |
| <i>The unit was connected to 264 Vac, 60 Hz. A 2000 Ohms non-inductive resistor and a switch were connected between the user accessible part of a limited current circuit and either pole of the limited current circuit or earth. A storage oscilloscope was connected across the points under consideration. The switch was closed and voltages on resistor were measured.</i> | | |
| Limit values | 70 mA | |
| Circuit(s) tested | Bridging components CY3, CY4 | |
| Measured working voltage: | Max. Measured working voltage CY3: 16,3 Vpk Max. Measured working voltage CY4: 23,9 Vpk | |
| Measured frequency | CY3: 100 kHz CY4: 100 kHz | |
| Measured current through 2000 Ω | C3 was opened and the 2000 Ω resistor in series to C3 was connected to output minus and output plus. The output was connected to the PE of simulated TN mains. Max. measured current was 8,15mA. C4 was opened and the 2000 Ω resistor in series to C4 was connected to output minus and output plus. The output was connected to the PE of simulated TN mains. Max. measured current was 11,9mA. | |
| Measured capacitance | CY3 = 1 nF CY4 = 2,2 nF | |
| Comments: According to an UL PAG the touch current with D1 was measured between the capacitor to PE. The measured value was: Electric strength test was performed on the unit (see table dielectric testing) before the above measurements were done. Safety capacitors (Y1 type) provided between primary and secondary (CY3, CY4), between primary and PE (CY1, CY2, CY7, CY8) and between secondary and PE (CY5, CY6): CY3= CY4= 470 pF CY1= CY2= CY5= CY6= 1000 pF CY7= CY8= 470 pF | | |

| IEC 60950-1/Am1 | | | | |
|---|------------------------------|-------|-----------------|---------|
| Clause | Requirement + Test | | Result - Remark | Verdict |
| 2.5 | TABLE: limited power sources | | | N/A |
| Circuit output tested: | | | | |
| Measured Uoc (V) with all load circuits disconnected: | | | | |
| | I _{sc} (A) | | VA | |
| | Meas. | Limit | Meas. | Limit |
| Normal condition | | | | |
| Single fault: | | | | |
| Single fault: | | | | |
| Single fault: | | | | |
| | | | | |
| supplementary information: | | | | |
| Sc=Short circuit, Oc=Open circuit | | | | |

| IEC 60950-1/Am1 | | | |
|-----------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | |
|-----|--|---|
| 2.6 | TABLE: Resistance of earthing conductors and their terminations | P |
|-----|--|---|

Using a maximum 12 V dc power source, a current of max. 40 A was passed between the equipment earthing terminal and the part in the equipment that is required by 2.6.1 to be earthed listed below for a period of 120 s. The voltage drop from the earthing terminal to the accessible metal part required to be earthed was recorded and the resistance was calculated.

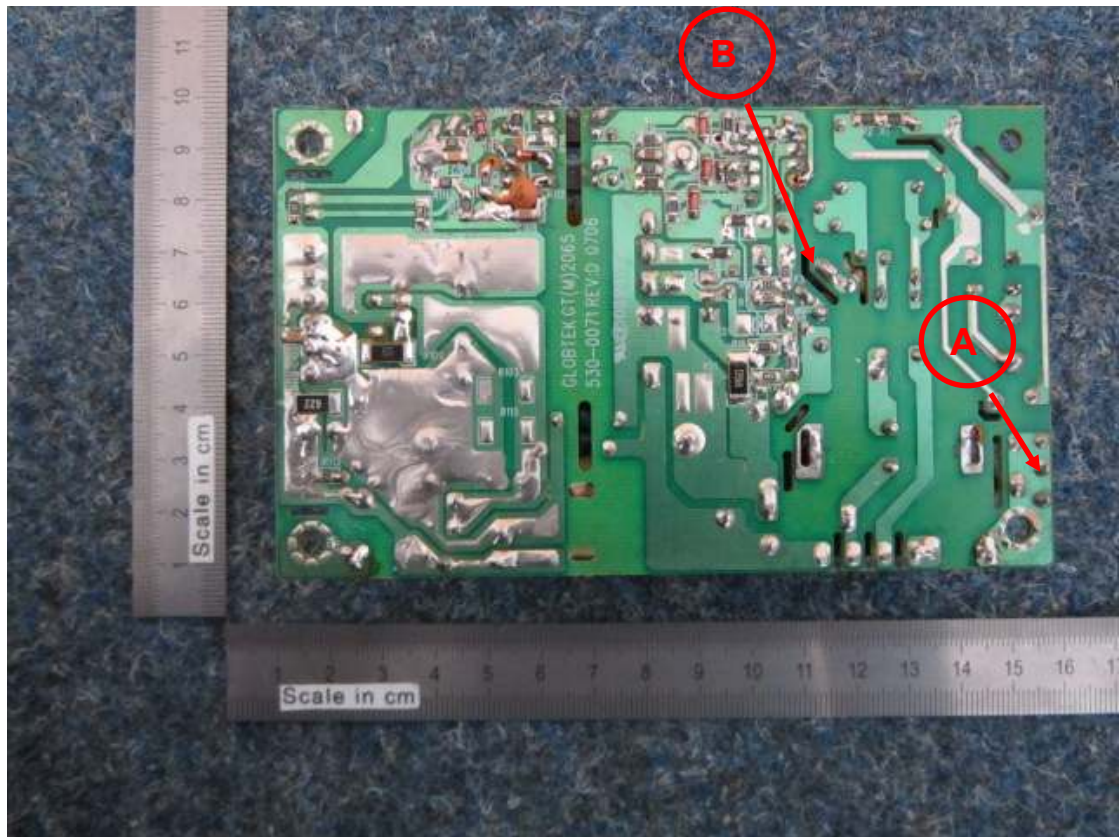
| Model | Location | Test Current in A | Measured Voltage in (mV) | Calculated Resistance (mΩ) |
|-----------------|-------------------|-------------------|--------------------------|----------------------------|
| GTM2065-8048-FA | See picture below | 25 A (60s) | 140 | 3,5 |
| GTM2065-8048-FA | See picture below | 40 A (120s) | 70 | 2,8 |
| | | | | |

Comments:

Power supply unit is intended for building-in. PE conductor provided between JZA and JZB.

Functional insulation provided between primary circuit and metal shield (reinforced insulation provided between those two parts).

Measured between point A and point B marked on the picture:



| IEC 60950-1/Am1 | | | |
|--|----------------------|-----------------|----------------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.9.1, 2.9.2, 5.2.2 | TABLE: Humidity test | | P |
| <p>A humidity chamber was maintained within 1°C of temperature “t” at a temperature of 23 °C. The unit and any other separate components were brought to a temperature between t and t + 4°C They were then placed in the chamber and held at a relative humidity of 93% for a period of 48 hours. Prior to conditioning, parts of the unit (covers) which could be removed without the use of tools were removed and separately placed in the chamber. During conditioning, cable entrances and/or a conduit openings were left open. During this treatment, the unit was not energized.</p> <p>While still in the humidity chamber, but after all parts have been placed back on the unit, a dielectric potential was applied and maintained for a period of one minute between the points indicated below. During this test, all switching devices (switches, relays, triacs, etc.) in the primary circuit were closed.</p> | | | |
| Location | | Insulation type | Potential used |
| Primary to secondary SELV (metal shield removed) | | Reinforced | 3000 Vac |
| Primary to PE | | Basic | 1740 Vac |
| Primary to metal shield (functional earth) | | Reinforced | 3000 Vac |
| | | | |
| Comment: All components were tested. | | | |

| IEC 60950-1/Am1 | | | |
|-----------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | | |
|---|------------------------------------|-----------------|------------------|----------|
| 2.10.2 | Table: working voltage measurement | | | P |
| Location | | RMS voltage (V) | Peak voltage (V) | Comments |
| GTM2065-6548-F | | | | |
| Pin 1,4 to PE | 218,1 | 344,0 | -- | |
| Pin 2 to PE | 220,8 | 416,0 | -- | |
| Pin 3 to PE | 284,2 | 488,0 | -- | |
| Pin 6 to PE | 219,2 | 348,0 | -- | |
| Pin 3 to Pin 7,8 | 285,1 | 488,0 | -- | |
| Pin 3 to Pin 10,11 | 240,4 | 432,0 | -- | |
| Optocoupler U2 | | | | |
| Pin 3 to Pin 1 | 253,9 | 392,0 | -- | |
| Pin 3 to Pin 2 | 253,1 | 388,0 | -- | |
| Pin 4 to Pin 1 | 251,5 | 388,0 | -- | |
| Pin 4 to Pin 2 | 250,0 | 388,0 | -- | |
| Optocoupler U4 | | | | |
| Pin 3 to Pin 1 | 253,6 | 392,0 | -- | |
| Pin 3 to Pin 2 | 266,5 | 416,0 | -- | |
| Pin 4 to Pin 1 | 251,5 | 388,0 | -- | |
| Pin 4 to Pin 2 | 262,5 | 412,0 | -- | |
| supplementary information: | | | | |
| Input: 240Vac ;50Hz; Rated load Neutral and output (-) were connected to PE. | | | | |

| IEC 60950-1/Am1 | | | | | | |
|--|--|--------------|------------------------------------|-----------------|------------------|---------|
| Clause | Requirement + Test | | | Result - Remark | | Verdict |
| 2.10.3 and 2.10.4 | TABLE: Clearance and creepage distance measurements | | | | | P |
| Clearance (cl) and creepage distance (cr) at/of/between: | U peak (V) | U r.m.s. (V) | Required cl (mm) | cl (mm) | Required cr (mm) | cr (mm) |
| Functional: | | | | | | |
| Line to Neutral (before fuse) | 340 | 240 | 1,5 | 4,1 | 2,5 | 4,1 |
| Line to Neutral (after fuse) | 340 | 240 | Method c) of clause 5.3.4 was used | | | |
| Basic/supplementary: | | | | | | |
| Primary to PE | 340 | 240 | 2,0 | 2,5 | 2,5 | 4,3 |
| Reinforced: | | | | | | |
| Primary to Secondary near Transformer T1 | 488 | 285 | 4,2 | 8,2 | 5,7 | 8,5 |
| Primary to Secondary on Transformer T1 | 488 | 285 | 4,2 | 7,1 | 5,7 | 7,1 |
| Primary to Secondary near optocouplers U2 & U3 | 416 | 266 | 4,0 | 5,3 | 5,4 | 6,7 |
| Supplementary information: | | | | | | |

| | | | | | | |
|--|--|-----------|------------------|-------------------|----------|---|
| 2.10.5 | TABLE: Distance through insulation measurements | | | | | P |
| Distance through insulation (DTI) at/of: | U peak (V) | U rms (V) | Test voltage (V) | Required DTI (mm) | DTI (mm) | |
| | | | | | | |
| | | | | | | |
| Supplementary information: Approved optocouplers are used. See list of critical components. | | | | | | |

| | | | | |
|---|--|-----------|-------|-------------|
| 2.10.3, 4.2.2, 4.2.3, 4.2.4 | TABLE: Steady force test (internal spacings push test) | | | P |
| <p>Components and parts, other than parts serving as an enclosure, are subjected to a steady force of 10 N ± 1 N.</p> <p>Parts of an enclosure located in Operator Access Area, which are protected by a cover or door, are subjected to a steady force of 30 N ± 3 N for a period of 5 s, applied by means of a straight unjointed version of the test finger, to the part on or within the equipment.</p> <p>External enclosures are subjected to a steady force of 250 N ± 10 N for a period of 5 s, applied in turn to the top, bottom and sides of the enclosure fitted to the equipment, by means of a suitable test tool providing contact over a circular plane surface 30 mm in diameter. However, this test is not applied to the bottom of an enclosure of equipment having a mass of more than 18 kg.</p> | | | | |
| Part | | Thickness | Force | Observation |
| Components | | — | 10 N | Pass |

| IEC 60950-1/Am1 | | | |
|-----------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | |
|--|--|---|
| 2.10.3, 4.2.2, 4.2.3, 4.2.4 | TABLE: Steady force test (internal spacings push test) | P |
| Comments: No bridging of isolation as a result of 10N test on components. | | |

| | | | | | | | | | |
|---|----------------------------|---------------|-------------------------|------------------------|---------------|---------------|---------------|-------------------|---------------|
| 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: | | | | | | | | | |

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

| IEC 60950-1/Am1 | | | |
|-----------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| MARKINGS AND INSTRUCTIONS (1.7.12, 1.7.15) | |
|--|--|
| Location of replaceable battery | |
| Language(s) | |
| Close to the battery | |
| In the servicing instructions | |
| In the operating instructions | |

| IEC 60950-1/Am1 | | | |
|-----------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | | | | |
|--|-----------------------------|---|-------|-------|-------|-------------------|
| 4.5 | TABLE: Thermal requirements | | | | | P |
| | Supply voltage (V~) | 90 | 100 | 240 | 264 | — |
| | Frequency (Hz) | 50 | 50 | 50 | 50 | — |
| | Ambient Tmin (°C) | 43,9 | 43,6 | 43,9 | 43,7 | — |
| | Ambient Tmax (°C) | 45,0 | 45,0 | 45,0 | 45,0 | — |
| Maximum measured temperature T of part/at: | | Temperatures calculated to maximum ambient temperature (°C) | | | | Allowed Tmax (°C) |
| Model: GTM2065-333.3-F | | | | | | |
| 1. | Inductor L1 | 57,1 | 56,4 | 52,7 | 52,5 | 105 |
| 2. | Diode bridge BD1 | 79,6 | 77,0 | 66,7 | 66,1 | -- |
| 3. | Diode D1 | 101,0 | 99,8 | 104,5 | 106,4 | -- |
| 4. | Inductor LF1 | 81,4 | 78,2 | 63,4 | 62,9 | 105 |
| 5. | Capacitor CX2 | 75,6 | 74,0 | 63,6 | 63,1 | 100 |
| 6. | Transistor Q1 | 85,0 | 83,9 | 90,0 | 91,7 | -- |
| 7. | Bulk C1 | 74,4 | 73,8 | 71,6 | 71,2 | 105 |
| 8. | Transformer T1 core | 97,8 | 96,8 | 97,2 | 96,9 | -- |
| 9. | Transformer T1 winding | 100,4 | 98,9 | 99,3 | 98,4 | 120* |
| 10. | Optocoupler U2 | 80,7 | 80,1 | 80,8 | 80,7 | 100 |
| 11. | Capacitor CY4 | 89,4 | 88,3 | 87,7 | 87,5 | 125 |
| 12. | Output cap C101 | 99,5 | 97,7 | 93,4 | 92,4 | 105 |
| 13. | Near Q1 on PCB | 85,1 | 83,9 | 86,9 | 88,1 | 130 |
| 14. | Output diode D101 | 115,3 | 114,2 | 111,3 | 110,2 | -- |
| 15. | Near D101 on PCB | 108,5 | 107,3 | 104,6 | 103,5 | 130 |
| Output load: | | 9,7A@3,3Vdc | | | | -- |
| Supplementary information: The above temperatures were measured at Tmin. The measured temperatures were subtracted with Tmin and Tmax (°C) was added. Therefore above temperatures are the absolute temperatures in °C at maximum ambient, permitted by the Manufacturer (Tma). | | | | | | |
| The printed circuit board is rated min. 130°C. | | | | | | |
| * -10K regarded on transformer due to measurement with thermocouples. | | | | | | |

| IEC 60950-1/Am1 | | | |
|-----------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | | | | |
|--|-----------------------------|---|-------|--|--|-------------------|
| 4.5 | TABLE: Thermal requirements | | | | | P |
| | Supply voltage (V~) | 90 | 264 | | | — |
| | Frequency (Hz) | 60 | 60 | | | — |
| | Ambient Tmin (°C) | 43,7 | 43,7 | | | — |
| | Ambient Tmax (°C) | 45,0 | 45,0 | | | — |
| Maximum measured temperature T of part/at: | | Temperatures calculated to maximum ambient temperature (°C) | | | | Allowed Tmax (°C) |
| Model: GTM2065-333.3-F | | | | | | |
| 1. | Inductor L1 | 57,6 | 52,8 | | | 105 |
| 2. | Diode bridge BD1 | 79,3 | 66,3 | | | -- |
| 3. | Diode D1 | 101,1 | 106,8 | | | -- |
| 4. | Inductor LF1 | 82,8 | 63,3 | | | 105 |
| 5. | Capacitor CX2 | 76,3 | 63,2 | | | 100 |
| 6. | Transistor Q1 | 85,1 | 92,5 | | | -- |
| 7. | Bulk C1 | 74,6 | 71,9 | | | 105 |
| 8. | Transformer T1 core | 98,1 | 97,9 | | | -- |
| 9. | Transformer T1 winding | 100,1 | 99,5 | | | 120* |
| 10. | Optocoupler U2 | 80,7 | 81,4 | | | 100 |
| 11. | Capacitor CY4 | 89,6 | 88,5 | | | 125 |
| 12. | Output cap C101 | 99,4 | 93,2 | | | 105 |
| 13. | Near Q1 on PCB | 85,1 | 88,6 | | | 130 |
| 14. | Output diode D101 | 115,4 | 110,9 | | | -- |
| 15. | Near D101 on PCB | 108,6 | 104,3 | | | 130 |
| Output load: | | 9,7A@3,3Vdc | | | | -- |
| Supplementary information: The above temperatures were measured at Tmin. The measured temperatures were subtracted with Tmin and Tmax (°C) was added. Therefore above temperatures are the absolute temperatures in °C at maximum ambient, permitted by the Manufacturer (Tma). | | | | | | |
| The printed circuit board is rated min. 130°C. | | | | | | |
| * -10K regarded on transformer due to measurement with thermocouples. | | | | | | |

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

| | | | | | | |
|--|-----------------------------|---|-------|----------|----------|-------------------|
| 4.5 | TABLE: Thermal requirements | | | | | P |
| | Supply voltage (V~) | 90 | 100 | 240 | 264 | — |
| | Frequency (Hz) | 50 | 50 | 50 | 50 | — |
| | Ambient Tmin (°C) | 43,9 | 43,6 | 43,9 | 43,7 | — |
| | Ambient Tmax (°C) | 45,0 | 45,0 | 45,0 | 45,0 | — |
| Maximum measured temperature T of part/at: | | Temperatures calculated to maximum ambient temperature (°C) | | | | Allowed Tmax (°C) |
| Model: GTM2065-6548-F | | | | | | |
| 1. | Inductor L1 | 64,6 | 62,9 | 56,7 | 56,6 | 105 |
| 2. | Diode bridge BD1 | 94,1 | 89,5 | 71,8 | 71,4 | -- |
| 3. | Diode D1 | 101,4 | 97,5 | 101,6 | 104,7 | -- |
| 4. | Inductor LF1 | 101,3 | 94,0 | 67,4 | 66,4 | 105 |
| 5. | Capacitor CX2 | 87,6 | 84,1 | 66,2 | 65,8 | 100 |
| 6. | Transistor Q1 | 90,3 | 87,4 | 98,3 | 103,2 | -- |
| 7. | Bulk C1 | 69,0 | 68,2 | 68,8 | 69,8 | 105 |
| 8. | Transformer T1 core | 89,4 | 87,8 | 98,0 | 100,3 | -- |
| 9. | Transformer T1 winding | 96,7 | 94,5 | 104,6 | 107,1 | 120* |
| 10. | Optocoupler U2 | 74,8 | 74,3 | 79,3 | 80,2 | 100 |
| 11. | Capacitor CY4 | 81,0 | 79,6 | 85,6 | 87,6 | 125 |
| 12. | Output cap C101 | 72,8 | 72,4 | 76,7 | 77,8 | 105 |
| 13. | Near Q1 on PCB | 89,6 | 86,5 | 92,9 | 96,0 | 130 |
| 14. | Output diode D101 | 95,6 | 95,6 | 109,5 | 111,7 | -- |
| 15. | Near D101 on PCB | 100,2 | 100,5 | 125,8 *) | 128,5 *) | 130 |
| Output load: | | 1,36A@48,0Vdc | | | | -- |
| Supplementary information: The above temperatures were measured at Tmin. The measured temperatures were subtracted with Tmin and Tmax (°C) was added. Therefore above temperatures are the absolute temperatures in °C at maximum ambient, permitted by the Manufacturer (Tma). | | | | | | |
| The printed circuit board is rated min. 130°C. | | | | | | |
| * -10K regarded on transformer due to measurement with thermocouples. | | | | | | |
| *) It is not possible to state compliance using a 95% coverage probability for the expanded uncertainty. | | | | | | |
| Expanded uncertainty: U = 3°C (coverage factor kp = 2; confidence level: 95 %). | | | | | | |
| Maximum ambient temperature specified by the manufacturer: 50°C (with 10 CFM air flow). | | | | | | |
| Unit was cooled with fan (airflow 10 CFM), placed on the transformer (T1) side of the supply, so the direction of the airflow was towards the transformer T1. | | | | | | |

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

| | | | | | | |
|--|-----------------------------|---|----------|--|--|-------------------|
| 4.5 | TABLE: Thermal requirements | | | | | P |
| | Supply voltage (V~) | 90 | 264 | | | — |
| | Frequency (Hz) | 60 | 60 | | | — |
| | Ambient Tmin (°C) | 43,7 | 43,7 | | | — |
| | Ambient Tmax (°C) | 45,0 | 45,0 | | | — |
| Maximum measured temperature T of part/at: | | Temperatures calculated to maximum ambient temperature (°C) | | | | Allowed Tmax (°C) |
| Model: GTM2065-6548-F | | | | | | |
| 1. | Inductor L1 | 64,6 | 57,0 | | | 105 |
| 2. | Diode bridge BD1 | 93,2 | 71,3 | | | -- |
| 3. | Diode D1 | 99,7 | 105,4 | | | -- |
| 4. | Inductor LF1 | 101,9 | 66,5 | | | 105 |
| 5. | Capacitor CX2 | 88,1 | 66,5 | | | 100 |
| 6. | Transistor Q1 | 89,1 | 103,9 | | | -- |
| 7. | Bulk C1 | 68,7 | 70,1 | | | 105 |
| 8. | Transformer T1 core | 88,7 | 100,9 | | | -- |
| 9. | Transformer T1 winding | 95,7 | 108,1 | | | 120* |
| 10. | Optocoupler U2 | 74,8 | 81,3 | | | 100 |
| 11. | Capacitor CY4 | 80,6 | 88,4 | | | 125 |
| 12. | Output cap C101 | 73,1 | 78,2 | | | 105 |
| 13. | Near Q1 on PCB | 88,6 | 96,8 | | | 130 |
| 14. | Output diode D101 | 95,5 | 112,3 | | | -- |
| 15. | Near D101 on PCB | 100,1 | 129,7 *) | | | 130 |
| Output load: | | 1,36A@48,0Vdc | | | | -- |
| Supplementary information: The above temperatures were measured at Tmin. The measured temperatures were subtracted with Tmin and Tmax (°C) was added. Therefore above temperatures are the absolute temperatures in °C at maximum ambient, permitted by the Manufacturer (Tma). | | | | | | |
| The printed circuit board is rated min. 130°C. | | | | | | |
| * -10K regarded on transformer due to measurement with thermocouples. | | | | | | |
| *) It is not possible to state compliance using a 95% coverage probability for the expanded uncertainty. Expanded uncertainty: U = 3°C (coverage factor kp = 2; confidence level: 95 %). | | | | | | |
| Maximum ambient temperature specified by the manufacturer: 45°C (without air flow). | | | | | | |

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

| | | | | | | |
|--|-----------------------------|---|------|------|------|-------------------|
| 4.5 | TABLE: Thermal requirements | | | | | P |
| | Supply voltage (V~) | 90 | 100 | 240 | 264 | — |
| | Frequency (Hz) | 50 | 50 | 50 | 50 | — |
| | Ambient Tmin (°C) | 48,7 | 48,7 | 48,6 | 48,5 | — |
| | Ambient Tmax (°C) | 50,0 | 50,0 | 50,0 | 50,0 | — |
| Maximum measured temperature T of part/at: | | Temperatures calculated to maximum ambient temperature (°C) | | | | Allowed Tmax (°C) |
| Model: GTM2065-553.3-FA | | | | | | |
| 1. | Inductor L1 | 61,7 | 61,3 | 56,2 | 55,8 | 105 |
| 2. | Diode bridge BD1 | 77,4 | 76,3 | 64,5 | 63,9 | -- |
| 3. | Diode D1 | 81,4 | 81,7 | 81,9 | 82,9 | -- |
| 4. | Inductor LF1 | 73,3 | 72,2 | 57,3 | 56,6 | 105 |
| 5. | Capacitor CX2 | 67,9 | 67,2 | 58,3 | 57,7 | 100 |
| 6. | Transistor Q1 | 64,7 | 64,7 | 66,3 | 67,4 | -- |
| 7. | Bulk C1 | 67,5 | 67,4 | 63,7 | 63,5 | 105 |
| 8. | Transformer T1 core | 68,3 | 68,6 | 67,8 | 68,0 | -- |
| 9. | Transformer T1 winding | 83,0 | 83,2 | 80,1 | 80,2 | 120 |
| 10. | Optocoupler U2 | 51,9 | 52,0 | 52,3 | 52,3 | 100 |
| 11. | Capacitor CY4 | 72,4 | 72,6 | 70,2 | 70,3 | 125 |
| 12. | Output cap C101 | 95,0 | 94,9 | 87,2 | 86,6 | 105 |
| 13. | Near Q1 on PCB | 64,9 | 64,8 | 64,4 | 65,2 | 130 |
| 14. | Output diode D101 | 81,4 | 81,8 | 80,3 | 80,2 | -- |
| 15. | Near D101 on PCB | 81,1 | 81,4 | 78,9 | 78,7 | 130 |
| Output load: | | 16,67 A @ 3,3 V d.c. | | | | -- |
| Supplementary information: The above temperatures were measured at Tmin. The measured temperatures were subtracted with Tmin and Tmax (°C) was added. Therefore above temperatures are the absolute temperatures in °C at maximum ambient, permitted by the Manufacturer (Tma). | | | | | | |
| The printed circuit board is rated min. 130°C. | | | | | | |
| * -10K regarded on transformer due to measurement with thermocouples. | | | | | | |
| Maximum ambient temperature specified by the manufacturer: 50°C (with 10 CFM air flow). | | | | | | |
| Unit was cooled with fan (airflow 10 CFM), placed on the transformer (T1) side of the supply, so the direction of the airflow was towards the transformer T1. | | | | | | |

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

| | | | | | | |
|--|-----------------------------|---|------|--|--|-------------------|
| 4.5 | TABLE: Thermal requirements | | | | | P |
| | Supply voltage (V~) | 90 | 264 | | | — |
| | Frequency (Hz) | 60 | 60 | | | — |
| | Ambient Tmin (°C) | 48,7 | 48,5 | | | — |
| | Ambient Tmax (°C) | 50,0 | 50,0 | | | — |
| Maximum measured temperature T of part/at: | | Temperatures calculated to maximum ambient temperature (°C) | | | | Allowed Tmax (°C) |
| Model: GTM2065-553.3-FA | | | | | | |
| 1. | Inductor L1 | 62,1 | 56 | | | 105 |
| 2. | Diode bridge BD1 | 77,6 | 64,1 | | | -- |
| 3. | Diode D1 | 81,7 | 82,8 | | | -- |
| 4. | Inductor LF1 | 75,0 | 56,5 | | | 105 |
| 5. | Capacitor CX2 | 68,6 | 57,6 | | | 100 |
| 6. | Transistor Q1 | 64,7 | 67,4 | | | -- |
| 7. | Bulk C1 | 67,4 | 63,5 | | | 105 |
| 8. | Transformer T1 core | 68,3 | 68,0 | | | -- |
| 9. | Transformer T1 winding | 83,0 | 80,2 | | | 120* |
| 10. | Optocoupler U2 | 51,9 | 52,3 | | | 100 |
| 11. | Capacitor CY4 | 72,3 | 70,3 | | | 125 |
| 12. | Output cap C101 | 95,0 | 86,4 | | | 105 |
| 13. | Near Q1 on PCB | 64,9 | 65,1 | | | 130 |
| 14. | Output diode D101 | 81,5 | 80,2 | | | -- |
| 15. | Near D101 on PCB | 81,2 | 78,6 | | | 130 |
| Output load: | | 16,67 A @ 3,3 V d.c. | | | | -- |
| Supplementary information: The above temperatures were measured at Tmin. The measured temperatures were subtracted with Tmin and Tmax (°C) was added. Therefore above temperatures are the absolute temperatures in °C at maximum ambient, permitted by the Manufacturer (Tma). | | | | | | |
| The printed circuit board is rated min. 130°C. | | | | | | |
| * -10K regarded on transformer due to measurement with thermocouples. | | | | | | |
| Maximum ambient temperature specified by the manufacturer: 50°C (with 10 CFM air flow). | | | | | | |
| Unit was cooled with fan (airflow 10 CFM), placed on the transformer (T1) side of the supply, so the direction of the airflow was towards the transformer T1. | | | | | | |

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

| | | | | | | |
|--|-----------------------------|---|------|------|------|-------------------|
| 4.5 | TABLE: Thermal requirements | | | | | P |
| | Supply voltage (V~) | 90 | 100 | 240 | 264 | — |
| | Frequency (Hz) | 50 | 50 | 50 | 50 | — |
| | Ambient Tmin (°C) | 48,7 | 48,7 | 48,6 | 48,5 | — |
| | Ambient Tmax (°C) | 50,0 | 50,0 | 50,0 | 50,0 | — |
| Maximum measured temperature T of part/at: | | Temperatures calculated to maximum ambient temperature (°C) | | | | Allowed Tmax (°C) |
| Model: GTM2065-8048-FA | | | | | | |
| 1. | Inductor L1 | 63,6 | 61,9 | 56,2 | 56,1 | 105 |
| 2. | Diode bridge BD1 | 86,8 | 82,7 | 66,4 | 65,8 | -- |
| 3. | Diode D1 | 71,9 | 69,5 | 71,8 | 73,6 | -- |
| 4. | Inductor LF1 | 82,9 | 77,6 | 58,5 | 57,7 | 105 |
| 5. | Capacitor CX2 | 79,2 | 75,3 | 60,7 | 60,0 | 100 |
| 6. | Transistor Q1 | 67,1 | 65,3 | 69,8 | 71,9 | -- |
| 7. | Bulk C1 | 63,4 | 62,0 | 59,1 | 59,4 | 105 |
| 8. | Transformer T1 core | 71,7 | 69,4 | 73,1 | 74,0 | -- |
| 9. | Transformer T1 winding | 76,3 | 73,2 | 75,8 | 76,7 | 120* |
| 10. | Optocoupler U2 | 52,3 | 52,2 | 52,8 | 52,9 | 100 |
| 11. | Capacitor CY4 | 62,6 | 61,5 | 63,1 | 63,6 | 125 |
| 12. | Output cap C101 | 62,6 | 62,0 | 63,8 | 64,2 | 105 |
| 13. | Near Q1 on PCB | 67,3 | 65,3 | 66,2 | 67,4 | 130 |
| 14. | Output diode D101 | 77,0 | 77,0 | 87,4 | 88,7 | -- |
| 15. | Near D101 on PCB | 75,1 | 75,5 | 95,8 | 98,4 | 130 |
| Output load: | | 1,67 A @ 48,0 V d.c. | | | | -- |
| Supplementary information: The above temperatures were measured at Tmin. The measured temperatures were subtracted with Tmin and Tmax (°C) was added. Therefore above temperatures are the absolute temperatures in °C at maximum ambient, permitted by the Manufacturer (Tma). | | | | | | |
| The printed circuit board is rated min. 130°C. | | | | | | |
| * -10K regarded on transformer due to measurement with thermocouples. | | | | | | |

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

| | | | | | | |
|--|-----------------------------|---|------|--|--|-------------------|
| 4.5 | TABLE: Thermal requirements | | | | | P |
| | Supply voltage (V~) | 90 | 264 | | | — |
| | Frequency (Hz) | 60 | 60 | | | — |
| | Ambient Tmin (°C) | 48,7 | 48,5 | | | — |
| | Ambient Tmax (°C) | 50,0 | 50,0 | | | — |
| Maximum measured temperature T of part/at: | | Temperatures calculated to maximum ambient temperature (°C) | | | | Allowed Tmax (°C) |
| Model: GTM2065-8048-FA | | | | | | |
| 1. | Inductor L1 | 63,9 | 56,2 | | | 105 |
| 2. | Diode bridge BD1 | 86,5 | 65,8 | | | -- |
| 3. | Diode D1 | 71,4 | 73,6 | | | -- |
| 4. | Inductor LF1 | 84,2 | 57,6 | | | 105 |
| 5. | Capacitor CX2 | 80,0 | 60,0 | | | 100 |
| 6. | Transistor Q1 | 66,7 | 72,0 | | | -- |
| 7. | Bulk C1 | 62,9 | 59,3 | | | 105 |
| 8. | Transformer T1 core | 71,1 | 74,1 | | | -- |
| 9. | Transformer T1 winding | 75,5 | 76,8 | | | 120* |
| 10. | Optocoupler U2 | 52,3 | 52,9 | | | 100 |
| 11. | Capacitor CY4 | 62,3 | 63,7 | | | 125 |
| 12. | Output cap C101 | 62,4 | 64,3 | | | 105 |
| 13. | Near Q1 on PCB | 66,9 | 67,5 | | | 130 |
| 14. | Output diode D101 | 77,0 | 88,6 | | | -- |
| 15. | Near D101 on PCB | 75,0 | 98,6 | | | 130 |
| Output load: | | 1,67 A @ 48,0 V d.c. | | | | -- |
| Supplementary information: The above temperatures were measured at Tmin. The measured temperatures were subtracted with Tmin and Tmax (°C) was added. Therefore above temperatures are the absolute temperatures in °C at maximum ambient, permitted by the Manufacturer (Tma). | | | | | | |
| The printed circuit board is rated min. 130°C. | | | | | | |
| * -10K regarded on transformer due to measurement with thermocouples. | | | | | | |

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

| | | | |
|--|---|-----------------------|--------------------------|
| 4.5.5 | TABLE: Ball pressure test of thermoplastic parts | | P |
| | Allowed impression diameter (mm): ≤ 2 mm | | — |
| Part | | Test temperature (°C) | Impression diameter (mm) |
| | | | |
| | | | |
| Supplementary information: Approved materials are used. See list of critical componets. | | | |

| | | | | | |
|---|----------------------------------|------------------|----------------|--------------------|----------|
| 4.7 | TABLE: Resistance to fire | | | | P |
| Part | Manufacturer of material | Type of material | Thickness (mm) | Flammability class | Evidence |
| | | | | | |
| | | | | | |
| Supplementary information: Approved materials are used. See list of critical components. | | | | | |

| | | | | |
|----------------------------|----------------------------------|------------|---------------------|---|
| 5.1 | TABLE: touch current measurement | | | P |
| Measured between: | Measured (mA) | Limit (mA) | Comments/conditions | |
| Line to PE | 0,23 | 3,5 | -- | |
| Neutral to PE | 0,22 | 3,5 | -- | |
| Line to output (+) | 0,08 | 0,25 | -- | |
| Line to output (-) | 0,08 | 0,25 | -- | |
| Neutral to output (+) | 0,08 | 0,25 | -- | |
| Neutral to output (-) | 0,08 | 0,25 | -- | |
| | | | | |
| supplementary information: | | | | |
| Input: 264V; 60Hz; No load | | | | |

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|---|--|--|-----------------------|
| 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) |
| Functional: | | | Breakdown Yes / No |
| Line to Neutral (fuse removed) | | AC | 1500 |
| Basic/supplementary: | | | |
| Primary to PE | | AC | 1740 |
| Reinforced: | | | |
| Primary to Secondary SELV | | AC | 3000 |
| Primary to Secondary on transformer T1* | | AC | 3000 |
| Secondary to core of transformer T1* | | AC | 3000 |
| Insulation tape used in T1 (1 tested layer from every source) | | AC | 3000 |
| Supplementary information: *Core of transformer T1 considered as primary. All types of transformer from all manufacturers tested. | | | |

| 5.3 | TABLE: Fault condition tests | | | | | P |
|---------------------------------|---|--------------------|-------------|--------|---------------------------------|---|
| | Ambient temperature (°C) | | | | 23 ± 3 (or otherwise stated) | — |
| | Power source for EUT: Manufacturer, model/type, output rating | | | | Elettrotest, TPS/M; 0-300V/9kVA | — |
| Component No. | Fault | Supply voltage (V) | Test time | Fuse # | Fuse current (A) | Observation |
| SELV reliability testing | | | | | | |
| GTM2065-XX48-F(A) | | | | | | |
| Diode D101 (No load) | Short | 264 | <1s (10min) | F1/F2 | 0,04 | Output switched off immediately. No hazard. Unit damaged. |
| Diode D101 (Load) | Short | 264 | <1s (10min) | F1/F2 | 0,04 | Output switched off immediately. No hazard. Unit damaged. |
| Inductor L100 (No load) | Short | 264 | 10min | F1/F2 | 0,04 | No effect on function. |
| Inductor L100 (Load) | Short | 264 | 10min | F1/F2 | 0,04 | No effect on function. |

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|---|--------------------|-----|-------------|-------|-----------------|--|
| Clause | Requirement + Test | | | | Result - Remark | Verdict |
| Optocoupler U2 Pin 1 to Pin 2 (No load) | Short | 264 | 10min | F1/F2 | 0,08 Max. | Unit went to hiccup mode. No defect. No hazard. |
| Optocoupler U2 Pin 1 to Pin 2 (Load) | Short | 264 | <1s (10min) | F1/F2 | 0,04 | Output voltage increased to 51,7V and than decreased to 0V. No hazard. Unit damaged. |
| Optocoupler U2 Pin 3 to Pin 4 (No load) | Short | 264 | <1s (10min) | F1/F2 | 0,04 | Output switched off immediately. No defect. No hazard. |
| Optocoupler U2 Pin 3 to Pin 4 (Load) | Short | 264 | <1s (10min) | F1/F2 | 0,04 | Output switched off immediately. No defect. No hazard. |
| Optocoupler U4 Pin 1 to Pin 2 (No load) | Short | 264 | 10min | F1/F2 | 0,04 | No effect on function. |
| Optocoupler U4 Pin 1 to Pin 2 (Load) | Short | 264 | 10min | F1/F2 | 0,64 | No effect on function. |
| Optocoupler U4 Pin 3 to Pin 4 (No load) | Short | 264 | <1s (10min) | F1/F2 | 0,04 | Output switched off immediately. No defect. No hazard. |
| Optocoupler U4 Pin 3 to Pin 4 (Load) | Short | 264 | <1s (10min) | F1/F2 | 0,04 | Output switched off immediately. No defect. No hazard. |
| Method c) functional insulation (clause 5.3.4) | | | | | | |
| GTM2065-65XX-F | | | | | | |
| Varistor VDR1 | Short | 264 | <1s | F1/F2 | >4,2 | Fuse F1, F2 opened immediately. No hazard. |
| Capacitor CX2 | Short | 264 | <1s | F1/F2 | >4,2 | Fuse F1, F2 opened immediately. No hazard. |
| Rectifier BD1 plus to minus | Short | 264 | <1s | F1/F2 | >4,2 | Fuse F1, F2 opened immediately. No hazard. |
| GTM2065-80XX-FA | | | | | | |
| Varistor VDR1 (GTM2065-80XX-FA) | Short | 264 | <1s | F1/F2 | >6,3 | Fuse F1, F2 opened immediately. No hazard. |

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|--|--------------------|-----|-------------|-------|-----------------|---|
| Clause | Requirement + Test | | | | Result - Remark | Verdict |
| Capacitor CX2 | Short | 264 | <1s | F1/F2 | >6,3 | Fuse F1, F2 opened immediately. No hazard. |
| Rectifier BD1 plus to minus | Short | 264 | <1s | F1/F2 | >6,3 | Fuse F1, F2 opened immediately. No hazard. |
| GTM2065-XXXX-F(A) | | | | | | |
| Plus output to earth | Short | 264 | 10min | F1/F2 | 0,64 | No effect on function. |
| Minus output to earth | Short | 264 | 10min | F1/F2 | 0,64 | No effect on function. |
| Plus output to minus output | Short | 264 | <1s | F1/F2 | 0,08 | Output switched off immediately. No defect. No hazard. |
| Additional component faults | | | | | | |
| GTM2065-XXXX-F(A) | | | | | | |
| Primary current sense R21 | Short | 264 | <1s (10min) | F1/F2 | 0,04 | Output switched off immediately. No hazard. Unit damaged. |
| U1 Pin 7 to Pin 5 | Short | 264 | <1s (10min) | F1/F2 | 0,04 | Output switched off immediately. No defect. No hazard. |
| Switching transistor Q1 D to S | Short | 264 | <1s (10min) | F1/F2 | 0,04 | Output switched off immediately. No hazard. Unit damaged. |
| Switching transistor Q1 D to G | Short | 264 | <1s (10min) | F1/F2 | 0,04 | Output switched off immediately. No hazard. Unit damaged. |
| Transformer T1 Pin 1,4 to Pin 2 | Short | 264 | 10min | F1/F2 | 0,08 Max. | Unit went to hiccup mode. No defect. No hazard. No excessive temperature rise. |
| Transformer T1 Pin 3 to Pin 6 | Short | 264 | <1s (10min) | F1/F2 | 0,04 | Output switched off immediately. No hazard. No excessive temperature rise. Unit damaged. |
| Annex C Transformer overload / short (clause 5.3.3) | | | | | | |
| GTM2065-403.3-F, GTM2065-6548-F | | | | | | |
| Transformer T1 Pin 7,8 to Pin 10,11 | Short | 264 | <1s (20min) | F1/F2 | 0,08 Max. | Output switched off immediately and tried to switch on. No hazard. No excessive temperature rise. Unit damaged. |
| Transformer T1 Pin 7,8 to Pin 10,11 | Overload | 264 | -- | F1/F2 | -- | No secondary current limitation. Refer to output overload. |

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

| | | | | | | |
|--|----------|-----|----------------|-------|------|--|
| Misuse | | | | | | |
| GTM2065-333.3-F | | | | | | |
| Output | Overload | 264 | 90min | F1/F2 | 0,75 | Load on output : 19,0A @ 3,3Vdc. After 40min the output switched off. The measured temperature on T1 was 144,9°C at an ambient of 48,5°C. Calculated temperatures at maximum specified ambient is 146,4°C. Limit in accordance to Annex C is 175°C – 10°C = 165°C. 10°C were subtracted because of the measurement with the thermo probes. No defect. No hazard. |
| Output | Short | 264 | <1s (10min) | F1/F2 | 0,08 | Output switched off immediately. No defect. No hazard. |
| GTM2065-6548-F | | | | | | |
| Output | Overload | 264 | 90min | F1/F2 | 1,10 | Load on output : 2,70A @ 44,9Vdc. After 60min the output decreased to 2,17A @ 36,23Vdc and remained. The measured temperature on T1 was 160,1°C at an ambient of 48,7°C. Calculated temperatures at maximum specified ambient is 161,4°C. Limit in accordance to Annex C is 175°C – 10°C = 165°C. 10°C were subtracted because of the measurement with the thermo probes. No defect. No hazard. |
| Output | Short | 264 | <1s (10min) | F1/F2 | 0,08 | Output switched off immediately. No defect. No hazard. |
| <p>Supplementary information:</p> <p>There was no flame, extensive smoke or melted metal.</p> <p>When components were failing, the test was repeated two times.</p> <p>*** Test was repeated 10 times</p> <p>Test time: The time until the effect occurred was recorded. The value in bracket records the time, the failure was not removed.</p> | | | | | | |

| IEC 60950-1/Am1 | | | |
|-----------------|--------------------|-----------------|---------|
| 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) |
| Transformer T1 (Primary to Secondary) | Reinforced | 488,0 | 285,1 | 3000 Vac | 4,2 | 5,7 | * |
| Loc. | Tested insulation | | | Test voltage/ V | Measured clearance / mm | Measured creepage dist./ mm | Measured distance thr. insul. / mm; number of layers |
| Transformer T1 (Primary to Secondary) | Reinforced | | | 3000 Vac | 7,1 | 7,1 | 2-3 layers |
| | | | | | | | |
| supplementary information: | | | | | | | |
| * 2 or 3 layers / 0,4mm / Annex U Secondary wire is TIW. Core considered as primary. | | | | | | | |

| C.2 | TABLE: transformers | P |
|--|---------------------|---|
| Transformer | | |
| For transformer construction see Enclosure No. 3 | | |

Enclosure No. 1

National differences to IEC60950-1:2005/Am 1

| IEC 60950-1 | | | | |
|--|---|-------------------|---------|---|
| Clause | Difference – Test | Result – Remark | Verdict | |
| AUSTRALIA-Differences to IEC 60950-1:2005 | | | | |
| Appendix ZZ (normative) | | | | |
| Variations to IEC 60950-1:2005 (2 nd Ed.) for application in Australia and New Zealand | | | | |
| ZZ.1 Introduction | | | | |
| This Appendix sets out variations and additional requirements to cover issues which have not been addressed by the International Standard. These variations indicate national variations for purposes of the IECEE CB System and will be published in the IECEE CB Bulletin. | | | | |
| ZZ.2 Variations | | | | |
| The following variations apply to the source text: | | | | |
| 1.2 | Insert the following between ‘person, service’ and ‘range, rated frequency’: POTENTIAL IGNITION SOURCE 1.2.12 | Considered. | P | |
| 1.2.12.201 | Insert a new Clause 1.2.12.201 after Clause 1.2.12.15 as follows: 1.2.12.201 POTENTIAL IGNITION SOURCE Possible fault which can start a fire if the open-circuit voltage measured across an interruption or faulty contact exceeds a value of 50 V (peak) a.c. or d.c. and the product of the peak value of this voltage and the measured r.m.s. current under normal operating conditions exceeds 15 VA. Such a faulty contact or interruption in an electrical connection includes those which may occur in CONDUCTIVE PATTERNS on PRINTED BOARDS. NOTE 201: An electronic protection circuit may be used to prevent such a fault from becoming a POTENTIAL IGNITION SOURCE. NOTE 202: This definition is from AS/NZS 60065:2003. | | N/A | |
| 1.5.1 | 1. Add the following to the end of the first paragraph: ‘or the relevant Australian/New Zealand Standard.’ 2. In NOTE 1, add the following after the word ‘standard’: ‘or an Australian/New Zealand Standard’ | | N/A | |
| 1.5.2 | Add the following to the end of the first and third dash items: ‘or the relevant Australian/New Zealand Standard’ | | N/A | |
| 3.2.5.1 | Modify Table 3B as follows: 1. Delete the first four rows and replace with the following: | No cord provided. | N/A | |
| RATED CURRENT OF EQUIPMENT (A) | Minimum conductor sizes | | | |
| | Nominal cross-sectional area mm ² | | | AWG or Kcmil (cross-sectional area in mm ²) See note 2 |

| IEC 60950-1 | | | |
|-------------|--|--|---------|
| Clause | Difference – Test | Result – Remark | Verdict |
| | Over 0.2 up to and including 3 0,5 ^{a)} 18 [0,8] Over 3 up to and including 7,5 0,75 16 [1,3] Over 7,5 up to and including 10 (0,75) ^{b)} 1,00 16 [1,3] Over 10 up to and including 16 (1,0) ^{c)} 1,5 14 [2] | | |
| | 2. Delete NOTE 1. 3. Delete Footnote ^a and replace with the following: ^a This nominal cross-sectional area is only allowed for Class II appliances if the length of the power supply cord, measured between the point where the cord, or cord guard, enters the appliance, and the entry to the plug does not exceed 2 m (0,5 mm ² three-core supply flexible cords are not permitted; see AS/NZS 3191). | | N/A |
| 4.1.201 | Insert a new Clause 4.1.201 after Clause 4.1 as follows: 4.1.201 Display devices used for television purposes Display devices which may be used for television purposes, with a mass of 7 kg or more, shall comply with the requirements for stability and mechanical hazards, including the additional stability requirements for television receivers, specified in AS/NZS 60065. | | N/A |
| 4.3.6 | Delete the third paragraph and replace with the following: Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flatpin socket-outlet complying with AS/NZS 3112 shall comply with the requirements in AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets. | | N/A |
| 4.3.13.5 | Add the following to the end of the first paragraph: ‘, or AS/NZS 2211.1’. | | N/A |
| 4.7 | Add the following paragraph: ‘For alternate tests refer to Clause 4.7.201.’ | | N/A |
| 4.7.201 | Insert a new Clause 4.7.201 after Clause 4.7.3.6 as follows: 4.7.201 Resistance to fire – Alternative tests 4.7.201.1 General Parts of non-metallic material shall be resistant to ignition and spread of fire. This requirement does not apply to decorative trims, knobs and other parts unlikely to be ignited or to propagate flames from inside the apparatus, or the following: (a) Components that are contained in an enclosure having a flammability category of V-0 according to AS/NZS 60695.11.10 and having openings only for the connecting wires filling the openings completely, and for ventilation not exceeding 1mm in width regardless of length. (b) The following parts which would contribute negligible fuel to a fire: - small mechanical parts, the mass of which | The flame rating of the components was evaluated to the requirements of IEC. The PCB board is specified min. V-1. Therefore no needle test was considered as required. | N/A |

| IEC 60950-1 | | | |
|-------------|--|--|---------|
| Clause | Difference – Test | Result – Remark | Verdict |
| | <p>does not exceed 4g, such as mounting parts, gears, cams, belts and bearings; - small electrical components, such as capacitors with a volume not exceeding 1,750 mm³, integrated circuits, transistors and optocoupler packages, if these components are mounted on material of flammability category V-1, or better, according to AS/NZS 60695.11.10.</p> <p>NOTE: In considering how to minimize propagation of fire and what 'small parts' are, account should be taken of the cumulative effect of small parts adjacent to each other for the possible effect of propagating the fire from one part to another.</p> <p>Compliance shall be checked by the tests of 4.7.201.2, 4.7.201.3, 4.7.201.4 and 4.7.201.5.</p> <p>For the base material of printed boards, compliance shall be checked by the test of 4.7.201.5.</p> <p>The tests shall be carried out on parts of non-metallic material which have been removed from the apparatus. When the glow-wire test is carried out, the parts shall be placed in the same orientation as they would be in normal use.</p> <p>These tests are not carried out on internal wiring.</p> | | |
| 4.7.201.2 | <p>Testing of non-metallic materials</p> <p>Parts of non-metallic material shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 550°C.</p> <p>Parts for which the glow-wire test cannot be carried out, such as those made of soft or foamy material, shall meet the requirements specified in ISO 9772 for category FH-3 material. The glow-wire test shall be not carried out on parts of material classified at least FH-3 according to ISO 9772 provided that the sample tested was not thicker than the relevant part.</p> | Approved materials are used. See list of critical components. | N/A |
| 4.7.201.3 | <p>Testing of insulating materials</p> <p>Parts of insulating material supporting POTENTIAL IGNITION SOURCES shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 750°C.</p> <p>The test shall be also carried out on other parts of insulating material which are within a distance of 3 mm of the connection.</p> <p>NOTE: Contacts in components such as switch contacts are considered to be connections.</p> <p>For parts which withstand the glow-wire test but produce a flame, other parts above the</p> | Approved materials are used. See list of critical components. | N/A |

| IEC 60950-1 | | | | |
|-------------|--|--|--|---------|
| Clause | Difference – Test | | Result – Remark | Verdict |
| | connection within the envelope of a vertical cylinder having a diameter of 20 mm and a height of 50 mm shall be subjected to the needle-flame test. However, parts shielded by a barrier which meets the needle-flame test shall not be tested. | | | |
| | The needle-flame test shall be made in accordance with AS/NZS 60695.11.5 with the following modifications: | | | |
| | Clause of AS/NZS 4695.11.5 | Change | | |
| | 9 Test procedure | | | |
| | 9.2 Application of needleflame | Replace the first paragraph with: The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of figure 1. If possible the flame shall be applied at least 10 mm from a corner Replace the second paragraph with: The duration of application of the test flame shall be 30 s ±1 s. | | |
| | 9.3 Number of test specimens | Replace with: The test shall be made on one specimen. If the specimen does not withstand the test, the test may be repeated on two further specimens, both of which shall withstand the test. | | |
| | 11 Evaluation of test results | Replace with: The duration of burning (t_b) shall not exceed 30 s. However, for printed circuit boards, it shall not exceed 15 s. | | |
| | The needle-flame test shall not be carried out on parts of material classified as V-0 or V-1 according to AS/NZS 60695.11.10, provided that the sample tested was not thicker than the relevant part. | | | |
| 4.7.201.4 | Testing in the event of non-extinguishing material If parts, other than enclosures, do not withstand the glow wire tests of 4.7.201.3, by failure to extinguish within 30 s after the removal of the glow wire tip, the needle-flame test detailed in 4.7.201.3 shall be made on all parts of non-metallic material which are within a distance of | | Approved materials are used. See list of critical components. | N/A |

| IEC 60950-1 | | | |
|-------------|---|-----------------|---------|
| Clause | Difference – Test | Result – Remark | Verdict |
| | <p>50 mm or which are likely to be impinged upon by flame during the tests of 4.7.201.3. Parts shielded by a separate barrier which meets the needle-flame test need not be tested.</p> <p>NOTE 1: If the enclosure does not withstand the glow-wire test the equipment is considered to have failed to meet the requirements of Clause 4.7.201 without the need for consequential testing.</p> <p>NOTE 2: If other parts do not withstand the glow-wire test due to ignition of the tissue paper and if this indicates that burning or glowing particles can fall onto an external surface underneath the equipment, the equipment is considered to have failed to meet the requirements of Clause 4.7.201 without the need for consequential testing.</p> <p>NOTE 3: Parts likely to be impinged upon by the flame are considered to be those within the envelope of a vertical cylinder having a radius of 10 mm and a height equal to the height of the flame, positioned above the point of the material supporting, in contact with, or in close proximity to, connections.</p> | | |

| IEC 60950-1 | | | |
|-------------|---|---|---------|
| Clause | Difference – Test | Result – Remark | Verdict |
| 4.7.201.5 | <p>Testing of printed boards</p> <p>The base material of printed boards shall be subjected to the needle-flame test of Clause 4.7.201.3. The flame shall be applied to the edge of the board where the heat sink effect is lowest when the board is positioned as in normal use. The flame shall not be applied to an edge, consisting of broken perforations, unless the edge is less than 3 mm from a POTENTIAL IGNITION SOURCE.</p> <p>The test is not carried out if the —</p> <ul style="list-style-type: none"> - Printed board does not carry any POTENTIAL IGNITION SOURCE; - Base material of printed boards, on which the available apparent power at a connection exceeds 15 VA operating at a voltage exceeding 50 V and equal or less than 400 V (peak) a.c. or d.c. under normal operating conditions, is of flammability category V-1 or better according to AS/NZS 60695.11.10, or the printed boards are protected by an enclosure meeting the flammability category V-0 according to AS/NZS 60695.11.10, or made of metal, having openings only for connecting wires which fill the openings completely; or - Base material of printed boards, on which the available apparatus power at a connection exceeds 15 VA operating at a voltage exceeding 400 V (peak) a.c. or d.c. under normal operating conditions, and base material of printed boards supporting spark gaps which provides protection against overvoltages, is of flammability category V-0 according to AS/NZS 60695.11.10 or the printed boards are contained in a metal enclosure, having openings only for connecting wires which fill the openings completely. <p>Compliance shall be determined using the smallest thickness of the material.</p> <p>NOTE: Available apparent power is the maximum apparent power which can be drawn from the supplying circuit through a resistive load whose value is chosen to maximise the apparent power for more than 2 min when the circuit supplied is disconnected</p> | Approved PCB materials are used. See list of critical components. | N/A |
| 6.2.2 | <p>For Australia only, delete the first paragraph and Note, and replace with the following: In Australia only, compliance with 6.2.2 shall be checked by the tests of both 6.2.2.1 and 6.2.2.2.</p> | | N/A |

| IEC 60950-1 | | | |
|-------------|---|---|---------|
| Clause | Difference – Test | Result – Remark | Verdict |
| 6.2.2.1 | <p>For Australia only, delete the first paragraph including the Notes, and replace with the following: In Australia only, the electrical separation is subjected to 10 impulses of alternating polarity, using the impulse test generator reference 1 of Table N.1. The interval between successive impulses is 60 s and the initial voltage, U_c, is: (i) for 6.2.1 a): 7,0 kV for hand-held telephones and for headsets and 2,5 kV for other equipment; and (ii) for 6.2.1 b) and 6.2.1 c): 1,5 kV.</p> <p>NOTE 201: The 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines.</p> <p>NOTE 202: The value of 2.5 kV for 6.2.1 a) was chosen to ensure the adequacy of the insulation concerned and does not necessarily simulate likely overvoltages.</p> | | N/A |
| 6.2.2.2 | <p>For Australia only, delete the second paragraph including the Note, and replace with the following: In Australia only, the a.c. test voltage is: (i) for 6.2.1 a): 3 kV; and (ii) for 6.2.1 b) and 6.2.1 c): 1,5 kV.</p> <p>NOTE 201: Where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used.</p> <p>NOTE 202: The 3 kV and 1.5 kV values have been determined considering the low frequency induced voltages from the power supply distribution system.</p> | | N/A |
| 7.3 | <p>Add the following before the first paragraph: Equipment providing functions that fall only within the scope of AS/NZS 60065 and that incorporate a PSTN interface, are not required to comply with this Clause where the only ports provided on the equipment, in addition to a coaxial cable connection and a PSTN interface, are audio or video ports and analogue or data ports not intended to be used for telecommunications purposes.</p> | | N/A |
| Annex P | <p>Add the following Normative References: AS/NZS 3191, Electric flexible cords AS/NZS 3112, Approval and test specification—Plugs and socket-outlets</p> | <p>Considered. IEC approved material and components are used.</p> | P |

| IEC 60950-1 | | | |
|-------------|---|-----------------|---------|
| Clause | Difference – Test | Result – Remark | Verdict |
| Index | <p>1. Insert the following between ‘asbestos, not to be used as insulation’ and ‘attitude see orientation’:</p> <p>AS/NZS 2211.1.....4.3.13.5 AS/NZS 3112.....4.3.6 AS/NZS 3191..... 3.2.5.1 (Table 3B) AS/NZS 60064.....4.1.201 AS/NZS 60695.2.11..... 4.7.201.2, 4.7.201.3 AS/NZS 60695.11.10..... 4.7.201.1, 4.7.201.5 AS/NZS 60695.11.5.....4.7.201.3</p> <p>2. Insert the following between ‘positive temperature coefficient (PTC) device’ and ‘powder’:</p> <p>potential ignition source 1.2.201, 4.7.201.3, 4.7.201.5</p> | | P |

| IEC 60950-1/Am1 | | | |
|---|--|----------------------------|---------|
| Clause | Difference – Test | Result – Remark | Verdict |
| KOREA- Differences to IEC 60950-1, Second Edition (2005) + A1:2009 | | | |
| 1.5.101 | Plugs for the connection of the apparatus to the supply mains shall comply with the Korean requirement (KSC 8305). | Built-in product. | N/A |
| 8: EMC | The apparatus shall comply with the relevant CISPR standards | End product consideration. | N/A |

| IEC 60950-1/Am1 | | | |
|--|---|--|---------|
| Clause | Difference – Test | Result – Remark | Verdict |
| USA - Differences to IEC 60950-1:2005, Second Edition National standard: UL 60950-1, Second Edition, Amendment 1, December 19, 2011 | | | |
| 1.1.1 | All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75. | | P |
| 1.4.14 | For Pluggable Equipment Type A, the protection in the installation is assumed to be 20 A. | Not pluggable equipment type A, however 20A external protection considered during testing. | N/A |
| 1.5.5 | For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the NEC. For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in | | N/A |

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| Clause | Difference – Test | Result – Remark | Verdict |
|---------|--|--------------------|---------|
| | the NEC are required to have special construction features and identification markings. | | |
| 1.7.1 | Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings. A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in Table 2 of CAN/CSA C22.2 No. 235, and if it is part of a range that extends into the Table 2 "Normal Operating Conditions." Likewise, a voltage rating shall not be lower than the specified "Normal Operating Conditions," unless it is part of a range that extends into the "Normal Operating Conditions." | Single phase unit. | N/A |
| 1.7.7 | Wiring terminals intended to supply Class 2 outputs in accordance with the NEC or CEC Part 1 shall be marked with the voltage rating and "Class 2" or equivalent. The marking shall be located adjacent to the terminals and shall be visible during wiring. | | N/A |
| 2.5 | Where a fuse is used to provide Class 2, Limited Power Source, or TNV current limiting, it shall not be operator accessible unless it is not interchangeable. | | N/A |
| 2.6.3.3 | The first column on Table 2D modified to require, "Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT RATING of the circuit under consideration." | | N/A |
| 2.7.1 | Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable. Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection. | | N/A |
| 3.2 | Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains shall be in accordance with the NEC/CEC. | | N/A |
| 3.2.1 | Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment. | | N/A |
| 3.2.1.2 | Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, is required to comply with special earthing, wiring, marking and installation instruction requirements. | | N/A |
| 3.2.3 | Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs. | | N/A |

| IEC 60950-1/Am1 | | | |
|-----------------|--|------------------------|---------|
| Clause | Difference – Test | Result – Remark | Verdict |
| 3.2.5 | Power supply cords are required to be no longer than 4.5 m in length. Minimum cord length is required to be 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement. Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC. | | N/A |
| 3.2.9 | Permanently connected equipment must have a suitable wiring compartment and wire bending space. | | N/A |
| 3.3 | Wiring terminals and associated spacings for field wiring connections shall comply with CSA C22.2 No. 0. | No terminals provided. | N/A |
| 3.3.3 | Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm2). | | N/A |
| 3.3.4 | Terminals for permanent wiring, including protective earthing terminals, are required to be suitable for U.S./Canadian wire gauge sizes, rated 125 percent of the equipment rating, and be specially marked when specified (1.7.7). | | N/A |
| 3.3.5 | First column of Table 3E revised to require “Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT RATING of the circuit under consideration.” | | N/A |
| 3.4.2 | Motor control devices are required for cord-connected equipment with a motor if the equipment is rated more than 12 A, or if the motor has a nominal voltage rating greater than 120 V, or is rated more than 1/3 hp (locked rotor current over 43 A). | | N/A |
| 3.4.8 | Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position. | | N/A |
| 3.4.11 | For computer room applications, equipment with battery systems capable of supplying 750 VA for five minutes are required to have a battery disconnect means that may be connected to the computer room remote power-off circuit. | | N/A |
| 4.3.12 | The maximum quantity of flammable liquid stored in equipment is required to comply with NFPA30 | | N/A |
| 4.3.13.5 | Equipment with lasers is required to meet the U.S. Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370). | | N/A |
| 4.7 | For computer room applications, automated information storage systems with combustible media greater than 0.76 m3 (27 cu ft) are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge. | | N/A |

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| Clause | Difference – Test | Result – Remark | Verdict |
|---------|---|-----------------|---------|
| 4.7.3.1 | For computer room applications, enclosures with combustible material measuring greater than 0.9 m ² (10 sq ft) or a single dimension greater than 1.8 m (6 ft) are required to have a flame spread rating of 50 or less. For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less. | | N/A |
| Annex H | Equipment that produces ionizing radiation is required to comply with the U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370). | | N/A |

| IEC 60950-1/Am1 | | | |
|--|--|---|---------|
| Clause | Difference – Test | Result – Remark | Verdict |
| National Differences for Canada Amendment 1:2011 to CAN/CSA-C22.2 No. 60950-1-07 | | | |
| Canada and the United States of America have adopted a single, bi-national standard, CAN/CSA C22.2 No. 60950-1/UL60950-1, Second Edition, which is based on IEC 60950-1, Second Edition. This bi-national standard should be consulted for further details on the national conditions and differences summarized below. | | | |
| SPECIAL NATIONAL CONDITIONS The following is a summary of the key national differences based on national regulatory requirements, such as the Canadian Electrical Code (CEC) Part I and the Canadian Building Code, which are referenced in legislation and which form the basis for the rules and practices followed in electrical and building installations | | | |
| 1.1.1 | All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75. | The components fulfil the requirements of the standard and in addition P1 and P2 of UL60950 and CSA 22.2-60950 was applied. | P |
| 1.4.14 | For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A. | Unit for building-in. External protection considered 20A. | N/A |
| 1.5.5 | For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the CEC/NEC. For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the CEC are required to have special construction features and identification markings. | | N/A |
| 1.7.1 | Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings. A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in Table 2 of CAN/CSA C22.2 No. 235, and if it is part of a range that extends into the Table 2 "Normal Operating Conditions." Likewise, a voltage rating shall not be lower than the specified "Normal Operating Conditions," unless it is part of a range that extends into the "Normal Operating Conditions." | | N/A |

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| Clause | Difference – Test | Result – Remark | Verdict |
|---------|--|-----------------|---------|
| 1.7.7 | Wiring terminals intended to supply Class 2 outputs in accordance with CEC Part 1 or NEC shall be marked with the voltage rating and “Class 2” or equivalent. Marking shall be located adjacent to the terminals and shall be visible during wiring. | | N/A |
| 2.5 | Where a fuse is used to provide Class 2, Limited Power Source, or TNV current limiting, it shall not be operator-accessible unless it is not interchangeable. | | N/A |
| 2.6.3.3 | The first column on Table 2D modified to require, “Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT RATING of the circuit under consideration.” | | N/A |
| 2.7.1 | Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable. Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection. | | N/A |
| 3.2 | Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains shall be in accordance with the NEC/CEC. | | N/A |

| IEC 60950-1/Am1 | | | |
|-----------------|--|------------------------|---------|
| Clause | Difference – Test | Result – Remark | Verdict |
| 3.2.1 | Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment. | | N/A |
| 3.2.1.2 | Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, is required to comply with special earthing, wiring, marking and installation instruction requirements. | | N/A |
| 3.2.3 | Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs. | | N/A |
| 3.2.5 | Power supply cords are required to be no longer than 4.5 m in length. Minimum cord length is required to be 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement. Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC. | | N/A |
| 3.2.9 | Permanently connected equipment is required to have a suitable wiring compartment and wire bending space. | | N/A |
| 3.3 | Wiring terminals and associated spacings for field wiring connections shall comply with CSA C22.2 No. 0. | | N/A |
| 3.3.3 | Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm ²). | | N/A |
| 3.3.4 | Terminals for permanent wiring, including protective earthing terminals, are required to be suitable for Canadian/US wire gauge sizes, rated 125 percent of the equipment rating, and be specially marked when specified (1.7.7). | No terminals provided. | N/A |
| 3.3.5 | First column of Table 3E revised to require “Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT RATING of the circuit under consideration.” | | N/A |
| 3.4.2 | Motor control devices are required for cord-connected equipment with a motor if the equipment is rated more than 12 A, or if the motor has a nominal voltage rating greater than 120 V, or is rated more than 1/3 hp (locked rotor current over 43 A). | | N/A |
| 3.4.8 | Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position. | | N/A |
| 3.4.11 | For computer room applications, equipment with battery systems capable of supplying 750 VA for five minutes are required to have a battery disconnect means that may be connected to the computer room remote power-off circuit. | | N/A |
| 4.3.12 | The maximum quantity of flammable liquid stored in equipment is required to comply with NFPA 30. | | N/A |

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| Clause | Difference – Test | Result – Remark | Verdict |
|----------|---|-----------------|---------|
| 4.3.13.5 | Equipment with lasers is required to meet the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations 21 CFR 1040, as applicable. | | N/A |
| 4.7 | For computer room applications, automated information storage systems with combustible media greater than 0.76 m ³ (27 cu ft) are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge. | | N/A |
| 4.7.3.1 | For computer room applications, enclosures with combustible material measuring greater than 0.9 m ² (10 sq ft) or a single dimension greater than 1.8 m (6 ft) are required to have a flame spread rating of 50 or less. For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less. | | N/A |
| Annex H | Equipment that produces ionizing radiation is required to comply with the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations, 21 CFR 1020, as applicable. | | N/A |

OTHER DIFFERENCES

The following key national differences are based on requirements other than national regulatory requirements

| | | | |
|---------|--|---|-----|
| 1.5.1 | Some components and materials associated with the risk of fire, electric shock, or personal injury are required to have component or material ratings in accordance with the applicable national (Canadian and/or U.S.) component or material standard requirements. These components include: attachment plugs, battery packs (rechargeable type, used with transportable equipment), cathode ray tubes, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), cord sets and power supply cords, direct plug-in equipment, enclosures (outdoor), flexible cords and cables, fuses (branch circuit), fuseholders, ground-fault current interrupters, industrial control equipment, insulating tape, interconnecting cables, lampholders, limit controls, printed wiring, protectors for communications circuits, receptacles, solid state controls, supplementary protectors, switches (including interlock switches), thermal cutoffs, thermostats, (multi-layer) transformer winding wire, transient voltage surge suppressors, tubing, wire connectors, and wire and cables. | The components fulfil the requirements of the standard and in addition P1 and P2 of UL60950 and CSA 22.2-60950 was applied. | P |
| 1.6.1.2 | A circuit for connection to the DC Mains Supply is classified as either a SELV Circuit, TNV-2 Circuit or Hazardous Voltage Circuit depending on the maximum operating voltage of the supply. This maximum operating voltage shall include consideration of the battery charging “float voltage” associated with the intended supply system, regardless of the marked power rating of the equipment. | | N/A |

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| Clause | Difference – Test | Result – Remark | Verdict |
| 2.3.1 | For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 V _{peak} or 60 V _{d.c.} , the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions. | | N/A |
| 2.3.2.1 | In the event of a single fault between TNV and SELV circuits, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts. | | N/A |
| 2.6.3.4 | Protective bonding conductors of non-standard protective bonding constructions (e.g., printed circuit traces) may be subjected to the additional limited short circuit test conditions specified. | End product consideration. | N/A |
| 4.2.8.1 | Enclosures around CRTs with a face diameter of 160 mm or more are required to reduce the risk of injury due to the implosion of the CRT. | | N/A |
| 4.3.2 | Equipment with handles is required to comply with special loading tests. | | N/A |
| 5.1.8.3 | Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests. | | N/A |
| 5.3.7 | Internal (e.g., card cage) SELV circuit connectors and printed wiring board connectors that are accessible to the operator and that deliver power are to be overloaded. During abnormal operating testing, if a circuit is interrupted by the opening of a component, the test shall be repeated twice (three tests total) using new components as necessary. | | N/A |
| 6.4 | Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC. | | N/A |
| Annex EE | Articulated accessibility probe (Fig EE.3) required for assessing accessibility to document/media shredders instead of the Figure 2A test finger. | | N/A |
| M.2 | Continuous ringing signals up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions. | | N/A |
| Annex NAD | Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements. | | N/A |
| | | | |

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| Clause | Difference – Test | Result – Remark | Verdict |
| ISRAEL-Differences to IEC 60950-1:2005 | | | |

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| Clause | Difference – Test | Result – Remark | Verdict |
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| ISRAEL STANDARD SI 60950 PART 1 INFORMATION TECHNOLOGY EQUIPMENT - SAFETY: GENERAL REQUIREMENTS TRANSLATION OF ISRAEL NATIONAL DEVIATIONS ONLY | | | |
| 1. | Scope (with national deviations) | | — |
| 1.1.1 | Equipment covered by this Standard <p>This Standard is applicable to mains-powered or battery-powered information technology equipment, including electrical business equipment and associated equipment, with a rated voltage not exceeding 600 V.</p> <p>This Standard is also applicable to the information technology equipment mentioned below:</p> <ul style="list-style-type: none"> - equipment designed for use as telecommunication terminal equipment and telecommunication network infrastructure equipment, independent of the source of power; - equipment designed and intended to be connected directly to, or used as infrastructure equipment in, a cable distribution system, independent of the source of power; - equipment designed to use the general a.c. mains supply as a communication transmission medium (see clause 6, Note 4 and subclause 7.1, Note 4). <p>This Standard is also applicable to components and subassemblies intended for incorporation in information technology equipment. It is not expected that such components and subassemblies comply with every aspect of the Standard, provided that the complete information technology equipment, incorporating such components and subassemblies, does comply.</p> <p>Note 1: Examples of aspects with which uninstalled components and subassemblies may not comply include the marking of the power rating and access to hazardous parts.</p> <p>Note 2: This Standard may be applied to the electronic parts of equipment even if that equipment does not wholly fall within its Scope, such as large-scale air conditioning systems, fire detection systems and fire extinguishing systems. Different requirements may be necessary for some applications.</p> <p>This Standard specifies requirements intended to reduce risks of fire ignition, electric shock or bodily injury for the operator and layman who may come into contact with the equipment and, where specifically stated, for a service person.</p> <p>This Standard is intended to reduce such risks with respect to installed equipment, whether it consists of a system or interconnected units or independent units, subject to installing, operating and maintaining the equipment in the manner prescribed by the manufacturer. Examples of equipment that is in the scope of this Standard are the following:</p> | | — |


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| Clause | Difference – Test | | Result – Remark | Verdict | | | | | | | | | | | | | | | | | | | | | |
| | <table><tr><th>Generic product type</th><th>Specific examples of generic type</th></tr><tr><td>Banking equipment</td><td>Monetary processing machines (counting, dispensing, etc.) for bills and coins, including automated teller machines (ATM)</td></tr><tr><td>Data and text processing machines and associated equipment</td><td>Data preparation equipment, data processing equipment, data storage equipment, personal computers, plotters, printers, scanners, text processing equipment and visual display units</td></tr><tr><td>Data network equipment</td><td>Bridges, data circuit terminating equipment, data terminal equipment and routers</td></tr><tr><td>Electrical and electronic retail equipment</td><td>Cash registers, point of sale terminals including associated electronic scales</td></tr><tr><td>Electrical and electronic office machines</td><td>Calculators, copying machines^(A), dictation equipment, document shredding machines, duplicators, erasers, micrographic office equipment, motor-operated files, paper trimmers (punchers, cutting machines, separators), paper jogging machines, pencil sharpeners, staplers and typewriters</td></tr><tr><td>Other information technology equipment</td><td>Photoprinting equipment, public information terminals and multimedia equipment</td></tr><tr><td>Postage equipment</td><td>Mail processing machines and postage machines</td></tr><tr><td>Telecommunication network infrastructure equipment</td><td>Billing equipment, multiplexers, network powering equipment, network terminating equipment, radio base stations, repeaters, transmission equipment and telecommunication switching equipment</td></tr><tr><td>Telecommunication terminal equipment</td><td>Facsimile equipment, key telephone systems, modems, PABXs^(B), pagers, telephone answering machines and telephone sets (wired and wireless)</td></tr></table> | | Generic product type | Specific examples of generic type | Banking equipment | Monetary processing machines (counting, dispensing, etc.) for bills and coins, including automated teller machines (ATM) | Data and text processing machines and associated equipment | Data preparation equipment, data processing equipment, data storage equipment, personal computers, plotters, printers, scanners, text processing equipment and visual display units | Data network equipment | Bridges, data circuit terminating equipment, data terminal equipment and routers | Electrical and electronic retail equipment | Cash registers, point of sale terminals including associated electronic scales | Electrical and electronic office machines | Calculators, copying machines ^(A) , dictation equipment, document shredding machines, duplicators, erasers, micrographic office equipment, motor-operated files, paper trimmers (punchers, cutting machines, separators), paper jogging machines, pencil sharpeners, staplers and typewriters | Other information technology equipment | Photoprinting equipment, public information terminals and multimedia equipment | Postage equipment | Mail processing machines and postage machines | Telecommunication network infrastructure equipment | Billing equipment, multiplexers, network powering equipment, network terminating equipment, radio base stations, repeaters, transmission equipment and telecommunication switching equipment | Telecommunication terminal equipment | Facsimile equipment, key telephone systems, modems, PABXs ^(B) , pagers, telephone answering machines and telephone sets (wired and wireless) | | | — |
| | Generic product type | Specific examples of generic type | | | | | | | | | | | | | | | | | | | | | | | |
| | Banking equipment | Monetary processing machines (counting, dispensing, etc.) for bills and coins, including automated teller machines (ATM) | | | | | | | | | | | | | | | | | | | | | | | |
| | Data and text processing machines and associated equipment | Data preparation equipment, data processing equipment, data storage equipment, personal computers, plotters, printers, scanners, text processing equipment and visual display units | | | | | | | | | | | | | | | | | | | | | | | |
| | Data network equipment | Bridges, data circuit terminating equipment, data terminal equipment and routers | | | | | | | | | | | | | | | | | | | | | | | |
| | Electrical and electronic retail equipment | Cash registers, point of sale terminals including associated electronic scales | | | | | | | | | | | | | | | | | | | | | | | |
| | Electrical and electronic office machines | Calculators, copying machines ^(A) , dictation equipment, document shredding machines, duplicators, erasers, micrographic office equipment, motor-operated files, paper trimmers (punchers, cutting machines, separators), paper jogging machines, pencil sharpeners, staplers and typewriters | | | | | | | | | | | | | | | | | | | | | | | |
| | Other information technology equipment | Photoprinting equipment, public information terminals and multimedia equipment | | | | | | | | | | | | | | | | | | | | | | | |
| | Postage equipment | Mail processing machines and postage machines | | | | | | | | | | | | | | | | | | | | | | | |
| | Telecommunication network infrastructure equipment | Billing equipment, multiplexers, network powering equipment, network terminating equipment, radio base stations, repeaters, transmission equipment and telecommunication switching equipment | | | | | | | | | | | | | | | | | | | | | | | |
| | Telecommunication terminal equipment | Facsimile equipment, key telephone systems, modems, PABXs ^(B) , pagers, telephone answering machines and telephone sets (wired and wireless) | | | | | | | | | | | | | | | | | | | | | | | |
| | (A) Commonly known as "copiers". | | | | | | | | | | | | | | | | | | | | | | | | |
| (B) PABX - Private Automatic Branch Exchange. | | | | | | | | | | | | | | | | | | | | | | | | | |
| Note 3: | | | | | | | | | | | | | | | | | | | | | | | | | |
| The requirements of Israel Standard SI 60065 ^(C) may also be used to meet safety requirements for multimedia equipment. See IEC Guide 112, Guide on the safety of multimedia equipment. | | | | | | | | | | | | | | | | | | | | | | | | | |
| The list of equipment (brought in the above table) is not intended to be comprehensive and exhaustive, and equipment that is not listed is not necessarily excluded from the Scope, Equipment complying with the relevant requirements in this Standard is considered suitable for use with process control equipment, automatic test equipment and similar systems requiring information processing facilities. However, this Standard does not include requirements for performance or functional characteristics of equipment. | | | | | | | | | | | | | | | | | | | | | | | | | |
| (C) In preparation | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Clause | Difference – Test | Result – Remark | Verdict |
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| 1.1.2 | Additional requirements Requirements additional to those specified in this Standard may be necessary for: <ul style="list-style-type: none"> - equipment intended for operation in special environments (for example, extremes of temperature; very high concentration of dust, moisture or vibration; flammable gases; and corrosive or explosive atmospheres); - electromedical applications with physical connections to the patient; - equipment intended to be used in vehicles, on board ships or aircraft, in tropical countries, or at altitudes greater than 2,000 m. - equipment intended for use where ingress of water may be possible. For guidance on such requirements and on relevant testing, see Annex T. Note: Attention is drawn to the fact that government authorities of some countries impose additional requirements. | | N/A |
| 1.1.3 | Exclusions This Standard does not apply to the following: <ul style="list-style-type: none"> - power supply systems which are not an integral part of the equipment, such as motor-generator sets, battery backup systems and transformers; - building installation wiring; - devices requiring no electric power. | | — |
| National deviations to the clauses of the International Standard | | | |
| 1.6 | Power interface The clause is applicable with the following addition: | | N/A |
| 1.6.1 | AC Power distribution systems A note shall be added to the clause as follows: Note: In Israel, this clause is applicable subject to the Electricity Law, 1954, its regulations and revisions. | | N/A |
| 1.7 | Marking and instructions The clause is applicable with the following additions: <ul style="list-style-type: none"> - Subclause 1.7.201 shall be added at the beginning of the clause as follows: | | N/A |

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| Clause | Difference – Test | Result – Remark | Verdict |
| 1.7.201 | <p>Marking in the Hebrew language</p> <p>The marking in the Hebrew language shall be in accordance with the Consumer Protection Order (Marking of goods), 1983.</p> <p>In addition to the marking required by clause 1.7.1, the following details shall be marked in the Hebrew language.</p> <p>The details shall be marked on the apparatus or on its package, or on a label properly attached to the apparatus or on the package, by bonding or sewing, in a manner that the label cannot be easily removed.</p> <ol style="list-style-type: none"> 1. Name of the apparatus and its commercial designation; 2. Manufacturer's name and address. If the apparatus is imported, the importer's name and address; 3. Manufacturer's registered trademark, if any; 4. Name of the model and serial number, if any; 5. Country of manufacture. | Built-in unit. End product consideration. | N/A |
| 1.7.2 | Safety instructions and marking | | N/A |
| 1.7.2.1 | <p>General</p> <p>The following shall be added to the clause:</p> <p>All the instructions and warnings related to safety shall also be written in the Hebrew language.</p> | Built-in unit. End product consideration. | N/A |
| 2. | <p>Protection from hazards</p> <p>The clause is applicable with the following additions:</p> | | N/A |
| 2.9.4 | <p>Separation from hazardous voltages</p> <p>The following shall be added at the beginning of the clause:</p> <p>In Israel, according to the Electricity Law, 1954, and the Electricity Regulations (Earthing and means of protection against electricity of voltages up to 1,000V) 1991, seven means of protection against electrocution are permitted, as follows:</p> <ol style="list-style-type: none"> 1. TN-S - Network system earthing; TN-C-S - Network system earthing; 2. TT - Network system earthing; 3. IT - Network Insulation Terre; | | N/A |

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| Clause | Difference – Test | Result – Remark | Verdict |
|---------|--|-----------------|---------|
| | <p>4. Isolated transformer;</p> <p>5. Safety extra low voltage (SELV or ELV);</p> <p>6. Residual current circuit breaker (30 ma = I_Δ);</p> <p>7. Reinforced insulation; Double insulation (class II) .</p> <p>Clause 2.201 shall be added at the end of the clause, as follows:</p> | | |
| 2.201 | <p>Prevention of electromagnetic interference</p> <p>- Prior to carrying out the tests in accordance with the clauses of this Standard, the compliance of the apparatus with the relevant requirements specified in the appropriate part of the Standard series, SI 961, shall be checked.</p> <p>The apparatus shall meet the requirements in the appropriate part of the Standard series, SI 961.</p> <p>- If there are components in the apparatus for the prevention of electromagnetic interference, these components shall not reduce the safety level of the apparatus as required by this Standard.</p> | | N/A |
| 3. | <p>Wiring, connections and supply</p> <p>The clause is applicable with the following additions:</p> | | N/A |
| 3.2 | Connection to a mains supply | | N/A |
| 3.2.1 | Means of connection | | N/A |
| 3.2.1.1 | <p>Connection to an a.c. mains supply</p> <p>After the note, the following note shall be added:</p> <p>Note: In Israel, the feed plug shall comply with the requirements of Israel Standard SI 32 Part 1.1.</p> | | N/A |
| 3.2.1.2 | <p>Connection to a d.c. mains supply</p> <p>At the end of the first paragraph, the following note shall be added:</p> <p>Note: At the time of issue of this Standard, there is no Israel Standard for connection accessories to d.c.</p> | | — |



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| Clause | Difference – Test | | Result – Remark | Verdict | |
| Annex P | ANNEX P | | | N/A | |
| | (normative) Normative references | | | | |
| | The annex is applicable with the following national deviations: | | | | |
| | - The following Israel Standards have been inserted in place of some of the International Standards specified in this annex of the Standard, as follows: | | | | |
| | The referenced International Standard | The substituted Israel Standard | Comments | | |
| | IEC 60065: 2001 | SI 250 ^(A) - Safety requirements for mains operated electronic and related apparatus for household and similar general use | The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission, IEC 65:1985, including its amendments | | |
| | IEC 60227 (all parts) | SI 473, all parts - Cables, cords and insulated conductors for nominal voltage up to 1000 volt | — | | |
| | IEC 60309 (all parts) | SI 1109, all parts - Plugs, socket-outlets and couplers for industrial purposes | SI 1109, part 1 and part 2, excluding national deviations in them, are identical to the Standards of the International Electrotechnical Commission IEC 60309-1-1999 and IEC 60309-2-1999, respectively. | | |
| | IEC 60317 (all parts) | SI 1067 Part 1 - Self-fluxing enamelled ^(B) round copper wires with high mechanical properties | The Israel Standard is identical to the Standard of the International Electrotechnical Commission IEC 317-1 (1980) | | |
| | | SI 1067 Part 1 - Self-fluxing enamelled ^(B) round copper wires with high mechanical properties | The Israel Standard is identical to the Standard of the International Electrotechnical Commission IEC 317-1 (1980) | | |
| | | SI 1067 Part 2 - Self-fluxing enamelled ^(B) round copper wires | The Israel Standard is identical to the Standard of the International Electrotechnical Commission IEC 317-4 (1980) | | |
| | IEC 60320 (all parts) | SI 60320 Part 1 - Appliance couplers for household and similar general purposes: General requirements | The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission, IEC 60320-1 (2001) | | |
| | | SI 60320 Part 2.1 - Appliance couplers for household and similar general purposes: Sewing machine couplers | The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission, IEC 60320-2.1 (2000) | | |
| | | SI 60320 Part 2.2 - Appliance couplers for household and similar general purposes: Interconnection couplers for household and similar equipment | The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission, IEC 60320-2.2 (1998) | | |

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| | | SI 60320 Part 2.3 -Appliance couplers for household and similar general purposes: Interconnection couplers for household and similar equipment Appliance coupler for household and similar general purposes: Appliance coupler with a degree of protection higher than IPX0 | The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission, IEC 60320-2.3 (1998) | |
| | IEC 60730-1: 1999 | SI 60730 Part 1 - Automatic electrical controls for household and similar use: General requirements | The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission, IEC 60730-1 (1999) | |
| | IEC 60825-1 | SI 60825 Part 1 - Safety of laser products: Equipment classification, requirements and user's guide | The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission, IEC 60825-1 (2001). | |
| | IEC 60947-1; 2004 | SI 60947 Part 1 -Low-voltage switchgear and controlgear: General rules | The Israel Standard, excluding national deviations in it, is identical to Standard of the International Electrotechnical Commission, IEC 60947-1 (1999) | |
| | IEC 61058-1: 2000 | SI 61058 Part 1 - Switches for appliances: General requirements | The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission, IEC 61058-1 (2001) | |
| | ISO 3864 (all parts) | SI 3864 Part 1 -Graphical symbols -Safety colours and safety signs: Design principles for safety signs in workplaces and public areas | The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission IEC 3864-1 (2002) | |
| | Notes: (A) This Standard will be replaced by SI 60065 - Audio, video and similar electronic apparatus - safety requirements - that excluding the national deviations indicated is identical to the Standard of the International Electrotechnical Commission IEC 60065 (2005). (B) Not relevant to the translation. | | | |
| | B. Add the following to the clause: Israel Standards SI 32 Part 1.1 - Plugs and socket-outlets for household and similar purposes: Plugs and socket-outlets for single phase up to 16A - General requirements SI 961, all parts - Electromagnetic compatibility Israel documents Electricity Law, 1954, its regulations and revisions Kovetz Takanot 4465 dated 1983-02-24, Consumer Protection Order (Marking of goods), 1983 | | | N/A |

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| Clause | Difference – Test | Result – Remark | Verdict |
| CHINA-Differences to IEC 60950-1:2005 (ed. 2) (GB4943.1-2011 Information technology equipment – Safety – Part 1: General requirements) | | | |
| 1.1.2 | <p>GB 4943.1-2011 applies to equipment for use at altitudes not exceeding 5000m above sea level, primarily in regions with moderate or tropical climates.</p> <p>Amend the third dashed paragraph of 1.1.2 as: ——equipment intended to be used in vehicles, on board ships or aircraft, at altitudes greater than 5000m;</p> | Considered | P |
| 1.4.5 | <p>After the third paragraph, add a paragraph: If the equipment is intended for direct connection to an AC mains supply, the tolerances on RATED VOLTAGE shall be taken as +10%,-10% unless a wider tolerance is declared by the manufacturer. The first dash paragraph "-the RATED VOLTAGE is 230V single -phase or 400V three-phase, in which case the tolerance shall be taken as +10% and - 10%" of IEC 60950-1:2005 is deleted in GB 4943.1-2011</p> | Tolerances +10%, -10% considered. | P |
| 1.4.12.1 | <p>Tma in clause 1.4.12.1 amended as: Tma: is the maximum ambient temperature permitted by the manufacturer's specification, or 35 °C, whichever is greater.</p> <p>Add note 1: For equipment not to be operated at tropical climatic conditions, Tma: is the maximum ambient temperature permitted by the manufacturer's specification, or 25 °C, whichever is greater.</p> <p>Add note 2: For equipment is to be operated at 2000m-5000m above sea leave, its temperature test conditions and temperature limits are under consideration.</p> | Manufacturer specifies ambient temperature >35°C | P |
| 1.5. 2 | Add a note behind the first break off section in Clause 1.5.2: A component used shall comply with related requirements corresponding altitude of 5000m. | Unit not specified for altitude more than 2000m | N/A |
| 1.7 | Add one paragraph before the last paragraph: The required marking and instruction should be given in normative Chinese unless otherwise specified. | Unit for building-in. Chinese label was not part of this investigation. | N/A |

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| Clause | Difference – Test | Result – Remark | Verdict |
|---------|--|--|---------|
| 1.7.1 | <p>Based on the AC mains supply of China, the RATED VOLTAGE should be 220V (single phase) or 380V (three-phases) for single rated voltage, for RATED VOLTAGE RANGE, it should cover 220V or 380V (three-phases), for multiple RATED VOLTAGES, one of them should be 220V or 380V (three-phases) and set on 220V or 380V (three-phases) when manufactured.</p> <p>And the RATED FREQUENCY or RATED FREQUENCY RANGE should be 50Hz or include 50Hz.</p> | The rated voltage range and frequency range is covering China mains voltage 220V/50Hz. | P |
| 1.7.2.1 | <p>Add requirements of warning for equipment intended to be used at altitudes not exceeding 2000m or at non-tropical climate regions:</p> <p>For equipment intended to be used at altitude not exceeding 2000m, a warning label containing the following or a similar appropriate wording, or a symbol as in annex DD shall fixed to the equipment at readily visible place.</p> <p>"Only used at altitude not exceeding 2000m."</p>  <p>For equipment intended to be used in not-tropical climate regions, a warning label containing the following or a similar appropriate wording, or a symbol as in annex DD shall fixed to the equipment at readily visible place.</p> <p>"Only used in not-tropical climate regions."</p>  <p>If only the symbol used, the explanation of the symbol shall be contained in the instruction manual.</p> <p>The above statements shall be given in a language acceptable to the regions where the apparatus is intended to be used.</p> | Unit not intended for altitude above 2000m and not specified for tropical conditions. Appropriate labels must be attached to the units shipped to China. | N/A |



| IEC 60950-1/Am1 | | | |
|-----------------|---|--|---------|
| Clause | Difference – Test | Result – Remark | Verdict |
| 2.7.1 | <p>Amended the first paragraph as:</p> <p>Protection in PRIMARY CIRCUITS against overcurrent short-circuits and earth faults shall be provided as an integral part of the equipment except special provisions. And the protective device shall meet the requirement of Clause 5.3.</p> <p>Delete note of Clause 2.7.1.</p> | Unit provides appropriate internal protection. | P |
| 2.9.2 | <p>First section of Clause 2.9.2 amended as two sections:</p> <p>Where required by 2.9.1, 2.10.8.3, 2.10.10 or 2.10.11, humidity conditioning is conducted for 120 h in a cabinet or room containing air with ambient temperature $40\pm 2^{\circ}\text{C}$ and a relative humidity of $(93\pm 3)\%$. During this conditioning the component or subassembly is not energized.</p> <p>For equipment not to be operated at tropical climatic conditions, Where required by 2.9.1, 2.10.8.3, 2.10.10 or 2.10.11, humidity conditioning is conducted for 48 h in a cabinet or room containing air with a relative humidity of $(93\pm 3)\%$. The temperature of the air, at all places where samples can be located, is maintained within 2°C of any convenient value between 20°C and 30°C such that condensation does not occur.</p> <p>Due to pretreatment of equipment operated at high altitude area is humidity conditioning withstand hot shock, specific requirements are to be considered.</p> <p>Add note: For equipment to be operated at 2000 m - 5000m above sea level, assessment and requirement of humidity conditioning for Insulation material properties are considered.</p> | Unit not intended for tropical conditions. | N/A |

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| Clause | Difference – Test | Result – Remark | Verdict |
|-----------------------|--|--|---------|
| 2.10.3.1 | <p>Amend the third paragraph of Clause 2.10.3.1 to be:</p> <p>These requirements apply for equipment to be operated up to 2000 m above sea level. For equipment to be operated at more than 2000 m above sea level and up to 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of IEC 60664-1. For equipment to be operated at more than 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of IEC 60664-1. Linear interpolation is permitted between the nearest two points in Table A.2. The calculated minimum CLEARANCE using this multiplication factor shall be rounded up to the next higher 0,1 mm increment.</p> | Unit verified for altitude <5000m. | N/A |
| 2.10.3.3& 2.10.3.4 | Add "(applicable for altitude up to 2000m)" in header of Table 2K□2L and 2M. | Added. | P |
| 2.10.3.4 | <p>Add a new section above Table 2K and in Clause 2.10.3.4:</p> <p>Minimum CLEARANCES determined by above rules apply for equipment to be operated up to 2000m above sea level. For equipment to be operated at 2000 m - 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of GB/T16935.1□ IEC 60664-1□. For equipment to be operated at more than 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of GB/T16935.1.</p> | Unit not intended to be used at an altitude of 5000m or more. Manufacturer specified maximum altitude of 2000 m. | P |
| 3.2.1.1 | <p>Add a paragraph before the last paragraph:</p> <p>Plugs connected to AC mains supply shall comply with GB 1002 or GB 1003 or GB/T 11918 as applicable.</p> | No plug provided. | N/A |
| 4.2.8 | <p>Clause 4.2.8 cathode ray tubes quoted Clause 18 of GB8898-2011.</p> <p>Delete note of Clause 4.2.8.</p> | No CRT used. | N/A |

| IEC 60950-1/Am1 | | | |
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| Clause | Difference – Test | Result – Remark | Verdict |
| Annex E | Last section of Annex E amended as: For comparison of winding temperatures determined by the resistance method of this annex with the temperature limits of Table 4B, 35 °C shall be added to the calculated temperature rise. And add note: for equipment not to be operated at tropical climatic conditions, 25 °C shall be added to the calculated temperature rise to compare with the temperature of Table 4B. | No linear transformer used. | N/A |
| Annex G.6 | Change the second section of Clause G.6 to be: For equipment to be operated at 2000 m - 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of GB/T16935.1. For equipment to be operated at more than 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of IEC 60664-1. Linear interpolation is permitted between the nearest two points in Table A.2. The calculated minimum CLEARANCE using this multiplication factor shall be rounded up to the next higher 0,1 mm increment. | Unit specified for altitude up to 2000m. | N/A |
| Annex BB (informative) | Amended as : The differences between Chinese national standards GB 4943.1-2011 and GB 4943-2001. | Considered. | -- |

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| Clause | Difference – Test | Result – Remark | Verdict |
|---|---|---|---------|
| Annex DD (normative) | <p>Added annex DD: Instructions for the new safety warning labels.</p> <p>DD.1 Altitude warning label</p>  <p>Meaning of the label: Evaluation for apparatus only based on altitude not exceeding 2000m, therefor it's the only operating condition applied for the equipment .There may be some potential safety hazard if the equipment is used at altitude above 2000m .</p> <p>DD.2 Climate warning label</p>  <p>Meaning of the label: Evaluation for apparatus only based on temperate climate condition, therefor it's the only operating condition applied for the equipment .There may be some potential safety hazard if the equipment is used in tropical climate region.</p> | Must be verified during national approval. | N/A |
| Annex EE (informative) | <p>Added annex EE:</p> <p>Illustration relative to safety explanation in normative Chinese□Tibetan□Mongolian□Zhuang Language and Uighu.</p> | The EUT is not household and home/office document/media shredder. | N/A |
| Other amendments | In accordance with the relevant CTL decisions and the amendments of IEC 60950-1, the specific requirements or mistakes in IEC standard are corrected or editorially modified in this part, Including clause 1.7, 2.1.1.7, 2.9.2, Table 2H, Figure 2H, F.8, F.9, M.3 and Annex U. | Considered. | P |
| Quoting standards and reference documents | <p>The principles of quoting and referring to other standards in Annex P and reference documents of IEC 60950-1 are as follows:</p> <p>If the date of the reference document is given, only that edition applies, excluding any subsequent corrigenda and amendments. However, parties to agreements based on this part are encouraged to investigate the possibility of applying the most recent editions of the reference documents. For undated references, the latest edition of the referenced document applies, including any corrigenda and</p> | Considered. | P |

| IEC 60950-1/Am1 | | | |
|-----------------|---|-----------------|---------|
| Clause | Difference – Test | Result – Remark | Verdict |
| | <p>amendments.</p> <p>For the usage of international standards in Chinese national standards and industry standards is various, in the aim of achieving easy operation and based on the requirements of GB/T 1.1 and GB/T 20000.2, when quoting an entire international standard in the normative quoting files and reference documents of Annex P of this part, the principles of quotation are as follows:</p> <ul style="list-style-type: none"> - If there is no national standard or industry standard corresponding to the international standard, then the international standard is quoted; - If there is national standard or industry standard corresponding to the international standard, then either the national or industry standard is quoted; - If the date of the national standard or industry standard is not given, the latest edition of the standard applies; - The national standard or industry standard number, corresponding international standard number and the consistency level code should be identified in parentheses behind the listed national standard or industry standard. <p>When quoting several chapters or clauses of the international standard, the principles of quotation are as follows:</p> <ul style="list-style-type: none"> - If there is no national standard or industry standard corresponding to the international standard, then the international standard is quoted; - If there is national standard or industry standard corresponding to the international standard, then either the national or industry standard is quoted. <p>Meanwhile, in order to retain the relevant information on international standards, informative annex CC is increased, which gives the table about the comparison of the normative quoting files and reference documents in IEC 60950-1: 2005 and GB 4943.1-2011.</p> | | |

| IEC 60950-1/Am1 | | | |
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| Clause | Difference – Test | Result – Remark | Verdict |

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| Clause | Difference – Test | Result – Remark | Verdict |
|---|--|-------------------------------------|---------|
| JAPAN- Differences to IEC 60950, Third Edition (1999) (National differences to IEC 60950-1:2005 and IEC 60950-1:2001 do not exist) | | | |
| 1.2 | Addition: Add the following terms. Equipment, Class 0I 1.2.4.101 Material, VTM 1.2.12.101 | Considered. | P |
| 1.2.4.101 | Addition: CLASS 0I EQUIPMENT: Equipment where protection against electric shock is achieved by: a) using BASIC INSULATION, and b) providing a means of connecting to the protective earthing conductor in the building wiring those conductive parts that are otherwise capable of assuming HAZARDOUS VOLTAGES if the BASIC INSULATION fails, and c) using a supply cord without earthing conductor and a plug without earthing wire although the equipment has externally an earth terminal or a lead wire for earthing. Equipment provided with a cord set having a two-pin type plug with a lead wire for earthing is also regarded as Class 0I. NOTE – Class 0I equipment may have a part constructed with Double Insulation or Reinforced Insulation as well as an operating part as SELV circuit. | Equipment is rated class I. | N/A |
| 1.2.12.1 | Replacement: FLAMMABILITY CLASSIFICATION OF MATERIALS: The recognition of the burning behaviour of materials and their ability to extinguish if ignited. Materials are classified as in 1.2.12.2 to 1.2.12.9, and 1.2.12.101 when tested in accordance with annex A. NOTE 1 - When applying the requirements in this standard, HF-1 CLASS FOAMED MATERIALS are regarded as better than those of CLASS HF-2, and HF-2 better than HBF. NOTE 2 - Similarly, other MATERIALS, including rigid (engineering structural) foam of CLASSES 5V or V-0 are regarded as better than those of CLASS V-1, V-1 better than V-2, and V-2 better than HB. NOTE 3 - Similarly, for thin MATERIALS, VTM-0 Class materials are regarded as better than those of VTM-1 Class , and VTM-1 better than VTM-2. | IEC/UL approved materials are used. | N/A |

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|-----------------|--|-------------------------------------|---------|
| Clause | Difference – Test | Result – Remark | Verdict |
| 1.2.12.10 1 | Addition: VTM CLASS MATERIAL: Thin MATERIALS fulfill the specified conditions during the test of clause A.101 applied for materials that the test and evaluation of clauses A.6 to A.10 is difficult to enforce. Materials are classified to three classifications as VTM-0, VTM-1 and VTM-2 according to the conditions after the removal of the test flame. | IEC/UL approved materials are used. | N/A |
| 1.7.101 | Addition: Marking for CLASS 0I EQUIPMENT For CLASS 0I EQUIPMENT, the following instruction shall be indicated on the visible place of the mains plug or the main body: “Provide an earthing connection” Moreover, for CLASS 0I EQUIPMENT, the following instruction shall be indicated on the visible place of the main body or written in the operating instructions: “Provide an earthing connection before the mains plug is connected to the mains. And, when disconnecting the earthing connection, be sure to disconnect after pulling out the mains plug from the mains.” | | N/A |
| 2.1.1.1 | Replacement: Replace “IEC 60083” to “IEC 60083 or JIS C 8303” in 2.1.1.1 b). | Considered. | P |
| 2.6.3.1 | Addition: Add the following after 1st paragraph. This also applies to the conductor of lead wire for protective earthing of CLASS 0I EQUIPMENT. | | N/A |
| 2.6.4.1 | Replacement: Replace 2nd sentence in 1st paragraph. For CLASS I EQUIPMENT with a DETACHABLE POWER SUPPLY CORD, the earthing terminal in the appliance inlet is regarded as the main protective earthing terminal. | | N/A |
| 2.6.5.4 | Replacement: Replace 1st sentence. Protective earthing connections of CLASS I EQUIPMENT shall make earlier and break later than the supply connections in each of the following: | | N/A |
| 2.6.101 | Addition: Earthing of CLASS 0I EQUIPMENT Plugs with a lead wire for earthing shall not be used for equipment having a rated voltage exceeding 150V. For plugs with a lead wire for earthing, the lead wire shall not be earthed by a clip. CLASS 0I EQUIPMENT shall be provided with an earthing terminal or lead wire for earthing in the external where easily visible. | | N/A |
| 3.2.5 | Delete 1) in Table 3B. | | N/A |

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| Clause | Difference – Test | Result – Remark | Verdict | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------|---|------------------------------|---|------------------------------|---|---------------|---|------|---|----------------|---|------|---|---------------------|--|------|---|----------------------|---|------|---|---------------------|--|------|---|--------------------|---|------|---|---------------------|--|------|---|----------------------|---|------|---|-----------------------|--|------|---|---------------------|--|------|---|--------------------|---|------|---|---------------------|--|------|---|----------------------|---|------|---|-----------------------|--|------|---|----------------------|---|------|---|---------------------|--|------|---|----------------------|---|------|---|-----------------------|--|------|---|------------------------|---|------|---|----------------------|---|------|---|---------------------|--|------|---|----------------------|---|------|---|-----------------------|--|------|---|------------------------|---|------|---|-----------------------|--|------|---|----------------------|---|------|---|-----------------------|--|------|---|------------------------|---|------|---|-------------------------|--|------|---|-----------------------|--|------|---|----------------------|---|------|---|--|-----|
| 4.2.8 | Addition: Add the following informative remark after the last sentence. Remark - IEC 61965 is also applicable instead of IEC 60065. | | N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.5.1 | Addition: Add the following to suffix 5) as specified in “Conditions applicable to Table 4A, Parts 1 and 2”. With regard to Table 4A, insulating materials complying with Japanese requirements (refer to Japanese differences for the current IEC 60335-1 (3rd Edition) in CB Bulletin 101B) are also acceptable. Add a suffix 7) in “Conditions applicable to Table 4A, Parts 1 and 2”. In the right column of Table 4A, Part 1, add suffix 7) to “50” (K), corresponding to “- without T – marking” in the left column so as to become “50 7)”. Add 7) to Table 4A, Part 2 as follows. 7) This value shall apply only to wiring or cords complying with relevant IEC standards. Others shall comply with Japanese requirements (refer to Japanese differences for the current IEC 60335-1 (3rd Edition) in CB Bulletin 101B). | Built in unit. | N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.7.3.2 | Addition: Add the following in 7th paragraph. - for thin materials, e.g., flexible printed boards, etc., used inside equipment, be of FLAMMABILITY CLASS VTM-2 or better. | | N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5.1.6 | Replacement: Replace Table 5A. <table border="1" data-bbox="231 1384 678 1653"> <thead> <tr> <th>Type of equipment</th><th>Minimum R of insulating material connected to</th><th>Minimum TOUCH CURRENT mA/rms</th><th>Maximum PROTECTIVE CONDUCTOR RESISTANCE</th></tr> </thead> <tbody> <tr> <td>ALL equipment</td><td>Accessible parts and circuits not connected to protective earth</td><td>0.20</td><td>—</td></tr> <tr> <td>HANDY (TYPE I)</td><td>Equipment main protective earthing terminal (CLASS I EQUIPMENT)</td><td>0.05</td><td>—</td></tr> <tr> <td>REDUCIBLE (TYPE II)</td><td>Equipment main protective earthing terminal (CLASS II EQUIPMENT)</td><td>0.05</td><td>—</td></tr> <tr> <td>REDUCIBLE (TYPE III)</td><td>Equipment main protective earthing terminal (CLASS III EQUIPMENT)</td><td>0.05</td><td>—</td></tr> <tr> <td>REDUCIBLE (TYPE IV)</td><td>Equipment main protective earthing terminal (CLASS IV EQUIPMENT)</td><td>0.05</td><td>—</td></tr> <tr> <td>REDUCIBLE (TYPE V)</td><td>Equipment main protective earthing terminal (CLASS V EQUIPMENT)</td><td>0.05</td><td>—</td></tr> <tr> <td>REDUCIBLE (TYPE VI)</td><td>Equipment main protective earthing terminal (CLASS VI EQUIPMENT)</td><td>0.05</td><td>—</td></tr> <tr> <td>REDUCIBLE (TYPE VII)</td><td>Equipment main protective earthing terminal (CLASS VII EQUIPMENT)</td><td>0.05</td><td>—</td></tr> <tr> <td>REDUCIBLE (TYPE VIII)</td><td>Equipment main protective earthing terminal (CLASS VIII EQUIPMENT)</td><td>0.05</td><td>—</td></tr> <tr> <td>REDUCIBLE (TYPE IX)</td><td>Equipment main protective earthing terminal (CLASS IX EQUIPMENT)</td><td>0.05</td><td>—</td></tr> <tr> <td>REDUCIBLE (TYPE X)</td><td>Equipment main protective earthing terminal (CLASS X EQUIPMENT)</td><td>0.05</td><td>—</td></tr> <tr> <td>REDUCIBLE (TYPE XI)</td><td>Equipment main protective earthing terminal (CLASS XI EQUIPMENT)</td><td>0.05</td><td>—</td></tr> <tr> <td>REDUCIBLE (TYPE XII)</td><td>Equipment main protective earthing terminal (CLASS XII EQUIPMENT)</td><td>0.05</td><td>—</td></tr> <tr> <td>REDUCIBLE (TYPE XIII)</td><td>Equipment main protective earthing terminal (CLASS XIII EQUIPMENT)</td><td>0.05</td><td>—</td></tr> <tr> <td>REDUCIBLE (TYPE XIV)</td><td>Equipment main protective earthing terminal (CLASS XIV EQUIPMENT)</td><td>0.05</td><td>—</td></tr> <tr> <td>REDUCIBLE (TYPE XV)</td><td>Equipment main protective earthing terminal (CLASS XV EQUIPMENT)</td><td>0.05</td><td>—</td></tr> <tr> <td>REDUCIBLE (TYPE XVI)</td><td>Equipment main protective earthing terminal (CLASS XVI EQUIPMENT)</td><td>0.05</td><td>—</td></tr> <tr> <td>REDUCIBLE (TYPE XVII)</td><td>Equipment main protective earthing terminal (CLASS XVII EQUIPMENT)</td><td>0.05</td><td>—</td></tr> <tr> <td>REDUCIBLE (TYPE XVIII)</td><td>Equipment main protective earthing terminal (CLASS XVIII EQUIPMENT)</td><td>0.05</td><td>—</td></tr> <tr> <td>REDUCIBLE (TYPE XIX)</td><td>Equipment main protective earthing terminal (CLASS XIX 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protective earthing terminal (CLASS I EQUIPMENT) | 0.05 | — | REDUCIBLE (TYPE II) | Equipment main protective earthing terminal (CLASS II EQUIPMENT) | 0.05 | — | REDUCIBLE (TYPE III) | Equipment main protective earthing terminal (CLASS III EQUIPMENT) | 0.05 | — | REDUCIBLE (TYPE IV) | Equipment main protective earthing terminal (CLASS IV EQUIPMENT) | 0.05 | — | REDUCIBLE (TYPE V) | Equipment main protective earthing terminal (CLASS V EQUIPMENT) | 0.05 | — | REDUCIBLE (TYPE VI) | Equipment main protective earthing terminal (CLASS VI EQUIPMENT) | 0.05 | — | REDUCIBLE (TYPE VII) | Equipment main protective earthing terminal (CLASS VII EQUIPMENT) | 0.05 | — | REDUCIBLE (TYPE VIII) | Equipment main protective earthing terminal (CLASS VIII EQUIPMENT) | 0.05 | — | REDUCIBLE (TYPE IX) | Equipment main protective earthing terminal (CLASS IX EQUIPMENT) | 0.05 | — | REDUCIBLE (TYPE X) | Equipment main protective earthing terminal (CLASS X EQUIPMENT) | 0.05 | — | REDUCIBLE (TYPE XI) | Equipment main protective earthing terminal (CLASS XI EQUIPMENT) | 0.05 | — | REDUCIBLE (TYPE XII) | Equipment main protective earthing terminal (CLASS XII EQUIPMENT) | 0.05 | — | REDUCIBLE (TYPE XIII) | Equipment main protective earthing terminal (CLASS XIII EQUIPMENT) | 0.05 | — | REDUCIBLE (TYPE XIV) | Equipment main protective earthing terminal (CLASS XIV EQUIPMENT) | 0.05 | — | REDUCIBLE (TYPE XV) | Equipment main protective earthing terminal (CLASS XV EQUIPMENT) | 0.05 | — | REDUCIBLE (TYPE XVI) | Equipment main protective earthing terminal (CLASS XVI EQUIPMENT) | 0.05 | — | REDUCIBLE (TYPE XVII) | Equipment main protective earthing terminal (CLASS XVII EQUIPMENT) | 0.05 | — | REDUCIBLE (TYPE XVIII) | Equipment main protective earthing terminal (CLASS XVIII EQUIPMENT) | 0.05 | — | REDUCIBLE (TYPE XIX) | Equipment main protective earthing terminal (CLASS XIX EQUIPMENT) | 0.05 | — | REDUCIBLE (TYPE XX) | Equipment main protective earthing terminal (CLASS XX EQUIPMENT) | 0.05 | — | REDUCIBLE (TYPE XXI) | Equipment main protective earthing terminal (CLASS XXI EQUIPMENT) | 0.05 | — | REDUCIBLE (TYPE XXII) | Equipment main protective earthing terminal (CLASS XXII EQUIPMENT) | 0.05 | — | REDUCIBLE (TYPE XXIII) | Equipment main protective earthing terminal (CLASS XXIII EQUIPMENT) | 0.05 | — | REDUCIBLE (TYPE XXIV) | Equipment main protective earthing terminal (CLASS XXIV EQUIPMENT) | 0.05 | — | REDUCIBLE (TYPE XXV) | Equipment main protective earthing terminal (CLASS XXV EQUIPMENT) | 0.05 | — | REDUCIBLE (TYPE XXVI) | Equipment main protective earthing terminal (CLASS XXVI EQUIPMENT) | 0.05 | — | REDUCIBLE (TYPE XXVII) | Equipment main protective earthing terminal (CLASS XXVII EQUIPMENT) | 0.05 | — | REDUCIBLE (TYPE XXVIII) | Equipment main protective earthing terminal (CLASS XXVIII EQUIPMENT) | 0.05 | — | REDUCIBLE (TYPE XXIX) | Equipment main protective earthing terminal (CLASS XXIX EQUIPMENT) | 0.05 | — | REDUCIBLE (TYPE XXX) | Equipment main protective earthing terminal (CLASS XXX EQUIPMENT) | 0.05 | — | | N/A |
| Type of equipment | Minimum R of insulating material connected to | Minimum TOUCH CURRENT mA/rms | Maximum PROTECTIVE CONDUCTOR RESISTANCE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ALL equipment | Accessible parts and circuits not connected to protective earth | 0.20 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HANDY (TYPE I) | Equipment main protective earthing terminal (CLASS I EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REDUCIBLE (TYPE II) | Equipment main protective earthing terminal (CLASS II EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REDUCIBLE (TYPE III) | Equipment main protective earthing terminal (CLASS III EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REDUCIBLE (TYPE IV) | Equipment main protective earthing terminal (CLASS IV EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REDUCIBLE (TYPE V) | Equipment main protective earthing terminal (CLASS V EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REDUCIBLE (TYPE VI) | Equipment main protective earthing terminal (CLASS VI EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REDUCIBLE (TYPE VII) | Equipment main protective earthing terminal (CLASS VII EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REDUCIBLE (TYPE VIII) | Equipment main protective earthing terminal (CLASS VIII EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REDUCIBLE (TYPE IX) | Equipment main protective earthing terminal (CLASS IX EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REDUCIBLE (TYPE X) | Equipment main protective earthing terminal (CLASS X EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REDUCIBLE (TYPE XI) | Equipment main protective earthing terminal (CLASS XI EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REDUCIBLE (TYPE XII) | Equipment main protective earthing terminal (CLASS XII EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REDUCIBLE (TYPE XIII) | Equipment main protective earthing terminal (CLASS XIII EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REDUCIBLE (TYPE XIV) | Equipment main protective earthing terminal (CLASS XIV EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REDUCIBLE (TYPE XV) | Equipment main protective earthing terminal (CLASS XV EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REDUCIBLE (TYPE XVI) | Equipment main protective earthing terminal (CLASS XVI EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REDUCIBLE (TYPE XVII) | Equipment main protective earthing terminal (CLASS XVII EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REDUCIBLE (TYPE XVIII) | Equipment main protective earthing terminal (CLASS XVIII EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REDUCIBLE (TYPE XIX) | Equipment main protective earthing terminal (CLASS XIX EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REDUCIBLE (TYPE XX) | Equipment main protective earthing terminal (CLASS XX EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REDUCIBLE (TYPE XXI) | Equipment main protective earthing terminal (CLASS XXI EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REDUCIBLE (TYPE XXII) | Equipment main protective earthing terminal (CLASS XXII EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REDUCIBLE (TYPE XXIII) | Equipment main protective earthing terminal (CLASS XXIII EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REDUCIBLE (TYPE XXIV) | Equipment main protective earthing terminal (CLASS XXIV EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REDUCIBLE (TYPE XXV) | Equipment main protective earthing terminal (CLASS XXV EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REDUCIBLE (TYPE XXVI) | Equipment main protective earthing terminal (CLASS XXVI EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REDUCIBLE (TYPE XXVII) | Equipment main protective earthing terminal (CLASS XXVII EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REDUCIBLE (TYPE XXVIII) | Equipment main protective earthing terminal (CLASS XXVIII EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REDUCIBLE (TYPE XXIX) | Equipment main protective earthing terminal (CLASS XXIX EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REDUCIBLE (TYPE XXX) | Equipment main protective earthing terminal (CLASS XXX EQUIPMENT) | 0.05 | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5.3.8.2 | Replacement: Replace 3rd Item as follows. - BASIC INSULATION between the PRIMARY CIRCUIT and accessible conductive parts of CLASS I or 0I EQUIPMENT; | | N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Annex A | Addition: Add the subclause A.101 with the title “Flammability tests for classifying materials VTM” and the following: Thin sheet materials shall comply with ISO 9773. | | N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| IEC 60950-1/Am1 | | | | | | | | | | | | | | | |
|----------------------------------|--|----------------------------------|---------------------------------|-------------|-----|-------------|-----|-------------|-----|-------------|------|-------------|--|--|-----|
| Clause | Difference – Test | Result – Remark | Verdict | | | | | | | | | | | | |
| Annex G | Addition: Add the following to the Note for Table G.1. 2. In Japan, MAINS TRANSIENT VOLTAGE for equipment with a Nominal AC MAINS SUPPLY VOLTAGE of 100V is to be decided based on the column where Nominal AC MAINS SUPPLY VOLTAGE in Table G.1 is 150V. | | N/A | | | | | | | | | | | | |
| Annex P | Addition: Add “IEC 61965:2000, Mechanical Safety for Cathode Ray Tubes”. | | N/A | | | | | | | | | | | | |
| Annex U | Replacement: Replace 2nd paragraph. This annex covers to round winding wires having diameters between 0.05 mm and 5.00 mm. | All TIW used are approved. | N/A | | | | | | | | | | | | |
| U.2.1 | Replacement: Electric strength The test sample is prepared according to IEC 60851-5:1997, 4.4.1 (for a twisted pair). The sample is then subjected to the test of 5.2.2 of this standard, with a test voltage not less than twice the appropriate voltage in table 5B (see 5.2.2) of this standard. However, the minimum values shall be as follows: - for BASIC INSULATION or SUPPLEMENTARY INSULATION, 3000 V, or; - for REINFORCED INSULATION, 6000 V. | | N/A | | | | | | | | | | | | |
| U.2.2 | Replacement: Flexibility and adherence Test 8 of IEC 60851-3:1996, 5.1.1, using the mandrel diameters of table U.1. The test sample is then examined in accordance with IEC 60851-3:1996, 5.1.1.4, followed by the test of 5.2.2 of this standard except applying the test voltage between the wire and the mandrel. A test voltage shall not be less than twice the appropriate voltage in table 5B (see 5.2.2) of this standard. However, the minimum values shall be as follows: - for BASIC INSULATION or SUPPLEMENTARY INSULATION, 1500 V, or; - for REINFORCED INSULATION, 3000 V. | | N/A | | | | | | | | | | | | |
| Table U.1 | Replacement: Mandrel diameter <table><tr><th>Nominal Conductor diameter mm</th><th>Mandrel diameter mm ± 0.2 mm</th></tr><tr><td>0.06 – 0.36</td><td>6.0</td></tr><tr><td>0.36 – 0.49</td><td>6.5</td></tr><tr><td>0.50 – 0.74</td><td>8.0</td></tr><tr><td>0.75 – 2.49</td><td>10.0</td></tr><tr><td>2.50 – 5.00</td><td>4 times of the diameter of conductor¹⁾</td></tr></table> <p>¹⁾ in compliance with IEC 60317-43</p> <p>The tension to be applied to the wire during winding on the mandrel is calculated from the wire diameter to be equivalent to 118 Mpa ± 10 % (118 N/mm² ± 10 %).</p> | Nominal Conductor diameter mm | Mandrel diameter mm ± 0.2 mm | 0.06 – 0.36 | 6.0 | 0.36 – 0.49 | 6.5 | 0.50 – 0.74 | 8.0 | 0.75 – 2.49 | 10.0 | 2.50 – 5.00 | 4 times of the diameter of conductor ¹⁾ | | N/A |
| Nominal Conductor diameter mm | Mandrel diameter mm ± 0.2 mm | | | | | | | | | | | | | | |
| 0.06 – 0.36 | 6.0 | | | | | | | | | | | | | | |
| 0.36 – 0.49 | 6.5 | | | | | | | | | | | | | | |
| 0.50 – 0.74 | 8.0 | | | | | | | | | | | | | | |
| 0.75 – 2.49 | 10.0 | | | | | | | | | | | | | | |
| 2.50 – 5.00 | 4 times of the diameter of conductor ¹⁾ | | | | | | | | | | | | | | |

Enclosure No. 1a

**European Group Differences and National Differences
according to EN 60950-1:2006 +A1:2010 + A11:2009 +
A12:2011**

EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 – CENELEC COMMON MODIFICATIONS

| Clause | Requirement | Verdict |
|-----------------|--|---------|
| Contents | Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations | P |
| General | Delete all the “country” notes in the reference document 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) | In IEC 60950-1:2005/A1 delete all the “country” notes 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 |
| 1.1.1 (A1) | Replace the text on NOTE 3 by the following: Note 3 The requirements of EN 60065 may also be used to meet safety requirements for multimedia equipment. See IEC Guide 112, Guide on the safety of multimedia equipment. For television sets EN 60065 applies. | N/A |
| 1.2.3 (A1) | Add the following definition: 1.2.3.Z1 PORTABLE SOUND SYSTEM Small battery powered audio equipment: - whose prime purpose is to listen to recorded or broadcasted sound; and - that uses headphones or earphones that can be worn in or around the ears; and - that allows the user to walk around NOTE Examples are mini-disk or CD players; MP3 audio players or similar equipment. | N/A |

| Clause | Requirement | Verdict |
|--|---|---------|
| 1.3.Z1 | <p>Add the following subclause:</p> <p>1.3.Z1 Exposure to excessive sound pressure</p> <p>The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones.</p> <p>NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 1: General method for "one package equipment", and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers.</p> | N/A |
| 1.3.Z1 (A12) | Delete the addition of 1.3.Z1 in EN 60950-1:2006 | N/A |
| 1.2.3 (A12) | Delete the addition of 1.3.Z1 in EN 60950-1:2006/A1:2010 | N/A |
| 1.7.2.1 (A12) | Delete NOTE Z1 and the addition for Portable Sound System in EN 60950-1:2006 and in EN 60950-1:2006/A1:2010 | N/A |
| Add the following clause and annex to the existing standard and amendments | | -- |
| ZX (A12) | Protection against excessive sound pressure from personal music players | N/A |
| ZX.1 (A12) | General | N/A |
| ZX.2 (A12) | Equipment Requirements | N/A |
| ZX.3 (A12) | Warning | N/A |
| ZX.4 (A12) | Requirements for listening devices (headphones and earphones) | N/A |
| ZX.5 (A12) | Measurement methods | N/A |
| 1.5.1 | <p>Add the following NOTE:</p> <p>NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC</p> | N/A |
| 1.7.2.1 | <p>Add the following NOTE:</p> <p>NOTE Z1 In addition, the instructions shall include, as far as applicable, a warning that excessive sound pressure from earphones and headphones can cause hearing loss</p> <p>Add the following paragraph at the end of the subclause:</p> <p>In addition, for PORTABLE SOUND SYSTEM, the instructions shall include a warning that excessive sound pressure from earphones and headphones can cause hearing loss.</p> | N/A |

| Clause | Requirement | 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>c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p> | P | | | | | | | | | | | | |
| 2.7.2 | This subclause has been declared 'void'. | P | | | | | | | | | | | | |
| 3.2.3 | Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses. | N/A | | | | | | | | | | | | |
| 3.2.5.1 | <p>Replace "60245 IEC 53" by "H05 RR-F";</p> <p>"60227 IEC 52" by "H03 VV-F or H03 VVH2-F";</p> <p>"60227 IEC 53" by "H05 VV-F or H05 VVH2-F2".</p> <p>In Table 3B, replace the first four lines by the following:</p> <table><tr><td> Up to and including 6</td><td></td><td>0,75 ^{a)}</td><td> </td></tr><tr><td> Over 6 up to and including 10</td><td>(0,75) ^{b)}</td><td>1,0</td><td> </td></tr><tr><td> Over 10 up to and including 16</td><td>(1,0) ^{c)}</td><td>1,5</td><td> </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 | | 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 | | | | | | | | | | | | |
| 3.3.4 | <p>In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following:</p> <table><tr><td> Over 10 up to and including 16</td><td> 1,5 to 2,5</td><td> 1,5 to 4</td><td> </td></tr></table> <p>Delete the fifth line: conductor sizes for 13 to 16 A.</p> | Over 10 up to and including 16 | 1,5 to 2,5 | 1,5 to 4 | | N/A | | | | | | | | |
| Over 10 up to and including 16 | 1,5 to 2,5 | 1,5 to 4 | | | | | | | | | | | | |

| Clause | Requirement | Verdict |
|------------------|---|---------|
| 4.3.13.6 (A1) | <p>Add the following NOTE:</p> <p>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. Standards taking into account this Recommendation which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.</p> <p>Replace the existing NOTE by the following:</p> <p>NOTE Z1 Attention is drawn to:</p> <p>1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz, and</p> <p>2006/25/EC: Directive on the minimum health and safety requirements regarding the exposure of workers to risks arising from physical agents (artificial optical radiation)</p> <p>Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.</p> | N/A |
| 4.3.13.6 | <p>Add the following NOTE:</p> <p>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. Standards taking into account this Recommendation which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.</p> | N/A |
| Annex H | <p>Replace the last paragraph of this annex by:</p> <p>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.</p> <p>Replace the notes as follows:</p> <p>NOTE These values appear in Directive 96/29/Euratom.</p> <p>Delete NOTE 2.</p> | N/A |
| Bibliography | <p>Additional EN standards.</p> <p>IEC 60908 NOTE Harmonized as EN 60908</p> | — |
| Bibliography | <p>Additional EN standards.</p> | — |

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| ZA | NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS | — |
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| ZB | SPECIAL NATIONAL CONDITIONS | P |
| 1.2.4.1 | In Denmark , certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets. | N/A |
| 1.2.13.14 (A11) | In Norway and Sweden , for requirements see 1.7.2.1 and 7.3 of this annex. | N/A |
| 1.5.7.1 (A11) | In Finland , Norway and Sweden , resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2. | N/A |
| 1.5.8 | In Norway , due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V). | N/A |

| Clause | Requirement | Verdict |
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| 1.5.9.4 | In Finland, Norway and Sweden , the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex. | N/A |
| 1.7.2.1 | <p>In Finland, Norway and Sweden, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet.</p> <p>The marking text in the applicable countries shall be as follows:</p> <p>In Finland: "Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan"</p> <p>In Norway: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In Sweden: "Apparaten skall anslutas till jordat uttag"</p> | N/A |
| 1.7.2.1 (A11) | <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> <p>NOTE In Norway, due to regulation for installations of cable distribution systems, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway):</p> <p>"Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel- TV nettet."</p> <p>Translation to Swedish:</p> <p>"Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet."</p> | N/A |
| 1.7.5 (A11) | <p>In Denmark, socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a.</p> <p>For CLASS II EQUIPMENT the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.</p> | N/A |
| 2.2.4 | In Norway , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex. | N/A |
| 2.3.2 | In Finland, Norway and Sweden there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex. | N/A |

| Clause | Requirement | Verdict | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------|--|-----------------|-----------------|---------|-----------------|-----------------|--------------|-----|-------------|-----------------|--------------|--------|-------------|-----------------|--------------|---------|-----------------|-----------------|--------------|-----|-------------|-----------------|--------------|--------|-------------|-----|
| 2.3.4 | In Norway , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex. | N/A | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.6.3.3 | In the United Kingdom , the current rating of the circuit shall be taken as 13 A, not 16 A. | 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. | N/A | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.10.5.13 | In Finland, Norway and Sweden , there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex. | N/A | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.2.1.1 | <p>In Switzerland, supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets:</p> <table><tr><td>SEV 6532-2.1991</td><td>Plug Type 15</td><td>3P+N+PE</td><td>250/400 V, 10 A</td></tr><tr><td>SEV 6533-2.1991</td><td>Plug Type 11</td><td>L+N</td><td>250 V, 10 A</td></tr><tr><td>SEV 6534-2.1991</td><td>Plug Type 12</td><td>L+N+PE</td><td>250 V, 10 A</td></tr></table> <p>In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998:</p> <table><tr><td>SEV 5932-2.1998</td><td>Plug Type 25</td><td>3L+N+PE</td><td>230/400 V, 16 A</td></tr><tr><td>SEV 5933-2.1998</td><td>Plug Type 21</td><td>L+N</td><td>250 V, 16 A</td></tr><tr><td>SEV 5934-2.1998</td><td>Plug Type 23</td><td>L+N+PE</td><td>250 V, 16 A</td></tr></table> | SEV 6532-2.1991 | Plug Type 15 | 3P+N+PE | 250/400 V, 10 A | SEV 6533-2.1991 | Plug Type 11 | L+N | 250 V, 10 A | SEV 6534-2.1991 | Plug Type 12 | L+N+PE | 250 V, 10 A | SEV 5932-2.1998 | Plug Type 25 | 3L+N+PE | 230/400 V, 16 A | SEV 5933-2.1998 | Plug Type 21 | L+N | 250 V, 16 A | SEV 5934-2.1998 | Plug Type 23 | L+N+PE | 250 V, 16 A | N/A |
| SEV 6532-2.1991 | Plug Type 15 | 3P+N+PE | 250/400 V, 10 A | | | | | | | | | | | | | | | | | | | | | | | |
| SEV 6533-2.1991 | Plug Type 11 | L+N | 250 V, 10 A | | | | | | | | | | | | | | | | | | | | | | | |
| SEV 6534-2.1991 | Plug Type 12 | L+N+PE | 250 V, 10 A | | | | | | | | | | | | | | | | | | | | | | | |
| SEV 5932-2.1998 | Plug Type 25 | 3L+N+PE | 230/400 V, 16 A | | | | | | | | | | | | | | | | | | | | | | | |
| SEV 5933-2.1998 | Plug Type 21 | L+N | 250 V, 16 A | | | | | | | | | | | | | | | | | | | | | | | |
| SEV 5934-2.1998 | Plug Type 23 | L+N+PE | 250 V, 16 A | | | | | | | | | | | | | | | | | | | | | | | |
| 3.2.1.1 | <p>In Denmark, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.</p> | N/A | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.2.1.1 | <p>In Spain, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994.</p> <p>Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994.</p> <p>If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.</p> | N/A | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.2.1.1 | <p>In the United Kingdom, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations.</p> <p>NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p> | N/A | | | | | | | | | | | | | | | | | | | | | | | | |

| Clause | Requirement | Verdict |
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| 3.2.1.1 | In Ireland , apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997. | N/A |
| 3.2.4 | In Switzerland , for requirements see 3.2.1.1 of this annex. | N/A |
| 3.2.5.1 | In the United Kingdom , a power supply cord with conductor of 1,25 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. | N/A |
| 4.3.6 | In Ireland , DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997. | N/A |
| 5.1.7.1 | In Finland, Norway and Sweden TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment: • STATIONARY PLUGGABLE EQUIPMENT TYPE A that ○ is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and ○ has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and ○ is provided with instructions for the installation of that conductor by a SERVICE PERSON; • STATIONARY PLUGGABLE EQUIPMENT TYPE B; • STATIONARY PERMANENTLY CONNECTED EQUIPMENT. | N/A |

| Clause | Requirement | Verdict |
|-----------------|--|---------|
| 6.1.2.1 (A1) | <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. <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, subclause Y2.</p> <p>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 60384-14; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14. | N/A |
| 6.1.2.2 | <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> | 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> | N/A |
| 7.3 | <p>In Norway, for installation conditions see EN 60728-11:2005.</p> | N/A |
| 7.3 (A11) | <p>In Norway and Sweden, for requirements see 1.2.12.14 and 1.7.2.1 of this annex.</p> | N/A |

| Clause | Requirement | Verdict |
|------------------|---|---------|
| ZC | A-DEVIATIONS (informative) | P |
| 1.5.1 (A11) | <p>Sweden (Ordinance 1990:944)</p> <p>Add the following:</p> <p>NOTE In Sweden, switches containing mercury are not permitted.</p> <p>DELETED in A11</p> | N/A |
| 1.5.1 | <p>Switzerland (Ordinance on environmentally hazardous substances SR 814.081, Annex 1.7, Mercury - Annex 1.7 of SR 814.81 applies for mercury.)</p> <p>Add the following:</p> <p>NOTE In Switzerland, switches containing mercury such as thermostats, relays and level controllers are not allowed.</p> | N/A |
| 1.7.2.1 (A11) | <p>Denmark (Heavy Current Regulations)</p> <p>Supply cords of CLASS I EQUIPMENT, which is delivered without a plug, must be provided with a visible tag with the following text:</p> <p style="text-align: center;">Vigtigt! Lederen med grøn/gul isolation må kun tilsluttes en klemme mærket</p> <p style="text-align: center;"> eller </p> <p>If essential for the safety of the equipment, the tag must in addition be provided with a diagram, which shows the connection of the other conductors, or be provided with the following text:</p> <p>“For tilslutning af de øvrige ledere, se medfølgende installationsvejledning.”</p> <p>DELETED in A11</p> | N/A |
| 1.7.2.1 | <p>Germany (Gesetz über technische Arbeitsmittel und Verbraucherprodukte (Geräte- und Produktsicherheitsgesetz – GPSG) [Law on technical labour equipment and consumer products], of 6th January 2004, Section 2, Article 4, Clause (4), Item 2).</p> <p>If for the assurance of safety and health certain rules during use, amending or maintenance of a technical labour equipment or readymade consumer product are to be followed, a manual in German language has to be delivered when placing the product on the market.</p> <p>Of this requirement, rules for use even only by SERVICE PERSONS are not exempted.</p> | N/A |
| 1.7.5 (A11) | <p>Denmark (Heavy Current Regulations)</p> <p>With the exception of CLASS II EQUIPMENT provided with a socket outlet in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-4a, CLASS II EQUIPMENT shall not be fitted with socket-outlets for providing power to other equipment.</p> <p>DELETED in A11</p> | N/A |
| 1.7.13 | <p>Switzerland (Ordinance on chemical hazardous risk reduction SR 814.81, Annex 2.15 Batteries)</p> <p>Annex 2.15 of SR 814.81 applies for batteries.</p> | N/A |

| Clause | Requirement | Verdict |
|------------------|---|---------|
| 5.1.7.1 (A11) | <p>Denmark (Heavy Current Regulations, Chapter 707, clause 707.4)</p> <p>TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for PERMANENTLY CONNECTED EQUIPMENT and PLUGGABLE EQUIPMENT TYPE B.</p> <p>DELETED in A11</p> | N/A |