# COVER PAGE FOR TEST REPORT

| | |
|---|---|
| Product Category: | Power Supplies for Information Technology Equipment Including Electrical Business Equipment |
| Product Category CCN: | QQGQ, QQGQ7 |
| Test Procedure: | Listing |
| Product: | Power Unit |
| Model/Type Reference: | GS-599ES |
| Rating(s): | Input: 100-240 V, 1.5 A, 50-60 Hz, 60-70 VA<br>Output: 24 Vdc, 2.1 A, 50 W maximum. |
| Standards: | UL 60950-1, 1st Edition, 2006-07-07 (Information Technology Equipment - Safety - Part 1: General Requirements)<br>CSA C22.2 No. 60950-1-03, 1st Edition, 2006-07 (Information Technology Equipment - Safety - Part 1: General Requirements) |
| Applicant Name and Address: | GLOBTEK INC<br>186 VETERANS DR<br>NORTHVALE NJ 07647 |

This Report includes the following parts, in addition to this cover page:

1. Specific Inspection Criteria
2. Specific Technical Criteria
3. Clause Verdicts
4. Critical Components
5. Test Results
6. National Differences
7. Enclosures

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Test Report By:

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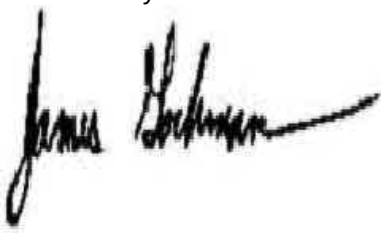

James Gochman
Senior Project Engineer
Underwriters Laboratories Inc.

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# SPECIFIC INSPECTION CRITERIA

| | |
|---|---|
| BA1.0 | **Special Instructions to UL Representative** |
| BA1.1 | N/A |

| | |
|---|---|
| BB1.0 | **Supporting Documentation** |
| BB1.1 | The following documents located at the beginning of this Procedure supplement the requirements of this Test Report:<br>A. Authorization - The Authorization page may include additional Factory Identification Code markings.<br>B. Generic Inspection Instructions -<br>i. Part AC details important information which may be applicable to products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of this Test Report.<br>ii. Part AE details any requirements which may be applicable to all products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of each Test Report.<br>iii. Part AF details the requirements for the UL Certification Mark which is not controlled by the technical standard used to investigate these products. Products are permitted to bear only the Certification Mark(s) corresponding to the countries for which it is certified, as indicated in each Test Report. |

| | |
|---|---|
| BC1.0 | **Markings and instructions** |
| BC1.1 | The following markings and instructions are provided as indicated. |
| BC1.2 | All clause references are from UL 60950-1, 1st Edition, 2006-07-07 (Information Technology Equipment - Safety - Part 1: General Requirements). |

| Standard Clause | Clause Title | Marking or Instruction Details |
|---|---|---|
| 1.7.1 | Power rating - Ratings | Ratings (voltage, frequency/dc, current) |
| | Power rating - Company identification | Listee's or Recognized company's name, Trade Name, Trademark or File Number |
| | Power rating - Model | Model Number |
| 1.7.6 | Fuses - Non-operator access/soldered-in fuses | Unambiguous reference to service documentation for instructions for replacement of fuses replaceable only by service personnel |
| 1.7.7 | Class 2/3 terminals | "Class 2" or "Class 2 output" |

| | | |
|---|---|---|
| Other | Limited Power Source Marking | Unit may be optionally marked "LPS" or "Limited Power Source" |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| BD1.0 | **Production-Line Testing Requirements** | | | | | | |
| BD1.1 | Electric Strength Test Special Constructions - Refer to Generic Inspection Instructions, Part AC for further information. | | | | | | |
| | Model | Component | Removable Parts | Test probe location | Test Potential V rms | V dc | Test Time, s |
| | N/A | | | | | | |
| BD1.2 | Earthing Continuity Test Exemptions - This test is not required for the following models: | | | | | | |
| BD1.3 | Electric Strength Test Exemptions - This test is not required for the following models: | | | | | | |
| BD1.4 | Electric Strength Test Component Exemptions - The following solid-state components may be disconnected from the remainder of the circuitry during the performance of this test: | | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| BE1.0 | **Sample and Test Specifics for Follow-Up Tests at UL** | | | | |
| BE1.1 | Model | Component | Material | Test | Sample(s) | Test Specifics |
| | N/A | | | | | |

# SPECIFIC TECHNICAL CRITERIA

| UL 60950-1, First Edition<br>Information technology equipment - Safety-<br>Part 1: General Requirements | |
|---|---|
| Report Reference No ..... | E170507-A22-UL-1 |
| Compiled by ..... | David Keen |
| Reviewed by ..... | James Gochman |
| Date of issue ..... | 2007-10-03 |
| Standards ..... | UL 60950-1, 1st Edition, 2006-07-07 (Information Technology Equipment - Safety - Part 1: General Requirements)<br>CSA C22.2 No. 60950-1-03, 1st Edition, 2006-07 (Information Technology Equipment - Safety - Part 1: General Requirements) |
| Test procedure ..... | Listing |
| Non-standard test method ..... | N/A |
| **Test item** description ..... | Power Unit |
| Trademark ..... | GlobTek, Inc. |
| Model and/or type reference ..... | GS-599ES |
| Rating(s) ..... | Input: 100-240 V, 1.5 A, 50-60 Hz, 60-70 VA<br>Output: 24 Vdc, 2.1 A, 50 W maximum. |

| **Particulars: test item vs. test requirements** | |
|---|---|
| Equipment mobility ..... | movable |
| Operating condition ..... | continuous |
| Mains supply tolerance (%) ..... | +10%, -10% |
| Tested for IT power systems ..... | No |
| IT testing, phase-phase voltage (V) ..... | N/A |
| Class of equipment ..... | Class I (earthed) |
| Mass of equipment (kg) ..... | 0.58 |
| Protection against ingress of water ..... | IP X0 |

| **Possible test case verdicts:** | |
|---|---|
| - test case does not apply to the test object ..... | N / A |
| - test object does meet the requirement ..... | Pass |
| - test object does not meet the requirement ..... | Fail (acceptable only if a corresponding, less stringent national requirement is "Pass") |

**General remarks:**

- "(see Enclosure #)" refers to additional information appended to the Test Report
- "(see appended table)" refers to a table appended to the Test Report
- Throughout the Test Report a point is used as the decimal separator

| | |
|---|---|
| **GENERAL PRODUCT INFORMATION:** | |
| | |
| CA1.0 | **Report Summary** |
| CA1.1 | N/A |
| | |
| CB1.0 | **Product Description** |
| CB1.1 | This product is a power unit intended to be used for information technology equipment in TN power systems and are for indoor use only. It consists of an isolated transformer with electronic ciruitry housed in a metal enclosure. |
| | |
| CC1.0 | **Model Differences** |
| CC1.1 | N/A |
| | |
| CD1.0 | **Additional Information** |
| CD1.1 | N/A |
| | |
| CE1.0 | **Technical Considerations** |
| CE1.2 | The product was submitted and tested for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 40°C |
| CE1.3 | The means of connection to the mains supply is: Pluggable A |
| CE1.4 | The product is intended for use on the following power systems: TN |
| CE1.5 | The equipment disconnect device is considered to be: Appliance inlet |
| CE1.9 | The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS): Vout (+ to -). Additionally evaluated to Class 2 requirements of UL1310 for marking as a "Class 2 Output". |
| CE1.14 | The following are available from the Applicant upon request: Specific data sheets for LED indicators that are class I and operate at wavelength in the 400-710 nm range. |
| CE2.0 | Evaluated as a wall mount unit. |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 1 | **GENERAL** | | Pass |
| 1.5 | Components | | Pass |
| 1.5.1 | General | | Pass |
| | Comply with IEC 60950 or relevant component standard | (See Critical Component List) | Pass |
| 1.5.2 | Evaluation and testing of components | Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of this Standard.<br><br>Components not certified are used in accordance with their ratings and they comply with applicable parts of this Standard<br>and the relevant component Standard.<br><br>Components, for which no relevant IEC Standard exist, have been tested under the condition occurring in the equipment, using applicable parts of this Standard. | Pass |
| 1.5.3 | Thermal controls | | N/A |
| 1.5.4 | Transformers | Transformers comply with relevant requirements including Annex C. | Pass |
| 1.5.5 | Interconnecting cables | VW-1 or FT-1, max. 3.05 m length. | Pass |
| 1.5.6 | Capacitors in primary circuits ..... : | Line-to-line capacitors are subclass X1 or X2.<br>Primary-to-earth capacitors are subclass Y1 or Y2.<br>Primary-to-secondary capacitors are subclass Y1. | Pass |
| 1.5.7 | Double insulation or reinforced insulation bridged by components | | Pass |
| 1.5.7.1 | General | | Pass |
| 1.5.7.2 | Bridging capacitors | Double Insulation bridged by a single capacitor complying with IEC 384-14: 1993, subclass | Pass |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | | Y1. See 2.4. | |
| 1.5.7.3 | Bridging resistors | | N/A |
| 1.5.7.4 | Accessible parts | Accessible conductive parts separated from other parts by DOUBLE or REINFORCED INSULATION bridged by Capacitor CY3 comply with the requirements for LIMITED CURRENT CIRCUITS. | Pass |
| 1.5.8 | Components in equipment for IT power systems | Not for use on IT power systems. | N/A |
| 1.6 | **Power interface** | | Pass |
| 1.6.1 | AC power distribution systems | AC power distribution systems are classified as TN. | Pass |
| 1.6.2 | Input current | The steady state input current of the equipment did not exceed the RATED CURRENT by more than 10% under NORMAL LOAD. See Test Record for details. | Pass |
| 1.6.3 | Voltage limit of hand-held equipment | Not hand-held equipment . | N/A |
| 1.6.4 | Neutral conductor | Neutral is insulated from earth with basic insulation. | Pass |

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

| | | | |
|---|---|---|---|
| 1.7 | **Marking and instructions** | | Pass |
| 1.7.1 | Power rating | Rating marking readily visible to operator. | Pass |
| | Rated voltage(s) or voltage range(s) (V) ..... : | 100-240 Vac | Pass |
| | Symbol for nature of supply, for d.c. only ..... : | AC source | N/A |
| | Rated frequency or rated frequency range (Hz).... : | 50-60 Hz | Pass |
| | Rated current (mA or A)..... : | 1.5 A | Pass |
| | Manufacturer's name or trademark or identification mark..... : | Globtek | Pass |
| | Type/model or type reference..... : | GS-599ES | Pass |
| | Symbol for Class II equipment only ..... : | | N/A |
| | Other symbols..... : | Additional marking may be provided when submitted for national approval. | Pass |
| | Certification marks ..... : | UL, c-UL. | Pass |
| 1.7.2 | Safety instructions | Operating/safety instructions made available to the user. | Pass |
| 1.7.3 | Short duty cycles | | N/A |
| 1.7.4 | Supply voltage adjustment..... : | Equipment is auto-ranging. | N/A |
| 1.7.5 | Power outlets on the equipment ..... : | No standard power outlets are provided. | N/A |
| 1.7.6 | Fuse identification..... : | F1: T2.0 A, 250 Vac marked on PWB near primary input fuse. | Pass |
| 1.7.7 | Wiring terminals | | Pass |
| 1.7.7.1 | Protective earthing and bonding terminals ..... : | The earth terminal is marked with the standard earth symbol (60417-2-IEC-5019) near the terminal. | Pass |
| 1.7.7.2 | Terminal for a.c. mains supply conductors | | N/A |
| 1.7.7.3 | Terminals for d.c. mains supply conductors | | N/A |
| 1.7.8 | Controls and indicators | | N/A |
| 1.7.8.1 | Identification, location and marking ..... : | No indicator, control affecting safety provided. | N/A |
| 1.7.8.2 | Colours..... : | A green LED is illuminated when the unit is operating. | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 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..... : | Figures are not used for indicating different positions of controls. | N/A |
| 1.7.9 | Isolation of multiple power sources ..... : | There is only one connection to hazardous voltages. | N/A |
| 1.7.10 | IT power distribution systems | Not intended to use IT Power System | N/A |
| 1.7.11 | Thermostats and other regulating devices | No thermostats or similar regulating devices. | N/A |
| 1.7.12 | Language..... : | Reviewed only English markings/instructions. May be provided in other languages upon request from the manufacturer. | - |
| 1.7.13 | Durability | All markings provided on UL Recognized Component labels suitable for surface they are applied upon and meet the durability test. | Pass |
| 1.7.14 | Removable parts | Marking is not placed on removable parts. | Pass |
| 1.7.15 | Replaceable batteries | No batteries provided. | N/A |
| | Language..... : | | - |
| 1.7.16 | Operator access with a tool ..... : | No operator access areas require the use of a tool. | N/A |
| 1.7.17 | Equipment for restricted access locations..... : | | N/A |

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

| | | | |
|---|---|---|---|
| 2 | **PROTECTION FROM HAZARDS** | | Pass |
| 2.1 | Protection from electric shock and energy hazards | | Pass |
| 2.1.1 | Protection in operator access areas | | Pass |
| 2.1.1.1 | Access to energized parts | No operator access to energized parts. | Pass |
| | Test by inspection..... : | Operator can not make contact with any parts with hazardous voltage. No openings in product. | Pass |
| | Test with test finger..... : | | N/A |
| | Test with test pin..... : | | N/A |
| | Test with test probe ..... : | No TNV present. | N/A |
| 2.1.1.2 | Battery compartments..... : | | N/A |
| 2.1.1.3 | Access to ELV wiring | | N/A |
| | Working voltage (V); minimum distance (mm) through insulation ..... : | | - |
| 2.1.1.4 | Access to hazardous voltage circuit wiring | | N/A |
| 2.1.1.5 | Energy hazards..... : | The output of the power supply is not an energy hazard. | Pass |
| 2.1.1.6 | Manual controls | | N/A |
| 2.1.1.7 | Discharge of capacitors in equipment | | Pass |
| | Time-constant (s); measured voltage (V) ..... : | 1 second; 136 V | - |
| 2.1.2 | Protection in service access areas | | N/A |
| 2.1.3 | Protection in restricted access locations | The unit is not intended to be used in restricted locations. | N/A |

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

| | | | |
|---|---|---|---|
| 2.2 | **SELV circuits** | | Pass |
| 2.2.1 | General requirements | | Pass |
| 2.2.2 | Voltages under normal conditions (V) ..... : | All accessible voltages are less than 42.4 Vp or 60 V dc and are classified as SELV. | Pass |
| 2.2.3 | Voltages under fault conditions (V)..... : | Under fault conditions voltages never exceed 71 Vp and 120 V dc and do not exceed 42.4 Vp or 60 V dc for more than 0.2 sec. | Pass |
| 2.2.3.1 | Separation by double insulation or reinforced insulation (method 1) | SELV circuits permanently separated from hazardous voltage circuits by barriers, routing and fixing. | Pass |
| 2.2.3.2 | Separation by earthed screen (method 2) | | N/A |
| 2.2.3.3 | Protection by earthing of the SELV circuit (method 3) | | N/A |
| 2.2.4 | Connection of SELV circuits to other circuits..... : | The SELV circuits are not connected to other circuits other than protective earth. | Pass |

| | | | |
|---|---|---|---|
| 2.3 | **TNV circuits** | | N/A |
| 2.3.1 | Limits | | N/A |
| | Type of TNV circuits ..... : | | - |
| 2.3.2 | Separation from other circuits and from accessible parts | | N/A |
| | Insulation employed..... : | | - |
| 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 |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.4 | **Limited current circuits** | | Pass |
| 2.4.1 | General requirements | Requirements applied to bridging capacitor CY3. | Pass |
| 2.4.2 | Limit values | | Pass |
| | Frequency (Hz) ..... : | 60 Hz | - |
| | Measured current (mA) ..... : | 0.267 mA | - |
| | Measured voltage (V) ..... : | N/A | - |
| | Measured capacitance (mF) ..... : | N/A | - |
| 2.4.3 | Connection of limited current circuits to other circuits | | N/A |
| 2.5 | **Limited power sources** | | Pass |
| | Inherently limited output | | Pass |
| | Impedance limited output | | N/A |
| | Overcurrent protective device limited output | | N/A |
| | Regulating network limited output under normal operating and single fault condition | | Pass |
| | Regulating network limited output under normal operating conditions and overcurrent protective device limited output under single fault condition | | N/A |
| | Output voltage (V), output current (A), apparent power (VA): ..... : | 30 V, 3.0 A, 93 W | - |
| | Current rating of overcurrent protective device (A) : | | - |

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

| | | | |
|---|---|---|---|
| 2.6 | **Provisions for earthing and bonding** | | Pass |
| 2.6.1 | Protective earthing | | Pass |
| 2.6.2 | Functional earthing | | N/A |
| 2.6.3 | Protective earthing and protective bonding conductors | | Pass |
| 2.6.3.1 | General | Protective bonding conductors/terminals sized appropriately for application. | Pass |
| 2.6.3.2 | Size of protective earthing conductors | | N/A |
| | Rated current (A), cross-sectional area (mm2), AWG .....: | | - |
| 2.6.3.3 | Size of protective bonding conductors | | Pass |
| | Rated current (A), cross-sectional area (mm2), AWG .....: | 1.5 A, 18 AWG | - |
| 2.6.3.4 | Resistance (Ohm) of earthing conductors and their terminations, test current (A) .....: | 0.015 ohm, 40 A | Pass |
| 2.6.3.5 | Colour of insulation.....: | Protective bonding conductors are green with yellow stripe. | Pass |
| 2.6.4 | Terminals | | Pass |
| 2.6.4.1 | General | | Pass |
| 2.6.4.2 | Protective earthing and bonding terminals | Terminals comply with Table 3E. | Pass |
| | Rated current (A), type and nominal thread diameter (mm) .....: | 1.5 A, 3.5 mm | - |
| 2.6.4.3 | Separation of the protective earthing conductor from protective bonding conductors | | N/A |
| 2.6.5 | Integrity of protective earthing | | Pass |
| 2.6.5.1 | Interconnection of equipment | | N/A |
| 2.6.5.2 | Components in protective earthing conductors and protective bonding conductors | | N/A |
| 2.6.5.3 | Disconnection of protective earth | An IEC60320 appliance inlet is used. | Pass |
| 2.6.5.4 | Parts that can be removed by an operator | | N/A |
| 2.6.5.5 | Parts removed during servicing | | N/A |
| 2.6.5.6 | Corrosion resistance | | Pass |
| 2.6.5.7 | Screws for protective bonding | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.6.5.8 | Reliance on telecommunication network or cable distribution system | | N/A |
| 2.7 | **Overcurrent and earth fault protection in primary circuits** | | Pass |
| 2.7.1 | Basic requirements | | Pass |
| | Instructions when protection relies on building installation | | N/A |
| 2.7.2 | Faults not covered in 5.3 | | Pass |
| 2.7.3 | Short-circuit backup protection | Protective devices have adequate breaking (rupturing) capacity to interrupt the maximum fault current (including short-circuit current). | Pass |
| 2.7.4 | Number and location of protective devices..... : | One protective device in the "LIVE" phase | Pass |
| 2.7.5 | Protection by several devices | | N/A |
| 2.7.6 | Warning to service personnel ..... : | | N/A |
| 2.8 | **Safety interlocks** | | N/A |
| 2.8.1 | General principles | | N/A |
| 2.8.2 | Protection requirements | | N/A |
| 2.8.3 | Inadvertent reactivation | | N/A |
| 2.8.4 | Fail-safe operation | | N/A |
| 2.8.5 | Moving parts | | N/A |
| 2.8.6 | Overriding | | N/A |
| 2.8.7 | Switches and relays | | N/A |
| 2.8.7.1 | Contact gaps (mm) ..... : | | N/A |
| 2.8.7.2 | Overload test | | N/A |
| 2.8.7.3 | Endurance test | | N/A |
| 2.8.7.4 | Electric strength test | | N/A |
| 2.8.8 | Mechanical actuators | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.9 | **Electrical insulation** | | Pass |
| 2.9.1 | Properties of insulating materials | Natural rubber, hygroscopic materials and materials containing asbestos are not used as insulating materials. Electric strength test was conducted after the humidity treatment. See below. | Pass |
| 2.9.2 | Humidity conditioning | Humidity treatment performed for 48 hrs. | Pass |
| | Humidity (%) .....: | 93 %RH | - |
| | Temperature (°C).....: | 30°C | - |
| 2.9.3 | Grade of insulation | Reinforced Insulation between Primary and SELV, Basic Insulation between Primary and Earth. | Pass |

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

| | | | |
|---|---|---|---|
| 2.10 | **Clearances, creepage distances and distances through insulation** | | Pass |
| 2.10.1 | General | Pollution degree 2 applicable. | Pass |
| 2.10.2 | Determination of working voltage | | Pass |
| 2.10.3 | Clearances | (see appended table 2.10.3 and 2.10.4). | Pass |
| 2.10.3.1 | General | | Pass |
| 2.10.3.2 | Clearances in primary circuit | (see appended table 2.10.3 and 2.10.4). | Pass |
| 2.10.3.3 | Clearances in secondary circuits | Functional insulation, see 5.3.4. | N/A |
| 2.10.3.4 | Measurement of transient voltage levels | | N/A |
| 2.10.4 | Creepage distances | (see appended table 2.10.3 and 2.10.4). | Pass |
| | CTI tests..... : | Material group IIIb; 100 <= CTI < 175. | - |
| 2.10.5 | Solid insulation | Solid or laminated insulating materials having adequate thickness are provided. | Pass |
| 2.10.5.1 | Minimum distance through insulation | | N/A |
| 2.10.5.2 | Thin sheet material | | N/A |
| | Number of layers (pcs) ..... : | | - |
| | Electric strength test ..... : | | - |
| 2.10.5.3 | Printed boards | PWB is not used as reinforced or supplementary insulation. | N/A |
| | Distance through insulation | | N/A |
| | Electric strength test for thin sheet insulating material ..... : | | - |
| | Number of layers (pcs) ..... : | | N/A |
| 2.10.5.4 | Wound components | | Pass |
| | Number of layers (pcs) ..... : | Three extruded layers. | Pass |
| | Two wires in contact inside wound component; angle between 45° and 90° ..... : | Physical separation in the form of insulating sleeving provided to relieve mechanical stress at the crossover point. | Pass |
| 2.10.6 | Coated printed boards | No coated printed wiring boards. | N/A |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.10.6.1 | General | | N/A |
| 2.10.6.2 | Sample preparation and preliminary inspection | | N/A |
| 2.10.6.3 | Thermal cycling | | N/A |
| 2.10.6.4 | Thermal ageing (°C) ..... : | | N/A |
| 2.10.6.5 | Electric strength test ..... : | | - |
| 2.10.6.6 | Abrasion resistance test | | N/A |
| | Electric strength test ..... : | | - |
| 2.10.7 | Enclosed and sealed parts ..... : | | N/A |
| | Temperature T1=T2 = Tma - Tamb +10K (°C)..... : | | N/A |
| 2.10.8 | Spacings filled by insulating compound..... : | | N/A |
| | Electric strength test ..... : | | - |
| 2.10.9 | Component external terminations | | N/A |
| 2.10.10 | Insulation with varying dimensions | | N/A |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 3 | **WIRING, CONNECTIONS AND SUPPLY** | | Pass |
| 3.1 | General | | Pass |
| 3.1.1 | Current rating and overcurrent protection | Internal wiring is adequately sized for the current it is intended to carry and protected from overcurrent. | Pass |
| 3.1.2 | Protection against mechanical damage | The wires are routed away from sharp edges and parts which could damage insulation. | Pass |
| 3.1.3 | Securing of internal wiring | The wires are positioned in such a manner that prevents excessive strain, loosening of terminal connections and damage of conductor insulation. | Pass |
| 3.1.4 | Insulation of conductors | Uninsulated conductors have been adequately fixed to prevent, in normal use, any reduction of creepage or clearance distances below those prescribed by in 2.9. | Pass |
| 3.1.5 | Beads and ceramic insulators | | N/A |
| 3.1.6 | Screws for electrical contact pressure | All electrical screw connections are by metal screw with more than 2 threads into a metal plate. | Pass |
| 3.1.7 | Insulating materials in electrical connections | | N/A |
| 3.1.8 | Self-tapping and spaced thread screws | | N/A |
| 3.1.9 | Termination of conductors | Conductors suitably terminated, creepage and clearances maintained, second securing for soldered terminations provided. | Pass |
| | 10 N pull test | | Pass |
| 3.1.10 | Sleeving on wiring | | N/A |

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

| | | | |
|---|---|---|---|
| 3.2 | **Connection to an a.c. mains supply or a d.c. mains supply** | | Pass |
| 3.2.1 | Means of connection | The unit is provided with an appliance inlet. | Pass |
| 3.2.1.1 | Connection to an a.c. mains supply | | Pass |
| 3.2.1.2 | Connection to a d.c. mains supply | | N/A |
| 3.2.2 | Multiple supply connections | Single mains supply | N/A |
| 3.2.3 | Permanently connected equipment | | N/A |
| | Number of conductors, diameter (mm) of cable and conduits.....: | | - |
| 3.2.4 | Appliance inlets | | Pass |
| 3.2.5 | Power supply cords | Not provided with unit. | N/A |
| 3.2.5.1 | AC power supply cords | | N/A |
| | Type.....: | | - |
| | Rated current (A), cross-sectional area ($mm^2$), AWG .....: | | - |
| 3.2.5.2 | DC power supply cords | | N/A |
| 3.2.6 | Cord anchorages and strain relief | | N/A |
| | Mass of equipment (kg), pull (N) .....: | | - |
| | Longitudinal displacement (mm).....: | | - |
| 3.2.7 | Protection against mechanical damage | | N/A |
| 3.2.8 | Cord guards | | N/A |
| | D (mm); test mass (g).....: | | - |
| | Radius of curvature of cord (mm).....: | | - |
| 3.2.9 | Supply wiring space | | N/A |

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

| | | | |
|---|---|---|---|
| 3.3 | **Wiring terminals for connection of external conductors** | | N/A |
| 3.3.1 | Wiring terminals | | N/A |
| 3.3.2 | Connection of non-detachable power supply cords | | N/A |
| 3.3.3 | Screw terminals | | N/A |
| 3.3.4 | Conductor sizes to be connected | | N/A |
| | Rated current (A), cord/cable type, cross-sectional area (mm²) .....: | | - |
| 3.3.5 | Wiring terminal sizes | | N/A |
| | Rated current (A), type and nominal thread diameter (mm) .....: | | - |
| 3.3.6 | Wiring terminals design | | N/A |
| 3.3.7 | Grouping of wiring terminals | | N/A |
| 3.3.8 | Stranded wire | | N/A |

| | | | |
|---|---|---|---|
| 3.4 | **Disconnection from the mains supply** | | Pass |
| 3.4.1 | General requirement | | Pass |
| 3.4.2 | Disconnect devices | Appliance inlet. | Pass |
| 3.4.3 | Permanently connected equipment | | N/A |
| 3.4.4 | Parts which remain energized | No parts remain energized when the disconnect device is removed. | N/A |
| 3.4.5 | Switches in flexible cords | No isolating switch in the cord set. | Pass |
| 3.4.6 | Single-phase equipment and d.c. equipment | Disconnect device disconnects both poles simultaneously. | Pass |
| 3.4.7 | Three-phase equipment | The equipment is single-phased. | N/A |
| 3.4.8 | Switches as disconnect devices | No such switch is provided. | N/A |
| 3.4.9 | Plugs as disconnect devices | | N/A |
| 3.4.10 | Interconnected equipment | No interconnection of hazardous voltages. | N/A |
| 3.4.11 | Multiple power sources | One power source only. | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 3.5 | **Interconnection of equipment** | | Pass |
| 3.5.1 | General requirements | Output of power supply is a limited power source. | Pass |
| 3.5.2 | Types of interconnection circuits ..... : | Interconnection circuits are SELV CIRCUITS. | Pass |
| 3.5.3 | ELV circuits as interconnection circuits | | N/A |
| 4 | **PHYSICAL REQUIREMENTS** | | Pass |
| 4.1 | Stability | | N/A |
| | Angle of 10° | | N/A |
| | Test: force (N) ..... : | | N/A |
| 4.2 | **Mechanical strength** | | Pass |
| 4.2.1 | General | See below | Pass |
| 4.2.2 | Steady force test, 10 N | | Pass |
| 4.2.3 | Steady force test, 30 N | | N/A |
| 4.2.4 | Steady force test, 250 N | No hazards as a result of the 250 N test. | Pass |
| 4.2.5 | Impact test | | Pass |
| | Fall test | | Pass |
| | Swing test | | N/A |
| 4.2.6 | Drop test | | N/A |
| 4.2.7 | Stress relief test | | Pass |
| 4.2.8 | Cathode ray tubes | | N/A |
| | Picture tube separately certified ..... : | | N/A |
| 4.2.9 | High pressure lamps | | N/A |
| 4.2.10 | Wall or ceiling mounted equipment; force (N) ..... : | 50 N | Pass |

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

| | | | |
|---|---|---|---|
| 4.3 | **Design and construction** | | Pass |
| 4.3.1 | Edges and corners | All edges and corners are judged to be sufficiently well rounded so as not to constitute a hazard. | Pass |
| 4.3.2 | Handles and manual controls; force (N) ..... : | | N/A |
| 4.3.3 | Adjustable controls | No setting for power supply voltage. | N/A |
| 4.3.4 | Securing of parts | | N/A |
| 4.3.5 | Connection of plugs and sockets | The equipment does not have any interchangeable plugs/sockets. | N/A |
| 4.3.6 | Direct plug-in equipment | | N/A |
| | Dimensions (mm) of mains plug for direct plug-in . : | | N/A |
| | Torque and pull test of mains plug for direct plug-in; torque (Nm); pull (N) ..... : | | N/A |
| 4.3.7 | Heating elements in earthed equipment | | N/A |
| 4.3.8 | Batteries | | N/A |
| 4.3.9 | Oil and grease | The insulation of the internal wiring is not exposed to oil, grease, etc. | N/A |
| 4.3.10 | Dust, powders, liquids and gases | The equipment does not produce or employ powders, liquids, or gases. | N/A |
| 4.3.11 | Containers for liquids or gases | The equipment does not contain liquid. | N/A |
| 4.3.12 | Flammable liquids ..... : | The equipment does not use any flammable liquids. | N/A |
| | Quantity of liquid (l) ..... : | | N/A |
| | Flash point (°C) ..... : | | N/A |
| 4.3.13 | Radiation; type of radiation | Ionising radiation or laser or in which similar hazards are not presents. | Pass |
| 4.3.13.1 | General | | Pass |
| 4.3.13.2 | Ionizing radiation | | N/A |
| | Measured radiation (pA/kg) ..... : | | - |
| | Measured high-voltage (kV) ..... : | | - |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Measured focus voltage (kV) ..... : | | - |
| | CRT markings ..... : | | - |
| 4.3.13.3 | Effect of ultraviolet (UV) radiation on materials | | N/A |
| | Part, property, retention after test, flammability classification ..... : | | N/A |
| 4.3.13.4 | Human exposure to ultraviolet (UV) radiation..... : | | N/A |
| 4.3.13.5 | Laser (including LEDs) | This product contains only visible indicator LEDs (Class 1) operating in the range of 400 - 700 nm wavelength. No IEC60825-1 evaluation was deemed necessary. Additional review may be required at the discretion of the accepting NCB. | Pass |
| | Laser class..... : | See above | - |
| 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 | | N/A |
| 4.4.3 | Protection in restricted access locations | | N/A |
| 4.4.4 | Protection in service access areas | | N/A |

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

| | | | |
|---|---|---|---|
| 4.5 | **Thermal requirements** | | Pass |
| 4.5.1 | Maximum temperatures | The equipment and its component parts did not attain excessive temperatures during normal operation. | Pass |
| | Normal load condition per Annex L .....: | Operated in the most unfavorable way of operation given in the operating instructions until steady conditions established. Permitted rises based on manufacturer's specified Tmra of 40°C. | N/A |
| 4.5.2 | Resistance to abnormal heat | It has been determined from examination of the physical characteristics of the materials used that the material meets the requirements of the test. | Pass |

| | | | |
|---|---|---|---|
| 4.6 | **Openings in enclosures** | | N/A |
| 4.6.1 | Top and side openings | | N/A |
| | Dimensions (mm).....: | | - |
| 4.6.2 | Bottoms of fire enclosures | No openings. | N/A |
| | Construction of the bottom.....: | | - |
| 4.6.3 | Doors or covers in fire enclosures | | N/A |
| 4.6.4 | Openings in transportable equipment | | N/A |
| 4.6.5 | Adhesives for constructional purposes | | N/A |
| | Conditioning temperature (°C)/time (weeks) .....: | | - |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 4.7 | **Resistance to fire** | | Pass |
| 4.7.1 | Reducing the risk of ignition and spread of flame | | Pass |
| | Method 1, selection and application of components wiring and materials | | Pass |
| | Method 2, application of all of simulated fault condition tests | | N/A |
| 4.7.2 | Conditions for a fire enclosure | | Pass |
| 4.7.2.1 | Parts requiring a fire enclosure | Components in primary and secondary circuits are provided with fire enclosure. | Pass |
| 4.7.2.2 | Parts not requiring a fire enclosure | | N/A |
| 4.7.3 | Materials | | Pass |
| 4.7.3.1 | General | | Pass |
| 4.7.3.2 | Materials for fire enclosures | The fire enclosure is metal. | N/A |
| 4.7.3.3 | Materials for components and other parts outside fire enclosures | | N/A |
| 4.7.3.4 | Materials for components and other parts inside fire enclosures | All internal materials are rated V-2 or better or are mounted on a PWB rated V-1 or better. | Pass |
| 4.7.3.5 | Materials for air filter assemblies | No air filter assemblies. | N/A |
| 4.7.3.6 | Materials used in high-voltage components | No high-voltage components | N/A |

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

| | | | |
|---|---|---|---|
| 5 | **ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS** | | Pass |
| 5.1 | Touch current and protective conductor current | | Pass |
| 5.1.1 | General | Touch current levels did not exceed limits of Table 5A. | Pass |
| 5.1.2 | Equipment under test (EUT) | Single mains connection. | Pass |
| 5.1.3 | Test circuit | Single phase equipment intended only for connection to star TN or TT system. | Pass |
| 5.1.4 | Application of measuring instrument | Tested using D.1 measuring instrument. | Pass |
| 5.1.5 | Test procedure | | Pass |
| 5.1.6 | Test measurements | | Pass |
| | Test voltage (V) ..... : | 264 V ac, 60 Hz | - |
| | Measured touch current (mA) ..... : | 0.119 | - |
| | Max. allowed touch current (mA) ..... : | 3.5 mA | - |
| | Measured protective conductor current (mA) ..... : | | - |
| | Max. allowed protective conductor current (mA) ... : | | - |
| 5.1.7 | Equipment with touch current exceeding 3.5 mA .. : | | N/A |
| 5.1.8 | Touch currents to and from telecommunication networks and cable distribution systems and from telecommunication networks | No TNV circuit. | N/A |
| 5.1.8.1 | Limitation of the touch current to a telecommunication network and a cable distribution system | No TNV circuit. | N/A |
| | Test voltage (V) ..... : | | - |
| | Measured touch current (mA) ..... : | | - |
| | Max. allowed touch current (mA) ..... : | | - |
| 5.1.8.2 | Summation of touch currents from telecommunication networks ..... : | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.2 | **Electric strength** | | Pass |
| 5.2.1 | General | Based on the electric strength test the use of the insulating materials within the equipment is satisfactory. | Pass |
| 5.2.2 | Test procedure | (see appended table 5.2) | Pass |
| 5.3 | **Abnormal operating and fault conditions** | | Pass |
| 5.3.1 | Protection against overload and abnormal operation | (see appended table 5.3) | Pass |
| 5.3.2 | Motors | | N/A |
| 5.3.3 | Transformers | Transformers are protected by primary fuse and by regulating network. | Pass |
| 5.3.4 | Functional insulation ..... : | Functional insulation complies with the requirements (a), (b), or (c). | Pass |
| 5.3.5 | Electromechanical components | | N/A |
| 5.3.6 | Simulation of faults | Transformer temperatures measured for compliance with Annex C during test. | Pass |
| 5.3.7 | Unattended equipment | The equipment is not intended for unattended use. | N/A |
| 5.3.8 | Compliance criteria for abnormal operating and fault conditions | No fire, emission of molten metal or deformation was noted during the tests. Electric Strength tests performed after abnormal and fault tests. | Pass |

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|---|---|---|---|
| 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 | | N/A |
| | Test voltage (V) ..... : | | - |
| | Current in the test circuit (mA)..... : | | - |
| 6.1.2.2 | Exclusions..... : | | N/A |

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

| | | | |
|---|---|---|---|
| 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 | Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment | | N/A |
| 7.2 | Protection of equipment users from overvoltages on the cable distribution system | | N/A |
| 7.3 | Insulation between primary circuits and cable distribution systems | | N/A |
| 7.3.1 | General | | N/A |
| 7.3.2 | Voltage surge test | | N/A |
| 7.3.3 | Impulse test | | N/A |

| | | | |
|---|---|---|---|
| A | **Annex A, TESTS FOR RESISTANCE TO HEAT AND FIRE** | | N/A |
| A.1 | Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2) | | N/A |
| A.1.1 | Samples.....: | | - |
| | Wall thickness (mm) .....: | | - |
| A.1.2 | Conditioning of samples; temperature (°C) .....: | | N/A |
| A.1.3 | Mounting of samples.....: | | N/A |
| A.1.4 | Test flame | | N/A |
| 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).....: | | - |

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

| | | | |
|---|---|---|---|
| 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 | | N/A |
| A.2.3 | Mounting of samples | | N/A |
| A.2.4 | Test flame | | N/A |
| A.2.5 | Test procedure | | N/A |
| A.2.6 | Compliance criteria | | N/A |
| | Sample 1 burning time (s)..... : | | - |
| | Sample 2 burning time (s)..... : | | - |
| | Sample 3 burning time (s)..... : | | - |
| A.2.7 | Alternative test acc. to IEC 60695-2-2, cl. 4, 8 | | N/A |
| | Sample 1 burning time (s)..... : | | - |
| | Sample 2 burning time (s)..... : | | - |
| | Sample 3 burning time (s)..... : | | - |

| | | | |
|---|---|---|---|
| A.3 | **Hot flaming oil test (see 4.6.2)** | | N/A |
| A.3.1 | Mounting of samples | | N/A |
| A.3.2 | Test procedure | | N/A |
| A.3.3 | Compliance criterion | | N/A |

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

| | | | |
|---|---|---|---|
| B | **Annex B, MOTOR TESTS UNDER ABNORMAL CONDITIONS(see 4.7.2.2 and 5.3.2)** | | N/A |
| B.1 | General requirements | | N/A |
| | Position ..... : | | - |
| | Manufacturer ..... : | | - |
| | Type ..... : | | - |
| | Rated values ..... : | | - |
| B.2 | Test conditions | | N/A |
| B.3 | Maximum temperatures | | N/A |
| B.4 | Running overload test | | N/A |
| B.5 | Locked-rotor overload test | | N/A |
| | Test duration (days) ..... : | | - |
| | Electric strength test: test voltage (V) ..... : | | - |
| B.6 | Running overload test for d.c. motors in secondary circuits | | N/A |
| B.7 | Locked-rotor overload test for d.c. motors in secondary circuits | | N/A |
| B.7.1 | Test procedure | | N/A |
| B.7.2 | Alternative test procedure; test time (h) ..... : | | N/A |
| B.7.3 | Electric strength test | | N/A |
| B.8 | Test for motors with capacitors | | N/A |
| B.9 | Test for three-phase motors | | N/A |
| B.10 | Test for series motors | | N/A |
| | Operating voltage (V) ..... : | | - |

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

| | | | |
|---|---|---|---|
| C | **Annex C, TRANSFORMERS (see 1.5.4 and 5.3.3)** | | Pass |
| | Position ..... : | T1 | - |
| | Manufacturer ..... : | XEPEX | - |
| | Type ..... : | B9111-1673000110(1.0) | - |
| | Rated values ..... : | T1 employs Class B (130C), Type SPB-6 | - |
| | Method of protection ..... : | Regulating Network | - |
| C.1 | Overload test | (see appended table 5.3) | Pass |
| C.2 | Insulation | (see appended table 5.2) | Pass |
| | Protection from displacement of windings ..... : | Triple insulated wire used | Pass |

| | | | |
|---|---|---|---|
| D | **Annex D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS** | | Pass |
| D.1 | Measuring instrument | Simpson 228 | Pass |
| D.2 | Alternative measuring instrument | | N/A |

| | | |
|---|---|---|
| E | **Annex E, TEMPERATURE RISE OF A WINDING** | N/A |

| | | |
|---|---|---|
| F | **Annex F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10)** | Pass |

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

| | | | |
|---|---|---|---|
| G | **Annex G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES** | | N/A |
| G.1 | 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 | DC mains supply | | N/A |
| G.3 | Determination of telecommunication network transient voltage (V) : | | N/A |
| G.4 | Determination of required withstand voltage (V) ... : | | N/A |
| G.5 | Measurement of transient levels (V) : | | 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)** | | Pass |
| | Metal used : | Aluminum | - |

| | | | |
|---|---|---|---|
| K | **ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.7)** | | N/A |
| K.1 | Making and breaking capacity | | N/A |
| K.2 | Thermostat reliability; operating voltage (V) : | | N/A |
| K.3 | Thermostat endurance test; operating voltage (V) : | | N/A |
| K.4 | Temperature limiter endurance; operating voltage (V) : | | N/A |
| K.5 | Thermal cut-out reliability | | N/A |
| K.6 | Stability of operation | | N/A |

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

| | | | |
|---|---|---|---|
| L | **Annex L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.1)** | | N/A |
| 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 | | N/A |

| | | | |
|---|---|---|---|
| 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 |
| 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 2.10.3.4, 6.2.2.1, 7.3.2 and clause G.5)** | | N/A |
| N.1 | ITU-T impulse test generators | | N/A |
| N.2 | IEC 60065 impulse test generator | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| P | **Annex P, NORMATIVE REFERENCES** | | Pass |
| Q | **Annex Q, BIBLIOGRAPHY** | | Pass |
| 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) | | 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 |
| T | **Annex T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)** | | N/A |
| | ..... : | | - |
| U | **Annex U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)** | | Pass |
| | ..... : | See Table 1.5.1 | - |

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

| 1.5.1 | **TABLE: list of critical components** | | | | | Pass |
|---|---|---|---|---|---|---|
| Object/part No. | Manufacturer/ trademark | type/model | technical data | Product Category CCN(s) | Required Marks of Conformity | Supplement ID |
| Enclosure | - | - | Aluminum, 1.2 mm thick. Approximately 152 by 105 by 87 mm | - | - | |
| Appliance Inlet | Tec-x | TU-301-A | 250Vac, 10A | AXUT2 | UL | |
| Appliance Inlet alternate | Supercom | SC-9-3P | 250Vac, 10A | AXUT2 | UL | |
| Internal wiring, appliance inlet to PWB/Chassis | - | - | 20AWG, Style 1015, 600V, 105°C | AVLV2 | UL | |
| Insulating Tubing/Sleeving | - | - | FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1; rated 105ºC, 300 V. | UZFT2, YDPU2, YDRY2, YDTU2 | UL | |
| Printed Wiring Board | - | - | Rated minimum V-0, 130ºC. | ZPMV2 | UL | |
| Fuse F1 | Littelfuse | 662 Series | 250V, 2A | JDYX2 | UL | |
| Fuse F1, alternate | Walter | FSD Series | 250V, 2A | JDYX2 | UL | |
| Fuse F1, alternate | Littelfuse | 217 Series | 250V, 2A | JDYX2 | UL | |
| Fuse F1, alternate | Bel | RST Series | 250V, 2A | JDYX2 | UL | |
| Capacitors CY1 and CY2 | Murata | DE Series | Rated maximum 1000 pF, minimum 250 Vac. Class Y1 or Y2. | FOKY2 or FOWX2 | UL | |
| Capacitors CY1 and CY2 alternate | TDK | CS Series | Rated maximum 1000 pF, minimum 250 Vac. Class Y1 or Y2. | FOKY2 or FOWX2 | UL | |
| Capacitors CY1 and CY2 alternate | Jya-Nay Co Ltd | JN Series | Rated maximum 1000 pF, minimum 250 Vac. Class Y1 or Y2. | FOKY2 or FOWX2 | UL | |
| Capacitors CY1 and CY2 alternate | Success | SE Series | Rated maximum 1000 pF, minimum 250 Vac. Class Y1 or Y2. | FOKY2 or FOWX2 | UL | |

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| | | | | | | |
|---|---|---|---|---|---|---|
| Capacitors CY1 and CY2 alternate | - | - | Rated maximum 1000 pF, minimum 250 Vac. Class Y1 or Y2. | FOKY2 or FOWX2 | UL | |
| Surge Arrestor VR1 | Centra Science Corp | CNR-D471K | 300V | XUHT2 | UL | |
| Surge Arrestor VR1 alternate | Thinking Electronics | TVR07471 | 470V | XUHT2 | UL | |
| Surge Arrestor VR1 alternate | Littlefuse | V07E300 | 300V | XUHT2 | UL | |
| Surge Arrestor VR1 alternate | - | - | 300V | XUHT2 | UL | |
| Capacitors (CX1, CX3) | Cheng Tung Industry Co Ltd | CTX Series | 0.47 µF, 250 Vac, Class X2. | FOKY2, FOWX2 | UL | |
| Capacitors (CX1, CX3) alternate | UTX or Various | HQX Series | 0.47 µF, 250 Vac, Class X2. | FOKY2, FOWX2 | UL | |
| Capacitors (CX1, CX3) alternate | Dain Electronics Co Ltd | MPX Series | 0.47 µF, 250 Vac, Class X2. | FOKY2, FOWX2 | UL | |
| Capacitors (CX1, CX3) alternate | Panasonic | ECQU2A474 | 0.47 µF, 250 Vac, Class X2. | FOKY2, FOWX2 | UL | |
| Capacitors (CX1, CX3) alternate | - | - | 0.47 µF, 250 Vac, Class X2. | FOKY2, FOWX2 | UL | |
| Bleeder Resistors R1A, R1B and R1C | - | - | 357kohm, 0.25 W | - | - | |
| Capacitor CY3 | Murata | DE Series | Rated maximum 3.3 nF, minimum 250 Vac. Class Y1. | FOWX2 | UL | |
| Capacitor CY3 alternate | TDK | CD Series | Rated maximum 3.3 nF, minimum 250 Vac. Class Y1. | FOWX2 | UL | |
| Capacitor CY3 alternate | Success | SB Series | Rated maximum 3.3 nF, minimum 250 Vac. Class Y1. | FOWX2 | UL | |
| Capacitor CY3 alternate | Jya-Nay Co Ltd | JN Series | Rated maximum 3.3 nF, minimum 250 Vac. Class Y1. | FOWX2 | UL | |
| Capacitor CY3 alternate | - | - | Rated maximum 3.3 nF, minimum 250 Vac. Class Y1. | FOWX2 | UL | |
| Transformer T1 | Xepex, Wuxi Huipu, Yangshang or | - | Employs OBJT2 TIW and OBJY2 Class B insulation | - | - | 4-01 |

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

| | | | | | | |
|---|---|---|---|---|---|---|
| | Globtek | | system | | | |
| Triple Insulated Wire | Furukawa | TEX-E | Rated 3000 V isolation | OBJT2 | UL | |
| Insulation System | Xepex Electronic | SPB-6 | Class B | OBJY2 | UL | |
| Insulation System alternate | Wuxi Huipu Electronics | Huipu 130-TM | Class B | OBJY2 | UL | |
| Insulation System alternate | Yangshang Electronics | TS-130-1 or GH-130 | Class B | OBJY2 | UL | |
| Insulation System alternate | Globtek Inc. | GTX-1 | Class B | OBJY2 | UL | |
| Optocoupler U4 | Liteon | LTV-817 | Minimum 3000 V ac isolation. Double protection | FPQU2 | UL | |
| Optocoupler U4 | NEC | PS2561L-1 | Minimum 3000 V ac isolation. Double protection | FPQU2 | UL | |
| Optocoupler U4 | Cosmo Electronics Corp | KP1010 | Minimum 3000 V ac isolation. Double protection | FPQU2 | UL | |
| Optocoupler U4 | - | - | Minimum 3000 V ac isolation. Double protection | FPQU2 | UL | |
| Output Cord | Jinan Cable & Wire Co Ltd | - | Type CMP, 18AWG | DUZX | UL | |
| Inductors LF1, LF3 | - | - | Open-type construction. Rated minimum 130°C. | - | - | |
| Label | - | - | 60 ºC. | PGDQ2 | UL | |

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

| 1.6.2 | **TABLE: electrical data (in normal conditions)** | | | | | Pass |
|---|---|---|---|---|---|---|
| fuse # | I rated (A) | U (V) | P (W) | I (mA) | I fuse (mA) | condition/status |
| F1 | - | 90 | 59.0 | 1022 | - | 50Hz Input, Rated Load |
| F1 | 1.5 | 100 | 58.7 | 934 | - | 50Hz Input, Rated Load |
| F1 | 1.5 | 240 | 58.7 | 471 | - | 50Hz Input, Rated Load |
| F1 | - | 264 | 59.0 | 437 | - | 50Hz Input, Rated Load |
| F1 | - | 90 | 59.2 | 989 | - | 60Hz Input, Rated Load |
| F1 | 1.5 | 100 | 58.6 | 913 | - | 60Hz Input, Rated Load |
| F1 | 1.5 | 240 | 59.0 | 508 | - | 60Hz Input, Rated Load |
| F1 | - | 264 | 59.3 | 455 | - | 60Hz Input, Rated Load |
| supplementary information: | | | | | | |
| | | | | | | |

| 2.10.3 and 2.10.4 | **TABLE: clearance and creepage distance measurements** | | | | | Pass |
|---|---|---|---|---|---|---|
| clearance cl and creepage distance dcr at/of: | Up (V) | U r.m.s. (V) | required cl (mm) | cl (mm) | required dcr (mm) | dcr (mm) |
| Primary to Secondary | 338 | 240 | 4 | 7.5 | 4.8 | 7.5 |
| Primary to Chassis | 338 | 240 | 2 | 5.5 | 2.4 | 5.5 |
| supplementary information: | | | | | | |
| Working voltages measured are below input rating. | | | | | | |

| 2.10.5 | **TABLE: distance through insulation measurements** | | | Pass |
|---|---|---|---|---|
| distance through insulation di at/of: | Up (V) | test voltage (V) | required di (mm) | di (mm) |
| | | | | |
| supplementary information: | | | | |
| See Table 1.5.1 for optical isolator and Triple insulated wire information. | | | | |

| 4.5 | **TABLE: temperature rise measurements** | | | | | | Pass |
|---|---|---|---|---|---|---|---|
| | test voltage (V)..... | 90 V/ 60 Hz | 264 V/ 60 Hz | | | | — |
| | t1 (°C)..... | 20.4 | 20.2 | | | | — |
| | t2 (°C)..... | 20.3 | 19.8 | | | | — |

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

| maximum temperature T of part/at: | T (°C) | | | | | allowed Tmax (°C) |
|---|---|---|---|---|---|---|
| IEC Inlet | 31.0 | 29.4 | | | | 50 |
| LF3 coil | 68.8 | 54.8 | | | | 110 |
| CX1 | 52.4 | 48.7 | | | | 70 |
| HS near DB1 | 71.7 | 65.4 | | | | - |
| T1 coil | 70.3 | 71.3 | | | | 90 |
| T1 core | 68.9 | 71.3 | | | | 90 |
| C1 body | 63.1 | 56.3 | | | | 85 |
| U4 | 68.7 | 69.0 | | | | 80 |
| HS near Q1 | 70.4 | 67.9 | | | | - |
| L3 coil | 53.7 | 54.7 | | | | 85 |
| PWB under T1 | 73.0 | 75.5 | | | | 85 |
| Enclosure over T1 (ceiling mounted) | 33.4 | 32.2 | | | | 50 |
| temperature T of winding: | | $R_1$ (Ω) | $R_2$ ( Ω) | T (°C) | allowed Tmax (°C) | insulation class |
| | | | | | | |
| supplementary information: | | | | | | |
| | | | | | | |

| 4.5.2 | **TABLE: ball pressure test of thermoplastics** | | Pass |
|---|---|---|---|
| | allowed impression diameter (mm) ..... : | | — |
| part | | test temperature (°C) | impression diameter (mm) |
| | | | |
| supplementary information: | | | |
| It has been determined from examination of the physical characteristics of the materials used that the material meets the requirements of the test. | | | |

| 4.7 | **TABLE: resistance to fire** | | | Pass |
|---|---|---|---|---|
| part | manufacturer of material | type of material | thickness(mm) | flammability class |
| | | | | |
| supplementary information: | | | | |
| Method 1 used, see Table 1.5.1. | | | | |

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

| 5.2 | **TABLE: electric strength tests, impulse tests and voltage surge tests** | | Pass |
|---|---|---|---|
| test voltage applied between: | | test voltage (V) a.c./d.c. | breakdown Yes / No |
| Input / Output | | 4242 Vdc | NO |
| Input / Chassis | | 2121 Vdc | NO |
| supplementary information: | | | |
| | | | |

| 5.3 | **TABLE: fault condition tests** | | | | | | Pass |
|---|---|---|---|---|---|---|---|
| | ambient temperature (°C) ..... : | | | | 21°C | | — |
| | model/type of power supply ..... : | | | | See ratings | | — |
| | manufacturer of power supply ..... : | | | | See ratings | | — |
| | rated markings of power supply ..... : | | | | See ratings | | — |
| component No. | fault | test voltage (V) | test time | fuse No. | fuse current (A) | result | |
| C1 | Short | 264 | 1sec. | F1 | - | IP(fuse opened < 1 sec),NB,NC,NT | |
| BD1 | Short +AC to +DC | 264 | 1sec. | F1 | - | IP(fuse opened < 1 sec),NB,NC,NT | |
| Q1 | Short D to S | 264 | 1sec. | F1 | - | CD(R19,R19A opened),NB,NC,NT. See note 1 | |
| T1 Secondary winding after D5 | Overload | 264 | 4 hrs | F1 | 0.277A pulsed | Any current will cause supply to go into pulsed, latched, shut down within several min. Tested unit with 3A output load. CT,NB,NC,NT T1=37.7(C | |
| Output | Overload | 90 | 4 Hrs | F1 | 1.271 | CT,NB,NC,NT T1=89.4(C | |
| Output | Short | 90 | 4 Hrs | F1 | 0.086 pulsed | CT,NB,NC,NT T1=29.6(C | |
| D5 | Short | 264 | - | F1 | 0.0 | Monitored for SELV. 0.0 V, latched shutdown | |
| U4 | Short 1-2 | 264 | - | F1 | 0.003 | Monitored for SELV. 30.4 Vdc, latched shutdown | |
| C8 | Short | 264 | - | F1 | 0.421 | Monitored for SELV. 27.2 Vdc | |
| supplementary information: | | | | | | | |
| Results Key: IP = Internal protection operated (component indicated) CT = Constant temperatures were obtained TW = Transformer winding opened CD = Components damaged (damaged components indicated) NB = No indication of dielectric breakdown YB = Dielectric breakdown (time and location indicated) NC = Cheesecloth remained intact YC = Cheesecloth charred or flamed NT = Tissue paper remained intact YT = | | | | | | | |

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

| |
|---|
| Tissue paper charred or flamed |

# Enclosure

## National Differences

**USA / Canada**

| IEC 60950-1 | | | |
|---|---|---|---|
| SubClause | Difference + Test | Result - Remark | Verdict |

| **USA / Canada - Differences to IEC 60950-1:2001, First Edition** | | | |
|---|---|---|---|
| 1.1 | Equipment able to be installed in accordance with the National Electrical Code ANSI/NFPA 70 and the Canadian Electrical Code, Part1, and when applicable, the National Electrical Safety Code, IEEE C2. | | Pass |
| 1.1.1 | Equipment able to be installed in accordance with ANSI/NFPA 75 and NEC Art. 645 unless intended for use outside of computer room and provided with such instructions. | | Pass |
| 1.1.2 | Equipment in wire-line communication facilities serving high-voltage electric power stations operating at greater than 1kV are excluded. | | N/A |
| 1.1.2 | Special requirements apply to equipment intended for use outdoors. | | N/A |
| 1.4.14 | For Pluggable Equipment Type A, the protection in the installation is assumed to be 20 A. | | Pass |
| 1.5.1 | All IEC standards for components identified in Annex P.1 replaced by the relevant requirements of CSA and UL component standards in Annex P.1. | | Pass |
| 1.5.1 | All IEC standards for components identified in Annex P.2 alternatively satisfied by the relevant requirements of CSA and UL component standards in Annex P.2. | | Pass |
| 1.5.5 | Interconnecting cables acceptable for the application regarding voltage, current, temperature, flammability, mechanical serviceability and the like. | Interconnecting cables comply with the relevant requirements of this standard. | Pass |
| 1.5.5 | For other than limited power and TNV circuits, the type of output circuit identified for output connector. | | N/A |
| 1.5.5 | External cable assemblies that exceed 3.05 m in length to be types specified in the NEC and CEC. | | N/A |
| 1.5.5 | Detachable external interconnecting cables 3.05 m or less in length and provided with equipment marked to identify the responsible organization and the designation for the cable. | | N/A |
| 1.5.5 | Building wiring and cable for use in ducts, plenums and other air handling space subject to special requirements and excluded from scope. | | N/A |
| 1.5.5 | Telephone line and extension cords and the like comply with UL 1863 and CSA C22.2 No. 233. | | N/A |
| 1.6.1.2 | Equipment intended for connection to a d.c. power (mains) distribution system is subject to special | | N/A |

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|---|---|---|---|
| SubClause | Difference + Test | Result - Remark | Verdict |
| | circuit classification requirements (e.g., TNV-2) | | |
| 1.6.1.2 | Earthing of d.c. powered equipment provided. | | N/A |
| 1.7 | Lamp replacement information indicated on lampholder in operator access area. | | N/A |
| 1.7.1 | Special marking format for equipment intended for use on a supply system with an earthed neutral and more than one phase conductor. | | N/A |
| 1.7.1 | Equipment voltage rating not higher than rating of the plug except under special conditions. | | N/A |
| 1.7.6 | Special fuse replacement marking for operator accessible fuses. | | N/A |
| 1.7.7 | Identification of terminal connection of the equipment earthing conductor. | Earth symbol next to terminal | Pass |
| 1.7.7 | Connectors and field wiring terminals for external Class 2 or Class 3 circuits provided with marking indicating minimum Class of wiring to be used. | | N/A |
| 1.7.7 | Marking located adjacent to terminals and visible during wiring. | | N/A |
| 2.1.1 | Screw shell of Edison-base lampholder tied to the neutral conductor. | | N/A |
| 2.1.1.1 | Bare TNV conductive parts in the interior of equipment normally protected against contact by a cover intended for occasional removal are exempt provided instructions include directions for disconnection of TNV prior to removal of the cover. | | N/A |
| 2.3.1.b | Other telecommunication signaling systems (e.g., message waiting) than described in 2.3.1(b) are subject to M.4. | | N/A |
| 2.3.1.b | For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 Vp or 60 V d.c., the maximum current limit through a 2000 Ohm or greater resistor with loads disconnected is 7.1 mA peak or 30 mA d.c. under normal conditions. | | N/A |
| 2.3.1.b | Limits for measurements across 5000 ohm resistor in the event of a single fault are replaced after 200 ms with the limits of M.3.1.4. | | N/A |
| 2.3.2 | Enamel coating on signal transformer winding wire allowed as an alternative to Basic insulation in specific telecommunication applications when subjected to special construction requirements and routine testing. | | N/A |

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|---|---|---|---|
| SubClause | Difference + Test | Result - Remark | Verdict |
| 2.3.2 | In the event of a single fault, the limits of 2.2.3 apply to SELV circuits and accessible conductive parts. | | N/A |
| 2.5 | Overcurrent protection device required for Class 2 and Class 3 limiting in accordance with the NEC, or for a Limited Power Source, not interchangeable with devices of higher ratings if operator replaceable. | | N/A |
| 2.6 | Equipment having receptacles for output a.c. power connectors generated from an internal separately derived source have the earthed (grounded) circuit conductor suitably bonded to earth. | | N/A |
| 2.6.3.3 | For Pluggable Equipment Type A, if neither a) or b) are applicable, the current rating of the circuit is taken as 20 A. | | Pass |
| 2.6.3.4 | Capacity of connection between earthing terminal and parts required to be earthed subject to special conditions based on the current rating of the circuit. | | N/A |
| 2.6.3.4 | Protective bonding conductors and their terminals of non-standard constructions (e.g. PWB traces) evaluated to limited short-circuit test of CSA C22.2 No.0.4. | | N/A |
| 2.6.4.1 | Field wiring terminals for earthing conductors suitable for wire sizes (gauge) used in US and Canada. | | N/A |
| 2.7.1 | Data for selection of special external branch circuit overcurrent devices marked on the equipment. | | N/A |
| 2.7.1 | Standard supply outlets protected by overcurrent device in accordance with the NEC, and CEC, Part 1. | | N/A |
| 2.7.1 | Overcurrent protection for individual transformers that distribute power to other units over branch circuit wiring. | | N/A |
| 2.7.1 | Additional requirements for overcurrent protection apply to equipment provided with panelboards. | | N/A |
| 2.7.1 | Non-motor-operated equipment requiring special overcurrent protective device marked with device rating. | | N/A |
| 2.10.5.4 | Multi-layer winding wire subject to UL component wire requirements in addition to 2.10.5.4 and Annex U. | | Pass |
| 3.1.1 | Permissible combinations of internal wiring/external | | Pass |

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|---|---|---|---|
| SubClause | Difference + Test | Result - Remark | Verdict |
| | cable sizes for overcurrent and short circuit protection. | | |
| 3.1.1 | All interconnecting cables protected against overcurrent and short circuit. | | Pass |
| 3.2 | Wiring methods permit connection of equipment to primary power supply in accordance with the NEC and CEC, Part 1. | | Pass |
| 3.2.1 | Permitted use for flexible cords and plugs. | | N/A |
| 3.2.1 | Flexible cords provided with attachment plug rated 125% of equipment current rating. | | N/A |
| 3.2.1 | Any Class II equipment provided with 15 or 20 A standard supply outlets, Edison-base lampholders or single pole disconnect device provided with a polarized type attachment plug. | | N/A |
| 3.2.1.2 | Equipment intended for connection to DC mains supply power systems complies with special wiring requirements (e.g., no permanent connection to supply by flexible cord). | | N/A |
| 3.2.1.2 | Equipment with one pole of the DC mains supply connected to both the equipment mains input terminal and the main protective earthing terminal provided with special instructions and construction provisions for earthing | | N/A |
| 3.2.1.2 | Equipment with means for connecting supply to earthing electrode conductor has no switches or protective devices between supply connection and earthing electrode connection. | | N/A |
| 3.2.1.2 | Special markings and instructions for equipment with provisions to connect earthed conductor of a DC supply circuit to earthing conductor at the equipment. | | N/A |
| 3.2.1.2 | Special markings and instructions for equipment with earthed conductor of a DC supply circuit connected to the earthing conductor at the equipment. | | N/A |
| 3.2.1.2 | Terminals and leads provided for permanent connection of DC powered equipment to supply marked to indicate polarity if reverse polarity may result in a hazard. | | N/A |
| 3.2.3 | Permanently connected equipment has provision for connecting and securing a field wiring system (i.e. conduit, or leads etc.) per the NEC and CEC, | | N/A |

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|---|---|---|---|
| SubClause | Difference + Test | Result - Remark | Verdict |
| | Part 1. | | |
| 3.2.3 | Permanently connected equipment may have terminals or leads not smaller than No. 18 AWG (0.82 mm²) and not less than 152 mm in length for connection of field installed wiring. | | N/A |
| 3.2.3 | If supply wires exceed 60 °C, marking indicates use of 75 °C or 90 °C wiring for supply connection as appropriate. | | N/A |
| 3.2.3 | Equipment compatible with suitable trade sizes of conduits and cables. | | N/A |
| 3.2.5 | Length of power supply cord limited to between 1.5 and 4.5 m unless shorter length used when intended for a special installation. | | N/A |
| 3.2.5 | Conductors in power supply cords sized according to NEC and CEC, Part I. | | N/A |
| 3.2.5 | Power supply cords and cord sets incorporate flexible cords suitable for the particular application. | | N/A |
| 3.2.6 | Strain relief provided for non-detachable interconnecting cables not supplied by a limited power source. | | N/A |
| 3.2.9 | Adequate wire bending space and volume of field wiring compartment required to properly make the field connections. | | N/A |
| 3.2.9 | Equipment intended solely for installation in Restricted Access Locations using low voltage d.c. systems may not need provision for connecting and securing a field wiring system. A method of securing wiring or instructions provided to ensure the wiring is protected from abuse. | | N/A |
| 3.3 | Field wiring terminals provided for interconnection of units for other then LPS or Class 2 circuits also comply with 3.3. | | N/A |
| 3.3 | Interconnection of units by LPS or Class 2 conductors may have field wiring connectors other than those specified in 3.3 if wiring is reliably separated. | | N/A |
| 3.3.1 | Terminals for the connection of neutral conductor identified by a distinctive white marking or other equally effective means. | | N/A |
| 3.3.3 | Wire binding screw terminal permitted for connection of No. 10 AWG (5.3 mm²) or smaller conductor if provided with upturned lugs, cupped | | N/A |

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|---|---|---|---|
| SubClause | Difference + Test | Result - Remark | Verdict |
| | washer or equivalent retention. | | |
| 3.3.4 | Terminals accept wire sizes (gauge) used in the U.S. and Canada. | | N/A |
| 3.3.4 | Terminals accept current-carrying conductors rated 125% of the equipment current rating. | | N/A |
| 3.3.6 | Field wiring terminals marked to indicate the material(s) of the conductor appropriate for the terminals used. | | N/A |
| 3.3.6 | Connection of an aluminum conductor not permitted to terminal for equipment earthing conductor. | | N/A |
| 3.3.6 | Field wiring connections made through the use of suitable pressure connectors (including set screw type), solder lugs or splices to flexible leads. | | N/A |
| 3.4.2 | Separate motor control device(s) required for cord-connected equipment rated more than 12 A, or with motor rated more than 1/3 hp or more than 120 V. | | N/A |
| 3.4.8 | Vertically mounted disconnect devices oriented so up position of handle is "on". | | N/A |
| 3.4.11 | For computer-room applications, equipment with battery systems capable of supplying 750 VA for 5 min require battery disconnect means. | | N/A |
| 4.2.8.1 | Special opening restrictions for enclosures around CRTs with face dimension of 160 mm or more. | | N/A |
| 4.2.9 | Compartment housing high-pressure lamp marked to indicate risk of explosion. | | N/A |
| 4.3.2 | Loading test for equipment with handle(s) used to support more than 9 kg tested at four times the weight of the unit. | | N/A |
| 4.3.6 | In addition to the IEC requirements, Direct Plug-in Equipment complies with UL 1310 or CSA 223 mechanical assembly requirements. | See Test Record for details. | Pass |
| 4.3.12 | The maximum quantity of flammable liquid stored in equipment complies with ANSI/NFPA 30(Table NAE.6). | | N/A |
| 4.3.12 | Equipment using replenishable liquids marked to indicate type of liquid to be used. | | N/A |
| 4.3.13.2 | Equipment that produces x-radiation and does not comply with 4.3.12 under all conditions of servicing marked to indicate the presence of radiation where readily visible. | | N/A |

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|---|---|---|---|
| SubClause | Difference + Test | Result - Remark | Verdict |
| 4.3.13.5 | Requirements contained in the applicable national codes and regulations apply to lasers (21 CFR 1040 and REDR C1370). | | N/A |
| 4.7 | Automated information storage equipment intended to contain more than 0.76 $m^3$ of combustible media requires provision for automatic sprinklers or a gaseous agent extinguishing system. | | N/A |
| 4.7.3.1 | Equipment for use in environmental air space other than ducts or plenums provided with metal enclosure or with non-metallic enclosure having adequate fire-resistance and low smoke producing characteristics. Low smoke-producing characteristics evaluated according to UL 2043. Equipment for installation in space used for environmental air as described in Sec. 300-22(c) of the NEC provided with instructions indicating suitability for installation in such locations. | | N/A |
| 4.7.3.1 | Flame spread rating for external surface of combustible material with exposed area greater than 0.93 $m^2$ or a single dimension greater than 1.8 m; 50 or less for computer room applications or 200 or less for other applications. | | N/A |
| 4.7.3.4 | Wire marked "VW-1" or "FT-1" considered equivalent. | | Pass |
| 5.1.8.2 | Special earthing provisions and instructions for equipment with high touch current due to telecommunication network connections. | | N/A |
| 5.1.8.3 | Touch current due to ringing voltage for equipment containing telecommunication network leads. | | N/A |
| 5.3.6 | Overloading of SELV connectors and printed wiring board receptacles accessible to the operator. | | Pass |
| 5.3.6 | Tests interrupted by opening of a component repeated two additional times. | | N/A |
| 5.3.8.1 | Test interrupted by opening of wire or trace subject to certain conditions. | No opening of wire or trace | N/A |
| 6 | Specialized instructions provided for telephones that may be connected to a telecommunications network. | | N/A |
| 6 | Marking identifying function of telecommunication type connectors not used for connection to a telecommunication network. | | N/A |
| 6.2.1 | Special requirements for enameled wiring used as electrical separation provided between parts | | N/A |

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|---|---|---|---|
| SubClause | Difference + Test | Result - Remark | Verdict |
| | connected to telecommunication network and telecommunication circuitry intentionally isolated from network. | | |
| 6.2.1 | Digital line termination equipment (e.g., NCTE) subject to separation requirements. | | N/A |
| 6.3 | Equipment remotely powered over telecommunication wiring systems provided with specialized markings adjacent to the connection. | | N/A |
| 6.3 | Overcurrent protection incorporated into equipment to provide power over telecommunication wiring system not interchangeable with devices of higher ratings if operator replaceable. | | N/A |
| 6.4 | Additional requirements for equipment intended for connection to a telecommunication network using cable subject to overvoltage from power line failures (Fig. 6C). | | N/A |
| 6.4 | Where 26 AWG line cord required by Fig. 6C, either the cord is provided with the equipment or described in the safety instructions. | | N/A |
| 6.5 | Acoustic pressure from an ear piece less than 136 dBA for short duration disturbances, and less than 125 dBA for handsets, 118 dBA for headsets, and 121 dBA for insert earphones, for long duration disturbances. | | N/A |
| 7 | Equipment associated with the cable distribution system may need to be subjected to applicable parts of Chapter 8 of the NEC. | | N/A |
| H | Ionizing radiation measurements made under single fault conditions in accordance with the requirements of the Code of Federal Regulations 21 CFR 1020 and the Canadian Radiation Emitting Devices Act, REDR C1370. | | N/A |
| M.2 | Continuous ringing signals evaluated to Method A subjected to special accessibility considerations. | | N/A |
| M.4 | Special requirements for message waiting and similar telecommunications signals. | | N/A |
| NAC | Equipment intended for use with a generic secondary protector marked with suitable instructions. | | N/A |
| NAC | Equipment intended for use with a specific primary or secondary protector marked with suitable instructions. | | N/A |

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| SubClause | Difference + Test | Result - Remark | Verdict |
| NAF | Household/Home Office Document Shredders | | N/A |
| NAF.1.7 | Markings and instructions alert the user to key safety considerations related to use of shredders, including not intended to be used by children, avoid touching document feed opening, avoid clothes and hair entanglement, and avoid aerosol products. | | N/A |
| NAF.2.8.3 | Safety interlock cannot be inadvertently activated by the articulated accessibility probe (figure NAF.1). | | N/A |
| NAF.3.4 | Provided with an isolating switch complying with 3.4.2, including 3 mm contact gap, with appropriate markings associated with the switch. | | N/A |
| NAF.4.4 | Hazardous moving parts are not accessible to the user, as determined using the articulated accessibility probe (figure NAF.1) and the accessibility probe/wedge (figures NAF.2/NAF.3). | | N/A |