Issue Date: 2006-03-13 Page 1 of 2 Report Reference # E170507-A12-UL-1

Amendment 1 2008-02-22

# **COVER PAGE FOR TEST REPORT**

Product Category: Power Supplies for Information Technology Equipment Including Electrical

**Business Equipment** 

Product Category CCN: QQGQ2, QQGQ8

Complementary Product

Categories:

Power Supplies, Medical and Dental(QQHM2, QQHM8)

Test Procedure: Component Recognition

Product: Switching Power Supply, Built-In AC/DC

Model/Type Reference: GT-9250P and GTM9250P Series

Note:

The models listed above are standard models, upon which custom versions are

based. All units are based on the same nomenclature; see the Model

Differences section for details.

Also, please note that the models described above meet both IEC 60950 and

IEC 60601 criteria.

Rating(s): Input: Voltage: 100-240 Vac

Frequency: 50-60 Hz Rated Current for: 4.0 A

Output: See CB Test Report for output ratings.

Standards: UL 60950-1, 1st Edition, 2006-07-07 (Information Technology Equipment -

Safety - Part 1: General Requirements)

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 186 VETERANS DR NORTHVALE NJ 07647 UNITED STATES

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

1. Specific Technical Criteria

2. Clause Verdicts

3. Critical Components

4. National Differences

5. Enclosures

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This is to certify that representative samples of the products covered by this Test Report have been investigated in accordance with the above referenced Standards. The products have been found to comply with the requirements covering the category and the products are judged to be eligible for Follow-Up Service under the indicated Test Procedure. The manufacturer is authorized to use the UL Mark on such products which comply with this Test Report and any other applicable requirements of Underwriters Laboratories Inc. ('UL') in accordance with the Follow-Up Service Agreement. Only those products which properly bear the UL Mark are considered as being covered by UL's Follow-Up Service under the indicated Test Procedure.

The applicant is authorized to reproduce the referenced Test Report provided it is reproduced in its entirety.

UL authorizes the applicant to reproduce the latest pages of the referenced Test Report consisting of the first page of the Specific Technical Criteria through to the end of the Conditions of Acceptability.

Any information and documentation involving UL Mark services are provided on behalf of Underwriters Laboratories Inc. (UL) or any authorized licensee of UL.

Test Report By:

Daniel Pirozzi Project Engineer

Underwriters Laboratories Inc.

Reviewed By:

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

| BC1.0              | Markings and instructions                   |  |  |  |
|--------------------|---|--|--|--|
| BC1.1              | The following mar                           | The following markings and instructions are provided as indicated.   |  |  |
| BC1.2              | All clause reference                        | ces are from UL 60950-1:2003, First Edition.                         |  |  |
|                    | •   |  |  |  |
| Standard<br>Clause | Clause Title                                | Marking or Instruction Details                                       |  |  |
| Other              | 1.7.1 Power rating - Ratings                | Ratings (voltage, frequency/dc, current)                             |  |  |
|                    | 1.7.1 Power rating - Company identification | Listee's or Recognized company's name, Trade Name, Trademark or File |  |  |
|                    | 1.7.1 Power rating - Model                  | Model Number   |  |  |
|                    | 1.7.1 Power rating - Class II symbol        | Symbol for Class II construction                                     |  |  |

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| BD1.0 | Production-Line Testing Requirements |   |                                    |                     |     |               |         |
|-------|--------------------------------------|---|------------------------------------|---------------------|-----|---------------|---------|
| BD1.1 |                                      | Electric Strength Test Special Constructions - Refer to Generic Inspection Instructions, Part AC for further information. |                                    |                     |     |               |         |
|       |                                      |   |                                    |                     |     | est<br>ential |         |
|       |                                      |   |                                    |                     | V   |               | Test    |
|       | Model                                | Component   | Removable Parts                    | Test probe location | rms | V dc          | Time, s |
|       | N/A                                  |   |                                    |                     |     |               |         |
| BD1.2 |                                      |   | xemptions - This following models: |                     |     |               |         |
| BD1.3 |                                      | rength Test Exe   | mptions - This test wing models:   |                     |     |               |         |
| BD1.4 | Exemption componer remainder         | rength Test Conns - The following ts may disconner of the circuitry of the circuitry of the first test:                   | g solid-state ected from the       |                     |     |               |         |

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

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# SPECIFIC TECHNICAL CRITERIA

## UL 60950-1, First Edition Information technology equipment - Safety-Part 1: General Requirements

Report Reference No..... E170507-A12-UL-1

Compiled by ...... Daniel Pirozzi

Reviewed by ...... David Keen

Date of issue ...... 2006-03-13

Standards ....... UL 60950-1, 1st Edition, 2006-07-07 (Information Technology

Equipment - Safety - Part 1: General Requirements)

CSA C22.2 No. 60950-1-03, 1st Edition, 2006-07 (Information Technology Equipment - Safety - Part 1: General Requirements)

Test procedure ...... Component Recognition

Non-standard test method ...... N/A

Test item description ...... Switching Power Supply, Built-In AC/DC

Trademark .....:



Model and/or type reference ...... GT-9250P and GTM9250P Series

Note:

The models listed above are standard models, upon which custom versions are based. All units are based on the same nomenclature; see the Model Differences section for details.

Also, please note that the models described above meet both IEC 60950 and IEC 60601 criteria.

Rating(s) ...... Input: Voltage: 100-240 Vac

Frequency: 50-60 Hz Rated Current for : 4.0 A

Output: See CB Test Report for output ratings.

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### Possible test case verdicts:

- 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

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| GENERA | L PRODUCT INFORMATION:  |  |  |  |
|--------|---|--|--|--|
|        |   |  |  |  |
| CA1.0  | Report Summary  |  |  |  |
| CA1.1  | N/A   |  |  |  |
|        |   |  |  |  |
| CB1.0  | Product Description   |  |  |  |
| CB1.1  | The products covered by this report are switching power supplies, intended to provide power to and intended for use with Information Technology Equipment and Medical Electrical Equipment.   |  |  |  |
| CC1.0  | Model Differences   |  |  |  |
| CC1.0  |   | nanant ahangaa   |  |  |
| CC1.1  | Differences within the GT-9250 and GTM9250 families are limited to minor component change to determine specific output voltage and current parameters.  |  |  |  |
|        | The 9250 Series is the family model designation which is represented by the fol nomenclature:   | llowing generic  |  |  |
|        | GT-9250PXXXYY-Z.Z-D and GTM9250PXXXYY-Z.Z-D where:  |  |  |  |
|        | GT- designates GlobTek models with IEC 60950 safety approvals and where as GTM designates GlobTek models with both IEC 60950 and IEC 60601 safety approvals while:  |  |  |  |
|        | P designates the use of active power factor correction circuitry; XXX designates the rated output power as seen in the standard model list; YY designates the rated output voltage as seen in the standard model list; Z.Z designates the optional voltage deviation, subtracted from standard ou volt increments; D designates the type of construction, where D is: F which represents the fan control option S which represents input header and output terminal block M which represents input and output header on board HIXXX which represents input wire harness. Where XXX may be betw (max. length for input is 200 mm) HOXXX which represents input header on board and output wire harn may be between 000 and 999 (max. length is 200 mm) | utput voltage in 0.1   |  |  |
|        | HIOXXX which represents input and output wire harness. Where XXX 000 and 999 (max. length is 200 mm for output) HIHXXX which represents input wire harness and output header on both  | ·  |  |  |
|        | Standard Models:  | Vdc A  |  |  |
|        | GT-9250P753.3F- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX] GT-9250P1005.0-X.XF- [S or Mor HIXXX or HOXXX or HIOXXX or HIHXXX] GT-9250P1007.5-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX] GT-9250P1509-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX] GT-9250P15012-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX] GT-9250P15015-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX] GT-9250P15018-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX] GT-9250P15024-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]   | 3.3 22.72<br>5.0 20.00<br>7.5 13.33<br>9.0 16.67<br>12.0 12.50<br>15.0 15.00<br>18.0 8.33<br>24.0 6.25 |  |  |

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| GT-9250P15036-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]   | 36.0         | 4.17           |  |
|--|--------------|----------------|--|
| GT-9250P15048-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]   | 48.0         | 3.12           |  |
| GTM9250P753.3F- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]   | 3.3          | 22.72          |  |
| GTM9250P1005.0-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]  | 5.0          | 20.00          |  |
| GTM9250P1007.5-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]  | 7.5          | 13.33          |  |
| GTM9250P1509-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]  | 9.0          | 16.67          |  |
| GTM9250P15012-X.XF- [S or M or HIXXX or HOXXX or HIXXX]  | 12.0         | 12.50          |  |
| GTM9250P15015-X.XF- [S or M or HIXXX or HOXXX or HIXXX]  | 15.0         | 15.00          |  |
| GTM9250P15018-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX] GTM9250P15024-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]      | 18.0         | 8.33           |  |
| GTM9250P15024-A.XF- [S of M of HIXXX of HOXXX of HIXXX]  | 24.0<br>36.0 | 6.25<br>4.17   |  |
| GTM9250P15030-X.XF- [S of M of HIXXX of HOXXX of HIXXX]  | 48.0         | 3.12           |  |
|  | 40.0         | 5.12           |  |
| GT-9250P1203.3F- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]  | 3.3          | 36.36          |  |
| GT-9250P1505.0-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]  | 5.0          | 30.00          |  |
| GT-9250P1807.5-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]  |              | 24.00          |  |
| GT-9250P2009.0-X.XF- [S or Mor HIXXX or HOXXX or HIOXXX or HIHXXX]   |              | 22.00          |  |
| GT-9250P25012-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]   | 12.0         | 20.83          |  |
| GT-9250P25015-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]   |              | 16.66          |  |
| GT-9250P25018-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]   | 18.0         | 13.88          |  |
| GT-9250P25024-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]   | 24.0         | 10.41          |  |
| GT-9250P25036-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]   | 36.0         | 6.94           |  |
| GTM9250P1203.3F- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]  | 3.3          | 36.36          |  |
| GTM9250P1505.0-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]<br>GTM9200P1807.5-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX] | 5.0<br>7.5   | 30.00<br>24.00 |  |
| GTM9250P2009.0-X.XF- [S or Mor HIXXX or HOXXX or HIOXXX or HIHXXX]   | 9.0          | 22.00          |  |
| GTM9250P25012-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]   | 12.0         | 20.83          |  |
| GTM9250P25015-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]   | 15.0         | 16.66          |  |
| GTM9250P25018-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]   | 18.0         | 13.88          |  |
| GTM9250P25024-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]   | 24.0         | 10.41          |  |
| GTM9250P25036-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]   | 36.0         | 6.94           |  |
|  |              |                |  |
| GT-9250P1503.3F- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]  |              | 45.45          |  |
| GT-9250P2205.0-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]  | 5.0          | 44.00          |  |
| GT-9250P2207.5-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]  | 7.5          |                |  |
| GT-9250P2709.0-X.XF- [S or Mor HIXXX or HOXXX or HIOXXX or HIHXXX]   | 9.0          | 30.00          |  |
| GT-9250P27012-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]   |              | 22.50          |  |
| GT-9250P27015-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]   |              | 18.00<br>15.00 |  |
| GT-9250P27018-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]   |              | 11.75          |  |
| GT-9250P27024-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]<br>GT-9250P27036-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]   | 24.0<br>36.0 | 7.50           |  |
| GT-9250P27030-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]   | 48.0         | 5.63           |  |
| GTM9250P1503.3F- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]  | 3.3          | 45.45          |  |
| GTM9250P2205.0-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]  | 5.0          | 44.00          |  |
| GTM9200P2207.5-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]  | 7.5          | 29.33          |  |
| GTM9250P2709.0-X.XF- [S or Mor HIXXX or HOXXX or HIOXXX or HIHXXX]   | 9.0          | 30.00          |  |
| GTM9250P27012-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]   | 12.0         | 22.50          |  |
| GTM9250P27015-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]   | 15.0         | 18.00          |  |
| GTM9250P27018-X.XF- S or M or HIXXX or HOXXX or HIOXXX or HIHXXX   | 18.0         | 15.00          |  |
| GTM9250P27024-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]   | 24.0         | 11.75          |  |
| GTM9250P27036-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]   | 36.0         | 7.50           |  |
| GTM9250P27048-X.XF- [S or M or HIXXX or HOXXX or HIOXXX or HIHXXX]   | 48.0         | 5.63           |  |
|  |              |                |  |

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|       | Note. This pamonolature only sovere models ampleying output ratings aguivelent to at less than  |  |
|-------|---|--|
|       | Note - This nomenclature only covers models employing output ratings equivalent to or less than those listed in Standard Models table.  |  |
|       |   |  |
| CD1.0 | Additional Information  |  |
| CD1.1 | These units were evaluated to comply with both IEC 60601-1 2nd Edition, and IEC 60950-1 1st Edition. Where test procedures or acceptable limits were more stringent in one standard, data taken was considered acceptable for both standards' requirements.   |  |
|       | This report does not include the investigation or the test report for the triple insulated wire employed in the transformer. A test report for the power supply may be required when submitting this CB Test Report to a National Certification Body (NCB) for obtaining certification at national level. |  |
|       |   |  |
| CE1.0 | Technical Considerations  |  |
| CE2.0 | The Model GTM9250 Series is considered Class I (protectively earthed).  |  |
| CE2.1 | Additional single fault testing with alternate fuses listed in the Critical Component table were not considered necessary due to the examination of the fuse curves.  |  |
| CE2.2 | These products were submitted and tested for use at the manufacturer's recommended ambient temperature (Tmra) of 60°C for the 150 W Model GT-9250/GTM9250 Series and 70°C for 270 W Model GT-9250/GTM9250 Series.   |  |
| CE2.3 | These power supplies are for building-in to an end product.   |  |
| CE2.4 | The current (I-T) curves for the alternate fuses for the described manufacturers were evaluated for similarity and found acceptable.  |  |
|       |   |  |
| CF1.0 | Engineering Conditions of Acceptability   |  |
| CF1.1 | For use only in or with complete equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc.   |  |
|       | When installed in an end-product, consideration must be given to the following:   |  |
| CF2.0 | Consideration shall be given to performing the following tests in the end product evaluation: Capacitor Discharge, Touch Current, Heating, Electric Strength, and Earthing.   |  |
| CF2.1 | The following Production-Line tests are conducted for this product: Earthing Continuity (Class I products only), Electric Strength,   |  |
| CF2.2 | The following secondary output circuits are SELV: All outputs   |  |
| CF2.3 | The following secondary output circuits are at non-hazardous energy levels: All outputs except 48 VDC outputs.  |  |
| CF2.4 | The power supply terminals and/or connectors are: Not investigated for field wiring   |  |
| CF2.5 | The maximum investigated branch circuit rating is: 20 A   |  |
| CF2.6 | The investigated Pollution Degree is: 2   |  |
| CF2.7 | Proper bonding to the end-product main protective earthing termination is: Required   |  |
| CF2.8 | The following magnetic devices (e.g. transformers or inductor) are provided with an OBJY2 insulation system with the indicated rating greater than Class A (105°C): Transformer, T1 - Class B (130°C).  |  |

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CF2.9 The following end-product enclosures are required: Electrical, , Fire and , Mechanical.

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| 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             |   | Pass |
| 1.5.2   | Evaluation and testing of components                             |   | Pass |
| 1.5.3   | Thermal controls   |   | N/A  |
| 1.5.4   | Transformers   |   | Pass |
| 1.5.5   | Interconnecting cables   |   | N/A  |
| 1.5.6   | Capacitors in primary circuits:                                  | Line-to-line capacitors are<br>subclass X1 or X2. Primary-<br>to-earth capacitors are<br>subclass Y1 or Y2. | Pass |
| 1.5.7   | Double insulation or reinforced insulation bridged by components |   | Pass |
| 1.5.7.1 | General  |   | N/A  |
| 1.5.7.2 | Bridging capacitors  | One Y1 capacitor employed (double/reinforced insulation) which complies with IEC 60384-14                   | Pass |
| 1.5.7.3 | Bridging resistors   |   | N/A  |
| 1.5.7.4 | Accessible parts   | Unit is intended for building-in; to be determined in the end product.                                      | N/A  |
| 1.5.8   | Components in equipment for IT power systems                     |   | N/A  |

| 1.6   | Power interface                      |   | Pass |
|-------|--------------------------------------|---|------|
| 1.6.1 | AC power distribution systems        | Unit investigated for use on TN(-S) system. | Pass |
| 1.6.2 | Input current                        | (See appended table 1.6.2.)                 | Pass |
| 1.6.3 | Voltage limit of hand-held equipment |   | N/A  |
| 1.6.4 | Neutral conductor                    |   | Pass |

| 1.7 | Marking and instructions | Pass |
|-----|--------------------------|------|
|-----|--------------------------|------|

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

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| 1.7.1   | Power rating   |  | N/A  |
|---------|--|--|------|
|         | Rated voltage(s) or voltage range(s) (V):                | 100-240 vac  | Pass |
|         | Symbol for nature of supply, for d.c. only:              |  | N/A  |
|         | Rated frequency or rated frequency range (Hz):           | 50-60 Hz   | Pass |
|         | Rated current (mA or A):                                 | Rated Current: 4.0 A   | Pass |
|         | Manufacturer's name or trademark or identification mark: | GlobTek, Inc.  | Pass |
|         | Type/model or type reference:                            | GT-9250P and GTM9250P<br>Series  | Pass |
|         | Symbol for Class II equipment only:                      |  | N/A  |
|         | Other symbols:   |  | N/A  |
|         | Certification marks:                                     |  | N/A  |
| 1.7.2   | Safety instructions                                      | Accompanying documents not provided. Acceptability to be determined in the end product.  | N/A  |
| 1.7.3   | Short duty cycles  |  | N/A  |
| 1.7.4   | Supply voltage adjustment:                               |  | N/A  |
| 1.7.5   | Power outlets on the equipment:                          |  | N/A  |
| 1.7.6   | Fuse identification:                                     | Fuse(s) provided with voltage, current, and special fusing characteristic marking as applicable. See Schematics and PWB Enclosure for details. | Pass |
| 1.7.7   | Wiring terminals   |  | N/A  |
| 1.7.7.1 | Protective earthing and bonding terminals:               |  | N/A  |
| 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:                    |  | N/A  |
| 1.7.8.2 | Colours:   |  | N/A  |
| 1.7.8.3 | Symbols according to IEC 60417:                          |  | N/A  |
| 4 7 0 4 | Markings using figures:                                  |  | N/A  |
| 1.7.8.4 | Markings using figures                                   |  | , .  |

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| IT power distribution systems              |  | N/A  |
|--|--|--|
| Thermostats and other regulating devices   |  | N/A  |
| Language:                                  | May be provided in other languages upon request from the manufacturer. See Miscellaneous Enclosure for details.                                  | -  |
| Durability                                 |  | Pass   |
| Removable parts                            |  | N/A  |
| Replaceable batteries                      |  | N/A  |
| Language:                                  |  | -  |
| Operator access with a tool:               |  | N/A  |
| Equipment for restricted access locations: |  | N/A  |
|  | Thermostats and other regulating devices  Language:  Durability  Removable parts  Replaceable batteries  Language:  Operator access with a tool: | Thermostats and other regulating devices  Language |

| 2       | PROTECTION FROM HAZARDS  |   | Pass |
|---------|--|---|------|
| 2.1     | Protection from electric shock and energy hazards              |   | Pass |
| 2.1.1   | to   | Unit is intended for building-in; o be determined in the end product. | Pass |
| 2.1.1.1 | Access to energized parts                                      |   | N/A  |
|         | Test by inspection:  |   | N/A  |
|         | Test with test finger:   |   | N/A  |
|         | Test with test pin   |   | N/A  |
|         | Test with test probe:  |   | 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:  |   | N/A  |
| 2.1.1.6 | Manual controls  |   | N/A  |
| 2.1.1.7 | Discharge of capacitors in equipment                           |   | Pass |
|         | Time-constant (s); measured voltage (V)                        | At one second, the following  | -    |

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|             |                         |                 |         |
|             |                         |                 |         |
|             | voltages were measured: |                 |         |

|       |   | voltages were measured: Line to Neutral = <0.1 V peak Line to Protective Earth = <0.1 V peak Neutral to Protective Earth = 5 V peak |     |
|-------|---|---|-----|
| 2.1.2 | Protection in service access areas        |   | N/A |
| 2.1.3 | Protection in restricted access locations |   | N/A |

| 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<br>never exceed 71V peak and<br>120Vdc and do not exceed<br>42.4V peak or 60V dc for more<br>than 0.2 sec. | Pass |
| 2.2.3.1 | Separation by double insulation or reinforced insulation (method 1) |  | 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:                      |  | N/A  |

| 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 |

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|             |                      |                 |         |
|             | Insulation employed: |                 | -       |

| 2.4   | Limited current circuits                                 | N/A |
|-------|--|-----|
| 2.4.1 | General requirements                                     | N/A |
| 2.4.2 | Limit values   | N/A |
|       | Frequency (Hz):  | -   |
|       | Measured current (mA):                                   | -   |
|       | Measured voltage (V):                                    | -   |
|       | Measured capacitance (mF):                               | -   |
| 2.4.3 | Connection of limited current circuits to other circuits | N/A |

| 2.5 | Limited power sources   | N/A |
|-----|---|-----|
|     | Inherently limited output   | N/A |
|     | Impedance limited output  | N/A |
|     | Overcurrent protective device limited output  | N/A |
|     | Regulating network limited output under normal operating and single fault condition   | N/A |
|     | 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)::   | -   |
|     | Current rating of overcurrent protective device (A):  | -   |

| 2.6   | Provisions for earthing and bonding |  | Pass |
|-------|-------------------------------------|--|------|
| 2.6.1 | Protective earthing                 | Power supply for building-in. Parts intended to be connected to the PE Terminal in the end product are separated by basic insulation (Class I units only). | N/A  |
| 2.6.2 | Functional earthing                 | Power supply for building-in.  | Pass |

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|         |   |   | •       |  |  |
|         |   | Functionally earthed parts/circuits are reliable separated from MAINS parts by double/reinforced insulation.  |         |  |  |
| 2.6.3   | Protective earthing and protective bonding conductors                             | Unit is intended for building-in; to be determined in the end product. Bonding conductors were tested and found acceptable.   | Pass    |  |  |
| 2.6.3.1 | General   |   | Pass    |  |  |
| 2.6.3.2 | Size of protective earthing conductors  | Unit is intended for building-in; to be determined in the end product.  | 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:                               | Unit is intended for building-in; to be determined in the end product. Bonding terminals are acceptable.  | -       |  |  |
| 2.6.3.4 | Resistance (Ohm) of earthing conductors and their terminations, test current (A): | Unit is intended for building-in; to be determined in the end product. Test conducted from earthing tab of unit to the farthest point away on the chassis. Test conditions: 40A (12Vac source), for 2 minutes. Calculated resistance = 0.0212 Ohms. | Pass    |  |  |
| 2.6.3.5 | Colour of insulation:   |   | N/A     |  |  |
| 2.6.4   | Terminals   |   | Pass    |  |  |
| 2.6.4.1 | General   |   | N/A     |  |  |
| 2.6.4.2 | Protective earthing and bonding terminals   | Unit is intended for building-in; to be determined in the end product. Bonding terminals are acceptable.  | Pass    |  |  |
|         | Rated current (A), type and nominal thread diameter (mm):                         | Unit is intended for building-in; to be determined in the end product. Bonding terminals are acceptable.  | -       |  |  |
| 2.6.4.3 | Separation of the protective earthing conductor                                   | Unit is intended for building-in;   | N/A     |  |  |

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|         | from protective bonding conductors   | to be determined in the end product.                                   |     |
|---------|--|--|-----|
| 2.6.5   | Integrity of protective earthing   | Unit is intended for building-in; to be determined in the end product. | N/A |
| 2.6.5.1 | Interconnection of equipment   |  | N/A |
| 2.6.5.2 | Components in protective earthing conductors and protective bonding conductors |  | N/A |
| 2.6.5.3 | Disconnection of protective earth  |  | N/A |
| 2.6.5.4 | Parts that can be removed by an operator                                       |  | N/A |
| 2.6.5.5 | Parts removed during servicing   |  | N/A |
| 2.6.5.6 | Corrosion resistance   |  | N/A |
| 2.6.5.7 | Screws for protective bonding  |  | N/A |
| 2.6.5.8 | Reliance on telecommunication network or cable distribution system             |  | N/A |

| 2.7   | Overcurrent and earth fault protection in primar             | y circuits  | Pass |
|-------|--|---|------|
| 2.7.1 | Basic requirements   |   | Pass |
|       | Instructions when protection relies on building installation |   | Pass |
| 2.7.2 | Faults not covered in 5.3                                    |   | Pass |
| 2.7.3 | Short-circuit backup protection                              | Fuses are appropriately rated for the application.  | Pass |
| 2.7.4 | Number and location of protective devices::                  | One protective device in the "LIVE" phase. May be provided optionally with one protective device in each phase conductor. | Pass |
| 2.7.5 | Protection by several devices                                | When more than one fuse is provided, all protective devices are located together.   | Pass |
| 2.7.6 | Warning to service personnel:                                | To be determined in the end-product.  | N/A  |

| 2.8   | Safety interlocks  | N/A |
|-------|--------------------|-----|
| 2.8.1 | General principles | N/A |

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|          |  |   |         |
| 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     |
|          |  |   |         |
| 2.9      | Electrical insulation                          |   | Pass    |
| 2.9.1    | Properties of insulating materials             |   | Pass    |
| 2.9.2    | Humidity conditioning                          |   | Pass    |
|          | Humidity (%)                                   | 93  | -       |
|          | Temperature (°C)                               | 30  | -       |
| 2.9.3    | Grade of insulation                            |   | Pass    |
|          |  |   | ·       |
| 2.10     | Clearances, creepage distances and distances t | hrough insulation   | Pass    |
| 2.10.1   | General  |   | Pass    |
| 2.10.2   | Determination of working voltage               |   | Pass    |
| 2.10.3   | Clearances                                     |   | Pass    |
| 2.10.3.1 | General  |   | Pass    |
| 2.10.3.2 | Clearances in primary circuit                  |   | Pass    |
| 2.10.3.3 | Clearances in secondary circuits               |   | Pass    |
| 2.10.3.4 | Measurement of transient voltage levels        |   | N/A     |
| 2.10.4   | Creepage distances                             | Unit provided with at least 8.0 mm creepage from primary to secondary, and at least 5.0 mm from primary to earth. | Pass    |

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|          | CTI tests   | Material group IIIb; 100 <= CTI < 175.                     | -    |
|----------|---|--|------|
| 2.10.5   | Solid insulation  |  | 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  |  | 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. See Annex U for additional details. | Pass |
|          | Two wires in contact inside wound component; angle between 45° and 90°: |  | N/A  |
| 2.10.6   | Coated printed boards   |  | N/A  |
| 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  |

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| 3      | WIRING, CONNECTIONS AND SUPPLY  General        |  | Pass |
|--------|--|--|------|
| 3.1    |  |  | Pass |
| 3.1.1  | Current rating and overcurrent protection      |  | Pass |
| 3.1.2  | Protection against mechanical damage           | Unit is intended for building-in; to be determined in the end product. | N/A  |
| 3.1.3  | Securing of internal wiring                    | Internal wiring is triple insulated but held in place using silicone.  | Pass |
| 3.1.4  | Insulation of conductors                       |  | N/A  |
| 3.1.5  | Beads and ceramic insulators                   |  | N/A  |
| 3.1.6  | Screws for electrical contact pressure         |  | N/A  |
| 3.1.7  | Insulating materials in electrical connections |  | N/A  |
| 3.1.8  | Self-tapping and spaced thread screws          |  | N/A  |
| 3.1.9  | Termination of conductors                      |  | N/A  |
|        | 10 N pull test                                 |  | N/A  |
| 3.1.10 | Sleeving on wiring                             |  | N/A  |

| 3.2     | Connection to an a.c. mains supply or a d.c. main          | ins supply   | N/A |
|---------|--|--|-----|
| 3.2.1   | Means of connection  | Unit intended for building-in. To be re-evaluated in the end- product. | N/A |
| 3.2.1.1 | Connection to an a.c. mains supply                         | Unit intended for building-in.   | N/A |
| 3.2.1.2 | Connection to a d.c. mains supply                          |  | N/A |
| 3.2.2   | Multiple supply connections                                |  | N/A |
| 3.2.3   | Permanently connected equipment                            |  | N/A |
|         | Number of conductors, diameter (mm) of cable and conduits: |  | -   |
| 3.2.4   | Appliance inlets   |  | N/A |
| 3.2.5   | Power supply cords   |  | N/A |
| 3.2.5.1 | AC power supply cords                                      | Unit intended for building-in.   | N/A |
|         | Type:  |  | -   |
|         | Rated current (A), cross-sectional area (mm²), AWG:        |  | -   |

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|             |                                      |                 |         |
| 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     |

| 3.3   | Wiring terminals for connection of external conductors         |   | Pass |
|-------|--|---|------|
| 3.3.1 | Wiring terminals   | Applicable to Metal Enclosed<br>Class I and Class II input units<br>only (since those are the only<br>models provided with screw<br>terminals.) | Pass |
| 3.3.2 | Connection of non-detachable power supply cords                | Unit is intended for building-in; to be determined in the end product.  | N/A  |
| 3.3.3 | Screw terminals  |   | Pass |
| 3.3.4 | Conductor sizes to be connected                                |   | N/A  |
|       | Rated current (A), cord/cable type, cross-sectional area (mm²) | Terminals are sized accordingly to allow the connection of conductors having nominal cross-sectional areas.                                     | -    |
| 3.3.5 | Wiring terminal sizes  |   | N/A  |
|       | Rated current (A), type and nominal thread diameter (mm)       | Screw type terminals.<br>Minimum nominal thread<br>diameter: 3.5 mm.  | -    |
| 3.3.6 | Wiring terminals design  |   | Pass |
| 3.3.7 | Grouping of wiring terminals                                   |   | Pass |
| 3.3.8 | Stranded wire  |   | N/A  |

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| 3.4    | Disconnection from the mains supply       |  | N/A |
|--------|---|--|-----|
| 3.4.1  | General requirement                       | Unit is intended for building-in; to be determined in the end product. | N/A |
| 3.4.2  | Disconnect devices                        |  | N/A |
| 3.4.3  | Permanently connected equipment           |  | N/A |
| 3.4.4  | Parts which remain energized              |  | N/A |
| 3.4.5  | Switches in flexible cords                |  | N/A |
| 3.4.6  | Single-phase equipment and d.c. equipment |  | N/A |
| 3.4.7  | Three-phase equipment                     |  | N/A |
| 3.4.8  | Switches as disconnect devices            |  | N/A |
| 3.4.9  | Plugs as disconnect devices               |  | N/A |
| 3.4.10 | Interconnected equipment                  |  | N/A |
| 3.4.11 | Multiple power sources                    |  | N/A |

| 3.5   | Interconnection of equipment             | N/A |
|-------|--|-----|
| 3.5.1 | General requirements                     | N/A |
| 3.5.2 | Types of interconnection circuits:       | N/A |
| 3.5.3 | ELV circuits as interconnection circuits | N/A |

| 4   | PHYSICAL REQUIREMENTS | PHYSICAL REQUIREMENTS  |     |
|-----|-----------------------|--|-----|
| 4.1 | Stability             |  | N/A |
|     | Angle of 10°          | Unit is intended for building-in; to be determined in the end product. | N/A |
|     | Test: force (N):      |  | N/A |

| 4.2   | Mechanical strength     |  | N/A |
|-------|-------------------------|--|-----|
| 4.2.1 | General                 | Unit is intended for building-in; to be determined in the end product. | N/A |
| 4.2.2 | Steady force test, 10 N |  | N/A |

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| 4.2.3  | Steady force test, 30 N   |                 | N/A      |
| 4.2.4  | Steady force test, 250 N  |                 | N/A      |
| 4.2.5  | Impact test   |                 | N/A      |
|        | Fall test   |                 | N/A      |
|        | Swing test  |                 | N/A      |
| 4.2.6  | Drop test   |                 | N/A      |
| 4.2.7  | Stress relief test  |                 | N/A      |
| 4.2.8  | Cathode ray tubes   |                 | N/A      |
|        | Picture tube separately certified:  |                 | N/A      |
| 4.2.9  | High pressure lamps   |                 | N/A      |
| 4.2.10 | Wall or ceiling mounted equipment; force (N):                                 |                 | N/A      |
|        |   |                 | <u>'</u> |
| 4.3    | Design and construction   |                 | N/A      |
| 4.3.1  | Edges and corners   |                 | N/A      |
| 4.3.2  | Handles and manual controls; force (N):                                       |                 | N/A      |
| 4.3.3  | Adjustable controls   |                 | N/A      |
| 4.3.4  | Securing of parts   |                 | N/A      |
| 4.3.5  | Connection of plugs and 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  |                 | N/A      |
| 4.3.10 | Dust, powders, liquids and gases  |                 | N/A      |
| 4.3.11 | Containers for liquids or gases   |                 | N/A      |
| 4.3.12 | Flammable liquids:  |                 | N/A      |
|        | Quantity of liquid (I)  |                 | N/A      |
|        | 1   | 1               | 1        |

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Flash point (°C)....:

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|          |  |                 |         |
| 4.3.13   | Radiation; type of radiation                                       |                 | N/A     |
| 4.3.13.1 | General  |                 | N/A     |
| 4.3.13.2 | Ionizing radiation   |                 | N/A     |
|          | Measured radiation (pA/kg)   |                 | -       |
|          | Measured high-voltage (kV):  |                 | -       |
|          | Measured focus voltage (kV)  |                 | -       |
|          | CRT markings   |                 | -       |
| 4.3.13.3 | Effect of ultraviolet (UV) radiation on materials                  |                 | N/A     |
|          | Part, property, retention after test, flammability classification: |                 | N/A     |
| 4.3.13.4 | Human exposure to ultraviolet (UV) radiation:                      |                 | N/A     |
| 4.3.13.5 | Laser (including LEDs)   |                 | N/A     |
|          | Laser class  |                 | -       |
| 4.3.13.6 | Other types:   |                 | N/A     |
|          |  | 1               | l .     |
| 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     |
|          |  | 1               | l .     |
| 4.5      | Thermal requirements   |                 | Pass    |
| 4.5.1    | Maximum temperatures   |                 | Pass    |
|          | Normal load condition per Annex L:                                 |                 | N/A     |
| 4.5.2    | Resistance to abnormal heat  |                 | N/A     |
|          |  | 1               | I       |
| 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   |                 | N/A     |

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|       | 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): | -   |

| 4.7     | Resistance to fire   | N/A |
|---------|--|-----|
| 4.7.1   | Reducing the risk of ignition and spread of flame                      | N/A |
|         | Method 1, selection and application of components wiring and materials | N/A |
|         | Method 2, application of all of simulated fault condition tests        | N/A |
| 4.7.2   | Conditions for a fire enclosure  | N/A |
| 4.7.2.1 | Parts requiring a fire enclosure                                       | N/A |
| 4.7.2.2 | Parts not requiring a fire enclosure                                   | N/A |
| 4.7.3   | Materials  | N/A |
| 4.7.3.1 | General  | N/A |
| 4.7.3.2 | Materials for fire enclosures  | N/A |
| 4.7.3.3 | Materials for components and other parts outside fire enclosures       | N/A |
| 4.7.3.4 | Materials for components and other parts inside fire enclosures        | N/A |
| 4.7.3.5 | Materials for air filter assemblies                                    | N/A |
| 4.7.3.6 | Materials used in high-voltage components                              | N/A |

| 5     | ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS | Pass |
|-------|---|------|
| 5.1   | Touch current and protective conductor current            | Pass |
| 5.1.1 | General   | Pass |
| 5.1.2 | Equipment under test (EUT)                                | Pass |
| 5.1.3 | Test circuit  | Pass |
| 5.1.4 | Application of measuring instrument                       | Pass |
| 5.1.5 | Test procedure  | Pass |

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| 5.1.6   | Test measurements  |          | Pass |
|---------|--|----------|------|
|         | Test voltage (V)   | 240 Vac  | -    |
|         | Measured touch current (mA)  | 0.215 mA | -    |
|         | 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 |          | N/A  |
| 5.1.8.1 | Limitation of the touch current to a telecommunication network and a cable distribution system                           |          | 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  |

| 5.2   | Electric strength | Pass |
|-------|-------------------|------|
| 5.2.1 | General           | Pass |
| 5.2.2 | Test procedure    | Pass |

| 5.3   | Abnormal operating and fault conditions            |  | Pass |
|-------|--|--|------|
| 5.3.1 | Protection against overload and abnormal operation |  | Pass |
| 5.3.2 | Motors   |  | N/A  |
| 5.3.3 | Transformers                                       |  | 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                               |  | Pass |

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| Clause | Clause Requirement + Test Result - Remark                       |  |      |  |
|        |   |  |      |  |
| 5.3.7  | Unattended equipment  |  | N/A  |  |
| 5.3.8  | Compliance criteria for abnormal operating and fault conditions |  | Pass |  |

| 6       | CONNECTION TO TELECOMMUNICATION NETWORKS  |     |
|---------|---|-----|
| 6.1     | Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment |     |
| 6.1.1   | Protection from hazardous voltages  | N/A |
| 6.1.2   | Separation of the telecommunication network from earth  |     |
| 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 networks | s on telecommunication | 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:   | -   |

| 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   | N/A |

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| Clause      | Requirement + Test   | Result - Remark | Verdict |
|             |                      |                 |         |
|             | distribution systems |                 |         |
| 7.3.1       | General              |                 | N/A     |
| 7.3.2       | Voltage surge test   |                 | N/A     |
| 7.3.3       | Impulse test         |                 | N/A     |

| Α     | Annex A, TESTS FOR RESISTANCE TO HEAT AND FIRE  |     |
|-------|---|-----|
| A.1   | Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2) |     |
| 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):  | -   |

| 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) |     |
|-------|--|-----|
| 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):   | -   |

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|       | 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 |

| В     | 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:   | -   |
|       | Туре  | -   |
|       | 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 |

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|--------|--|-----------------------------|---------|
| Clause | Requirement + Test   | Result - Remark             | Verdict |
|        |  |                             |         |
| 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):   |                             | -       |
|        |  |                             |         |
| С      | Annex C, TRANSFORMERS (see 1.5.4 and 5.3.3)                    |                             | Pass    |
|        | Position:  | T1                          | -       |
|        | Manufacturer:  | GlobTek                     | -       |
|        | Type:  | Isolation                   | -       |
|        | Rated values:  | 150W through 270W units     | -       |
|        | Method of protection:  | Reinforced                  | -       |
| C.1    | Overload test  |                             | Pass    |
| C.2    | Insulation   |                             | Pass    |
|        | Protection from displacement of windings:                      | Triple insulated wire used. | Pass    |
|        |  |                             |         |
| D      | Annex D, MEASURING INSTRUMENTS FOR TOU                         | ICH-CURRENT TESTS           | N/A     |
| D.1    | Measuring instrument   |                             | N/A     |
| D.2    | Alternative measuring instrument                               |                             | N/A     |
|        |  |                             |         |
| E      | Annex E, TEMPERATURE RISE OF A WINDING                         |                             | Pass    |
|        |  |                             |         |
| F      | Annex F, MEASUREMENT OF CLEARANCES AN (see 2.10)               | ID CREEPAGE DISTANCES       | Pass    |
|        |  |                             |         |
| 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     |
|        |  |                             |         |

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| Clause | Requirement + Test   | Result - Remark         | Verdict |
|        |  |                         |         |
| 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     |
|        |  |                         | ·       |
| Н      | ANNEX H, IONIZING RADIATION (see 4.3.13)   |                         | N/A     |
|        |  |                         | -       |
| J      | Annex J, TABLE OF ELECTROCHEMICAL POTE   | ENTIALS (see 2.6.5.6)   | N/A     |
|        | Metal used:  |                         | -       |
|        |  |                         |         |
| K      | ANNEX K, THERMAL CONTROLS (see 1.5.3 and   | 1 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     |
|        |  |                         |         |
| L      | Annex L, NORMAL LOAD CONDITIONS FOR SOBUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.1) | OME TYPES OF ELECTRICAL | 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     |

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|---------|---|------------------------------|---------|
| Clause  | Requirement + Test  | Result - Remark              | Verdict |
|         |   |                              |         |
| M       | Annex M, CRITERIA FOR TELEPHONE RINGII  | NG 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     |
|         |   |                              | I       |
| N       | Annex N, IMPULSE TEST GENERATORS (see clause G.5)                               | 2.10.3.4, 6.2.2.1, 7.3.2 and | N/A     |
| N.1     | ITU-T impulse test generators   |                              | N/A     |
| N.2     | IEC 60065 impulse test generator  |                              | N/A     |
|         |   |                              |         |
| <br>Р   | Annex P, NORMATIVE REFERENCES   |                              | N/A     |
| •       | AMOAT, NORMATIVE REFERENCES   |                              | 14// (  |
|         | A O. DIDLIGODA DUV  |                              | NI/A    |
| Q       | Annex Q, BIBLIOGRAPHY   |                              | N/A     |
|         |   |                              |         |
| R       | Annex R, EXAMPLES OF REQUIREMENTS FO PROGRAMMES                                 | OR QUALITY CONTROL           | 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     |
|         |   |                              | •       |
| <br>S   | Annex S, PROCEDURE FOR IMPULSE TESTIF   |                              | N/A     |

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|             |  |  |         |  |
| 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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| Т | 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)  |   |
|---|---|---|
|   | Furukawa TEX-E wire provided. This report does not include the investigation or the test report for the triple insulated wire employed in the transformer. A test report for the power supply may be required when submitting this CB Test Report to a National Certification Body (NCB) for obtaining certification at national level. | - |

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| 1.5.1  | TABLE: list of critical components       |            |   |                            |                                    | Pass          |
|--|--|------------|---|----------------------------|------------------------------------|---------------|
|  | Manufacturer/<br>trademark               | type/model | technical data  | Product Category<br>CCN(s) | Required<br>Marks of<br>Conformity | Supplement ID |
| Printed Wiring Board (all models)                            | Gospeed PCB Co.                          | KS-01      | Min V-0, FR4 material   | ZPMV2                      | UL R/C                             |               |
| Alternate - Printed Wiring<br>Board                          | Wan Nien                                 | 03V0       | Min V-1, 105°C, rated for direct support of live parts                    | ZPMV2                      | UL R/C                             |               |
| Alternate - Printed Wiring<br>Board                          | Cheerful                                 | 03         | Min V-1, 130 °C, rated for direct support of live parts                   | ZPMV2                      | UL R/C                             |               |
| Alternate - Printed Wiring<br>Board                          | King Board                               | CEM-1      | Min V-1, 130 °C, rated for direct support of live parts                   | ZPMV2                      | UL R/C                             |               |
| Alternate - Printed Wiring<br>Board                          | Evergreen<br>PCB FTY<br>LTD              | EG1        | Min V-1, 130 °C, rated for direct support of live parts                   | ZPMV2                      | UL R/C                             |               |
| Alternate - Printed Wiring Board                             | Crimp Circuits                           | 1-0        | Min V-1, 105 °C, rated for direct support of live parts                   | ZPMV2                      | UL R/C                             |               |
| Alternate - Printed Wiring Board                             | various                                  | various    | Min V-1, 105°C, rated for direct support of live parts                    | ZPMV2                      | UL R/C                             |               |
| Input Connector (-S, -M, -HOXXX versions)                    | Molex                                    | 26-60-4050 | 250V, 5A, 3.96mm,<br>second and fourth pins<br>removed, rated min V-2.    | ECBT2                      | UL R/C                             |               |
| Alternate - Input<br>Connector (-S, -M, -<br>HOXXX versions) | WELI Sheng                               | M-139601   | 250V, 5A, 3.96mm,<br>Second and fourth pins<br>removed, rated min V-2.    | ECBT2                      | UL R/C                             |               |
| Alternate - Input<br>Connector (-S, -M, -<br>HOXXX versions) | Joint Tech Electronic Industrial Co Ltd. | A3960WV-5P | 250V, 5A, 3.96mm,<br>Second and fourth pins<br>removed, rated<br>min V-2. | ECBT2                      | UL R/C                             |               |
| Alternate - Input<br>Connector (-S, -M, -<br>HOXXX versions) | Lian Cheng                               | A3960WV-5P | 250V, 5A, 3.96mm,<br>Second and fourth pins<br>removed, rated<br>min V-2. | ECBT2                      | UL R/C                             |               |

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| Alternate - Input<br>Connector (-S, -M, -<br>HOXXX versions)             | Landwin                                  | CQ306IP050TNA         | 250V, 7A, 3.96mm,<br>Second and fourth pins<br>removed, rated<br>min V-2.       | ECBT2 | UL R/C |
|--|--|-----------------------|---|-------|--------|
| Input Connector<br>(HIXXX, HIOXXX and<br>HIHXXX versions)                | Molex                                    | 09-50-3051            | 250V, 5A, 3.96mm,<br>Second and fourth pins<br>removed, rated<br>min V-2.       | ECBT2 | UL R/C |
| Alternate - Input<br>Connector (HIXXX,<br>HIOXXX and HIHXXX<br>versions) | WELI Sheng                               | P-l39601              | 250V, 7A, 5 CKT 3.96mm,<br>Second and fourth pins<br>removed, rated<br>min V-2. | ECBT2 | UL R/C |
| Alternate - Input<br>Connector (HIXXX,<br>HIOXXX and HIHXXX<br>versions) | Joint Tech Electronic Industrial Co Ltd. | A3960H-5P             | 250V, 5A, 3.96mm,<br>Second and fourth pins<br>removed, rated<br>min V-2.       | ECBT2 | UL R/C |
| Alternate - Input<br>Connector (HIXXX,<br>HIOXXX and HIHXXX<br>versions) | Lian Cheng                               | A3960H-5P             | 250V, 5A, 3.96mm,<br>Second and fourth pins<br>removed, rated<br>min V-2.       | ECBT2 | UL R/C |
| Output Connector (-S and -HIXXX versions)                                | JITE                                     | BTB654-10-04-1-<br>M1 | 300V, 20A, 4 circuits, rated min V-0.   | ECBT2 | UL R/C |
| Alternate - Output<br>Connector (-S and -<br>HIXXX versions)             | Dinkle                                   | DT-45-B14W-XX         | 300V, 20A, 4 circuits, rated min V-0.   | ECBT2 | UL R/C |
| Alternate - Output<br>Connector (-S and -<br>HIXXX versions)             | Tyco/Buchanan                            | 6PCV-04               | 300V, 20A, 4 circuits, rated min V-0.   | ECBT2 | UL R/C |
| Output Connector (-<br>HOXXX and -HIXXX<br>versions)                     | Molex                                    | 09-50-3101            | 250V, 5A, 3.96 mm pins 5 and 6 removed, rated min V-2.                          | ECBT2 | UL R/C |
| Alternate - Output Connector (-HOXXX and -HIXXX versions)                | WELI Sheng                               | P-139XXXX             | 250V, 7A, 3.96 mm pins 5 and 6 removed, rated min V-2.                          | ECBT2 | UL R/C |

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| Alternate - Output Connector (-HOXXX and -HIXXX versions)       | Joint Tech Electronic Industrial Co. Ltd. | A3960H-10P     | 250V, 5A, 3.96 mm pins 5 and 6 removed, rated min V-2. | ECBT2 | UL R/C |
|---|---|----------------|--|-------|--------|
| Alternate - Output<br>Connector (-HOXXX<br>and -HIXXX versions) | Lian Cheng                                | A3960H-10P     | 250V, 5A, 3.96 mm pins 5 and 6 removed, rated min V-2. | ECBT2 | UL R/C |
| Output Connector (-M and -HIXXX versions)                       | Molex                                     | 26-60-4100     | 250V, 5A, 3.96 mm pins 5 and 6 removed, rated min V-2. | ECBT2 | UL R/C |
| Alternate - Output<br>Connector (-M and -<br>HIXXX versions)    | WELI Sheng                                | M-139XXX       | 250V, 5A, 3.96 mm pins 5 and 6 removed, rated min V-2. | ECBT2 | UL R/C |
| Alternate - Output<br>Connector (-M and -<br>HIXXX versions)    | Joint Tech Electronic Industrial Co. Ltd. | A396WV-10P     | 250V, 5A, 3.96 mm pins 5 and 6 removed, rated min V-2. | ECBT2 | UL R/C |
| Alternate - Output<br>Connector (-M and -<br>HIXXX versions)    | Lian Cheng                                | A396WV-10P     | 250V, 5A, 3.96 mm pins 5 and 6 removed, rated min V-2. | ECBT2 | UL R/C |
| Alternate - Output<br>Connector (-M and -<br>HIXXX versions)    | Landwin                                   | CQ306IP100TNA  | 250V, 5A, 3.96 mm pins 5 and 6 removed, rated min V-2. | ECBT2 | UL R/C |
| Fuse<br>(F1, F2)  | Wickmann                                  | 372/TR5 Series | 250V, 5 A, time lag                                    | JDYX2 | UL R/C |
| Alternate Fuse<br>(F1, F2)                                      | Littelfuse                                | 372/TR5 Series | 250V, 5 A, time lag;                                   | JDYX2 | UL R/C |
| Alternate Fuse<br>(F1, F2)                                      | Bel                                       | MRT Series     | 250V, 5 A, time lag                                    | JDYX2 | UL R/  |
| Alternate Fuse<br>(F1, F2)                                      | Conquer                                   | MET Series     | 250V, 5 A, time lag                                    | JDYX2 | UL R/C |
| Alternate Fuse<br>(F1, F2)                                      | Walter                                    | 2000 Series    | 250V, 5 A, time lag;                                   | JDYX2 | UL R/C |
| Alternate Fuse<br>(F1, F2)                                      | Wickmann                                  | 382/TR5 Series | 250V, 5 A, time lag                                    | JDYX2 | UL R/C |
| Alternate Fuse  | ELU                                       | 166050 Series  | 250V, 5 A, time lag                                    | JDYX2 | UL R/C |

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| (F1, F2)                           |                      |                    |                             |             |          |
|------------------------------------|----------------------|--------------------|-----------------------------|-------------|----------|
| MOV (MOV1/MOV2                     | RGA                  | CNR-07D471K        | 300Vac                      | XUHT2       | UL R/C   |
| optional)                          |                      |                    |                             |             |          |
| Alternate                          | Thinking Electronics | TVR07471           | 300Vac                      | XUHT2       | UL R/C   |
| MOV                                |                      |                    |                             |             |          |
| (MOV1/MOV2 optional)               |                      |                    |                             |             |          |
| Alternate MOV                      | Littelfuse           | V07E300            | 300Vac                      | XUHT2       | UL R/C   |
| (MOV1/MOV2 optional)               |                      |                    |                             |             |          |
| Alternate                          | Panasonic            | ERZV07D471         | 300Vac                      | XUHT2       | UL R/C   |
| MOV                                |                      |                    |                             |             |          |
| (MOV1/MOV2 optional)               |                      |                    |                             |             |          |
| Alternate                          | CNR                  | CNR-07D471K        | 300Vac                      | XUHT2       | UL R/C   |
| MOV                                |                      |                    |                             |             |          |
| (MOV1/MOV2 optional)               | 107.477              | D /210=2114=4140=5 | 2001                        | \/, II I TO | 111 5 (0 |
| Alternate                          | JOYIN                | JVN07N471K65P      | 300Vac                      | XUHT2       | UL R/C   |
| MOV                                |                      | U5                 |                             |             |          |
| (MOV1/MOV2 optional)               | 0                    | 4741/D071          | 2001/                       | VIIITO      | LII D/C  |
| Alternate<br>MOV                   | Song Long            | 471KD07J           | 300Vac                      | XUHT2       | UL R/C   |
|                                    | Electronics          |                    |                             |             |          |
| (MOV1/MOV2 optional) Alternate MOV | Panasonic            | ERZ-V10D511        | 320Vac                      | XUHT2       | UL R/C   |
| (MOV1/MOV2 optional)               | Panasonic            | EKZ-VIUDSII        | 320 Vac                     | XUN12       | UL R/C   |
| Alternate                          | Centra Science       | 10D511K            | 320Vac                      | XUHT2       | UL R/C   |
| MOV                                | Cerilla Science      | TODSTIK            | 320 V aC                    | AUTTZ       | OL N/C   |
| (MOV1/MOV2 optional)               |                      |                    |                             |             |          |
| Alternate                          | Song Long            | SAS511KD10         | 320Vac                      | XUHT2       | UL R/C   |
| MOV                                | Electronics          | SBNE               | 020 / 40                    | 7.01112     | OL 100   |
| (MOV1/MOV2 optional)               | 2.000.01.100         | 05.12              |                             |             |          |
| Capacitor - Line to Line           | Cheng Tung           | CTX                | 300V, 0.47uF maximum, Class | FOWX2       | UL R/C   |
| (CX1)                              |                      |                    | X1                          |             |          |
| Alternate Capacitor -              | UTX                  | HQX                |                             | FOWX2       | UL R/C   |
| Line to Line                       |                      |                    | X2                          |             |          |
| (CX1)                              |                      |                    |                             |             |          |
| Alternate Capacitor -              | Pilkor               | PCX Series         | 250V, 0.47uF maximum, Class | FOWX2       | UL R/C   |

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| Line to Line<br>(CX1)                           |               |            | X2                                |       |                 |  |
|---|---------------|------------|-----------------------------------|-------|-----------------|--|
| Alternate Capacitor -<br>Line to Line<br>(CX1)  | Panasonic     | ECQUL      | 250V, 0.47uF maximum, Class<br>X2 | FOWX2 | UL R/C          |  |
| Alternate Capacitor -<br>Line to Line<br>(CX1)  | Philips       | PCX2335    | 250V, 0.47uF maximum, Class<br>X2 | FOWX2 | UL R/C          |  |
| Alternate Capacitor -<br>Line to Line<br>(CX1)  | Rifa          | PHE        | 275V, 0.47uF maximum, Class<br>X2 | FOWX2 | UL R/C          |  |
| Alternate Capacitor -<br>Line to Line<br>(CX1)  | Okaya         | LE         | 250V, 0.47uF maximum, Class<br>X2 | FOWX2 | UL R/C          |  |
| Alternate Capacitor -<br>Line to Line<br>(CX1)  | BC Components | MKP        | 270V, 0.47uF maximum, Class<br>X2 | FOWX2 | UL R/C          |  |
| Capacitor - Line to Line (CX1A)                 | Cheng Tung    | CTX        | 300V, 2.2uF maximum, Class<br>X1  | FOWX2 | UL R/C          |  |
| Alternate Capacitor -<br>Line to Line<br>(CX1A) | UTX           | HQX        | 275V, 2.2uF maximum, Class<br>X2  | FOWX2 | UL R/C          |  |
| Alternate Capacitor -<br>Line to Line<br>(CX1A) | Pilkor        | PCX Series | 250V, 2.2uF maximum, Class<br>X2  | FOWX2 | UL R/C          |  |
| Alternate Capacitor -<br>Line to Line<br>(CX1A) | Panasonic     | ECQUL      | 250V, 2.2uF maximum, Class<br>X2  | FOWX2 | UL R/C          |  |
| Alternate Capacitor -<br>Line to Line<br>(CX1A) | Philips       | PCX2335    | 250V, 2.2uF maximum, Class<br>X2  | FOWX2 | UL R/C<br>SEMKO |  |
| Alternate Capacitor -<br>Line to Line<br>(CX1A) | Rifa          | PHE        | 275V, 2.2uF maximum, Class<br>X2  | FOWX2 | UL R/C          |  |

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| Alternate Capacitor -<br>Line to Line<br>(CX1A)   | Okaya         | LE         | 250V, 2.2uF maximum, Class<br>X2     | FOWX2 | UL R/C  |  |
|---|---------------|------------|--------------------------------------|-------|---------|--|
| Alternate Capacitor -<br>Line to Line<br>(CX1A)   | BC Components | MKP        | 270V, 2.2uF maximum, Class<br>X2     | FOWX2 | UL R/C  |  |
| Capacitor - Line to Line (CX2)                    | Cheng Tung    | CTX        | 300V, 0.12uF maximum, Class<br>X1    | FOWX2 | UL R/C  |  |
| Alternate Capacitor -<br>Line to Line<br>(CX2)    | UTX           | HQX        | 275V, 0.12uF maximum, Class<br>X2    | FOWX2 | UL R/C  |  |
| Alternate Capacitor -<br>Line to Line<br>(CX2)    | Pilkor        | PCX Series | 250V, 0.12uF maximum, Class<br>X2    | FOWX2 | UL R/C  |  |
| Alternate Capacitor -<br>Line to Line<br>(CX2)    | Panasonic     | ECQUL      | 250V, 0.12uF maximum, Class<br>X2    | FOWX2 | UL R/C  |  |
| Alternate Capacitor -<br>Line to Line<br>(CX2)    | Philips       | PCX2335    | 250V, 0.12uF maximum, Class<br>X2    | FOWX2 | UL R/C  |  |
| Alternate Capacitor -<br>Line to Line<br>(CX2)    | Rifa          | PHE        | 275V, 0.12uF maximum, Class<br>X2    | FOWX2 | UL R/C, |  |
| Alternate Capacitor -<br>Line to Line<br>(CX2     | Okaya         | LE         | 250V, 0.12uF maximum, Class<br>X2    | FOWX2 | UL R/C  |  |
| Alternate Capacitor -<br>Line to Line<br>(CX2)    | BC Components | MKP        | 270V, 0.12uF maximum, Class<br>X2    | FOWX2 | UL R/C  |  |
| Capacitor - Line to Earth (CY1, CY2)              | Pan Overseas  | AC#        | 250V, 1.0nf maximum, Class<br>Y2 min | FOKY2 | UL R/C  |  |
| Alternate Capacitor -<br>Line to Earth (CY1, CY2) |               | KH#        | 250V, 1.0nf maximum, Class<br>Y2 min | FOKY2 | UL R/C  |  |
| Alternate Capacitor -                             | Success       | SF         | 250V, 1.0nf maximum, Class           | FOKY2 | UL R/C  |  |

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| Line to Earth (CY1, CY2)        |                      |      | Y2 min                               |       |         |
|---------------------------------|----------------------|------|--------------------------------------|-------|---------|
| Alternate Capacitor -           | Welson               | KL   | 250V, 1.0nf maximum, Class           | FOKY2 | UL R/C  |
| Line to Earth (CY1, CY2)        |                      |      | Y2 min                               |       |         |
| Alternate Capacitor -           | JYA-NAY CO. LTD      | JY   | 250V, 1.0nf maximum, Class           | FOKY2 | UL R/C  |
| Line to Earth (CY1, CY2)        |                      |      | Y2 min                               |       |         |
| Alternate Capacitor -           | TDK                  | CD   | 250V, 1.0nf maximum, Class           | FOKY2 | UL R/C  |
| Line to Earth (CY1, CY2)        |                      |      | Y1                                   |       |         |
| Capacitor - Line to Earth (CY3) | Pan Overseas         | AC#  | 250V, 2.2nf maximum, Class<br>Y2 min | FOKY2 | UL R/C  |
| Alternate Capacitor -           | Murata               | KH#  | 250V, 2.2nf maximum, Class           | FOKY2 | UL R/C  |
| Line to Earth (CY3)             |                      |      | Y2 min                               |       |         |
| Alternate Capacitor -           | Success              | SF   | 250V, 2.2nf maximum, Class           | FOKY2 | UL R/C  |
| Line to Earth (CY3)             |                      |      | Y2 min                               |       |         |
| Alternate Capacitor -           | Welson               | KL   | 250V, 2.2nf maximum, Class           | FOKY2 | UL R/C  |
| Line to Earth (CY3)             |                      |      | Y2 min                               |       |         |
| Alternate Capacitor -           | JYA-NAY CO. LTD      | JY   | 250V, 2.2nf maximum, Class           | FOKY2 | UL R/C  |
| Line to Earth (CY3)             |                      |      | Y2 min                               |       |         |
| Alternate Capacitor -           | TDK                  | CD   | 250V, 2.2nf maximum, Class           | FOKY2 | UL R/C  |
| Line to Earth (CY3)             |                      |      | Y1                                   |       |         |
| Capacitor, Bridging (CY5)       | Pan Overseas         | AH   | 250V, 2.2nf maximum, Class<br>Y1     | FOKY2 | UL R/C  |
| Alternate Capacitor,            | Murata               | KX   | 250V, 2.2nf maximum, Class           | FOKY2 | UL R/C  |
| Bridging (CY5)                  |                      |      | Y1                                   |       |         |
| Alternate Capacitor,            | TDK                  | CD   | 250V, 2.2nf maximum, Class           | FOKY2 | UL R/C  |
| Bridging (CY5)                  |                      |      | Y1                                   |       |         |
| Alternate Capacitor,            | Welson               | WD   | 250V, 2.2nf maximum, Class           | FOKY2 | UL R/C, |
| Bridging (CY5)                  |                      |      | Y1                                   |       |         |
| Alternate Capacitor,            | Chun Fyu             | CD   | 250V, 2.2nf maximum, Class           | FOKY2 | UL R/C  |
| Bridging (CY5)                  |                      |      | Y1                                   |       |         |
| Alternate Capacitor,            | JYA-NAY CO. LTD      | JN   | 250V, 2.2nf maximum, Class           | FOKY2 | UL R/C  |
| Bridging (CY5)                  |                      |      | Y1                                   |       |         |
| NTC Thermistor                  | Thinking Electronics | SCK  | 16 Ohm, 4A                           | XGPU2 | UL R/C  |
| (RTH1)                          | or equivalent        |      |                                      |       |         |
| NTC Thermistor                  | Thermometrics        | CL70 | 16 Ohm, 4A                           | XGPU2 | UL R/C  |

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| (RTH1) Alternate                  | or equivalent   |  |   |       |        |  |
|-----------------------------------|---|--|---|-------|--------|--|
| Thermal Switch TS1                | Dong Guan Chwen-<br>Der Elec or<br>Equivalent   | CD2KF-0-<br>80A/100  | 80C/100C  | AXPX2 | UL R/C |  |
| Alternate Thermal<br>Switch (TS1) | THERMOSTATE   | UP72-80/100PM5   | 80C/100C  | AXPX2 | UL R/C |  |
| Diode Bridge (BD1)                | ST  | KG600P   | 600V 10A minimum  | -     | -      |  |
| Capacitor (C5)                    | Rubycon   | MXG Series<br>t  | 450V, 220uf max.  | -     | -      |  |
| Alternate Capacitor (C5)          | various   | various  | 450V, 220uf max.  | -     | -      |  |
| MOSFET (Q1)                       | ST  | STW45NM50<br>or equivalent   | 500V, 40A   | -     | -      |  |
| Alternate MOSFET (Q1)             | ST  | IRFP460A   | 500V, 20A<br>minimum  | -     | -      |  |
| Alternate MOSFET (Q1)             | IR  | IRFP450  | 500V, 14A<br>minimum  | -     | -      |  |
| Alternate MOSFET (Q1)             | various   | various  | 500V, 14A<br>minimum  | -     | -      |  |
| MOSFET (Q2, Q3)                   | ST  | STW13NK100Z  | 1000V, 13A  | -     | -      |  |
| Alternate MOSFET (Q2, Q3)         | Fuji  | 2SK3337-01   | 1000V, 7A   | -     | -      |  |
| Alternate MOSFET (Q2, Q3)         | various   | various  | 1000V, 7A   | -     | -      |  |
| Diode (D1)                        | IXYS  | DSEI30-06A   | 600V, 37A   | -     | -      |  |
| Alternate Diode (D1)              | APT   | APT30D60B  | 600V, 30A   | -     | -      |  |
| Alternate Diode (D1)              | various   | various  | 600V, 30A   | -     | -      |  |
| Transformer (T1)<br>3.3V to 48V   | Globtek/<br>Young-Shang<br>Electronic Plant/<br>Volt Electronic<br>Factory/<br>Yao Sheng Electronic<br>Co Ltd/ENG | 400-0087 = 3.3V<br>400-0101 = 5V<br>400-0086 = 7.5V<br>400-0106 = 9V<br>400-0104 = 12V<br>400-0105 = 15V<br>400-0089 = 18V | Provides reinforced/double insulation. Provided w/ R/C Class B (130°C) insulation system. See Diagrams Enclosure for details. | -     | -      |  |

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| In a slation Contains                           | Clahaal                         | 400-0130 = 22V<br>400-0102 = 24V<br>400-0107 = 30V<br>400-0103= 36V<br>400-0108 = 40V<br>400-0088 = 48V | Olaca B (42000) - Fan   | OD IVO |        |
|---|---------------------------------|---|---|--------|--------|
| Insulation System (employed in T1)              | Globtek                         | GTX-1   | Class B (130°C). For transformer manufactured by GlobTek only.                  | OBJY2  | UL R/C |
| Insulation System (employed in T1)              | Young-Shang<br>Electronic Plant | YSE 0510<br>YSE 0522  | Class B (130°C). For transformer manufactured by Young- Shang Electronic Plant. | OBJY2  | UL R/C |
| Alternate Insulation<br>System (employed in T1) | Volt Electronic<br>Factory      | R152D<br>R172D<br>TVT-130<br>DASH 2B-5<br>TVT-130<br>GH-130   | Class B (130°C). For transformer manufactured by Heng Chi Li only.              | OBJY2  | UL R/C |
| Alternate Insulation<br>System (employed in T1) | Yao Sheng electronic<br>Co Ltd  | YST-JC1<br>M7A90<br>M7AGHB<br>M7ADEW<br>DASH 2B-5A  | Class B (130°C). For transformer manufactured by Heng Chi Li only.              | OBJY2  | UL R/C |
| Optical Isolator (U5, U6)                       | Liteon                          | LTV817C   | 5000 Vac isolation  | FPQU2  | UL R/C |
| Alternate -Optical<br>Isolator (U5, U6)         | Sharp                           | PC817C  | 5000 Vac isolation  | FPQU2  | UL R/C |
| Alternate -Optical Isolator (U5, U6))           | Fairchild                       | FOD817C   | 5000 Vac isolation  | FPQU2  | UL R/C |
| Alternate -Optical<br>Isolator (U5, U6)         | Infineon                        | SFH615ABM   | 5000 Vac isolation  | FPQU2  | UL R/C |
| Alternate -Optical<br>Isolator (U5, U6)         | NEC                             | PS2501-1L   | 5000 Vac isolation  | FPQU2  | UL R/  |
| Alternate -Optical<br>Isolator (U5, U6)         | Cosmo Electronics<br>Co.        | KP1010C   | 5000 Vac isolation  | FPQU2  | UL R/C |

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| Alternate -Optical Isolator (U5, U6))               | Everlight                                | EL817C                       | 5000 Vac isolation                                  | FPQU2 | UL R/C |
|---|--|------------------------------|---|-------|--------|
| Alternate -Optical<br>Isolator (U5, U6)             | Matsushita Electric Corp.                | ON3171                       | 5000 Vac isolation                                  | FPQU2 | UL R/C |
| Optical Isolator (U4)                               | Fairchild or equivalent                  | MOC3022 or equivalent        | 5300 Vac isolation                                  | FPQU2 | UL R/C |
| Light Emitting Diode (LED1)                         | LITEON<br>Or equivalent                  | LTL-16KGE                    | 575 nm wavelength Green visible light range only    | -     | -      |
| Alternate - Light Emitting Diode (LED1)             | Cosmo Electronics<br>Co.                 | KLR03CGX                     | 525 nm wavelength Green visible light range only.   | -     | -      |
| Alternate - Light Emitting Diode (LED1)             | Bright Led<br>Electronics Corp           | BL-B2141-AT<br>LED Ø3        | Gallium Phosphide green diffused.                   | -     | -      |
| Alternate - Light Emitting<br>Diode (LED1)          | Brightek<br>Optoelectronics Co.,<br>Ltd. | LA304G1DA-<br>1A/01 Ø3       | Gallium Phosphide green diffused.                   | -     | -      |
| Insulator between PCB and Chassis                   | Sun-Yo Industrial Co                     | HX-3F1301-001                | Formex GK-18 Rated min V-0, min thickness of 0.43mm | QMFZ2 | UL R/C |
| Alternate - Insulator<br>between PCB and<br>Chassis | DMC                                      | HX-3F1301-001                | Formex GK-18 Rated min V-0, min thickness of 0.43mm | QMFZ2 | UL R/C |
| Alternate -Insulator<br>between PCB and<br>Chassis  | FU YI                                    | HX-3F1301-001                | Formex GK-18 Rated min V-0, min thickness of 0.43mm | QMFZ2 | UL R/C |
| Alternate -Insulator<br>between PCB and<br>Chassis  | various                                  | various                      | Formex GK-18 Rated min V-0, min thickness of 0.43mm | QMFZ2 | UL R/C |
| Alternate -Insulator<br>between PCB and<br>Chassis  | Device Mate Corp.                        | FR-60                        | FR-60<br>Rated min V-0, min thickness<br>of 0.43mm  | QMFZ2 | UL R/C |
| Cooling Fans (Fan1 & Fan2 for 250W version)         | SUNON                                    | KD1204PKV2 or<br>KDE1204PKV2 | 12VDC 0.6W (0.8W)<br>40x40x20mm                     | GPWV2 | UL R/C |
| Alternate - Cooling Fans (Fan1 & Fan2 for 250W      | SUNON                                    | KDE1204PKV1                  | 12VDC 0.8W 40x40x20mm                               | GPWV2 | UL R/C |

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| version)  |           |                                     |                                    |       |                    |
|---|-----------|-------------------------------------|------------------------------------|-------|--------------------|
| Alternate - Cooling Fans (Fan1 & Fan2 for 250W version) |           | KDE1204PKVX                         | 12VDC 1.4W 40x40x20mm              | GPWV2 | UL R/C             |
| Alternate - Cooling Fans (Fan1 & Fan2 for 250W version) | SUNON     | KDE1204PKV3                         | 12VDC 0.6W 40x40x20mm              | GPWV2 | UL R/C             |
| Alternate - Cooling Fans (Fan1 & Fan2 for 250W version) |           | KDE1204PKBX-8<br>OR<br>KD1204PKBX-8 | 12VDC 1.1W 40x40x20mm              | GPWV2 | UL R/C             |
| Alternate - Cooling Fans (Fan1 & Fan2 for 250W version) | Adda      | AD0412LB-C50                        | 12VDC 0.07W 40x40x20mm             | GPWV2 | UL R/C, TUV<br>CE  |
| Alternate - Cooling Fans (Fan1 & Fan2 for 250W version) | NMB       | 1608KL-04W-B10<br>to B50            | 12VDC 0.48W to 1.32W<br>40x40x20mm | GPWV2 | UL R/C, TUV<br>CE  |
| Alternate - Cooling Fans (Fan1 & Fan2 for 250W version) | EBM Papst | 412/412H                            | 12VDC 0.9W/1.6W<br>40x40x20mm      | GPWV2 | UL R/C, CSA<br>VDE |
| Cooling Fans (Fan1 & Fan2 for 270W version)             | SUNON     | KDE1208PTV1                         | 12VDC 1.8W 80X80X25mm              | GPWV2 | UL R/C             |
| Alternate - Cooling Fans (Fan1 & Fan2 for 270W version) | SUNON     | KDE1208PTV2                         | 12VDC 1.6W 80X80X25mm              | GPWV2 | UL R/C             |
| Alternate - Cooling Fans (Fan1 & Fan2 for 270W version) | SUNON     | KDE1208PTV3                         | 12VDC 1.8W 80X80X25mm              | GPWV2 | UL R/C             |
| Alternate - Cooling Fans (Fan1 & Fan2 for 270W version) | Adda      | AD0812MB-<br>A70GL                  | 12VDC 1.8W 40x40x25mm              | GPWV2 | UL R/C             |
| Alternate - Cooling Fans (Fan1 & Fan2 for 270W version) | SUNON     | KD1208PTB3                          | Brushless 12VDC<br>80x80x25mm      | GPWV2 | UL R/C             |
| Alternate - Cooling Fans                                | NMB       | 3110KL-04W-                         | Brushless 12VDC                    | GPWV2 | UL R/C             |

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Amendment 1

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

| (Fan1 & Fan2 for 270W                                   |           | B30-P00 | 80x80x25mm                    |               |  |
|---|-----------|---------|-------------------------------|---------------|--|
| version)  |           |         |                               |               |  |
| Alternate - Cooling Fans (Fan1 & Fan2 for 270W version) | EBM Papst |         | Brushless 12VDC<br>80x80x25mm | UL R/C<br>VDE |  |

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

| 1.6.2          | TABLE:      | electrical d | ata (in norma | al conditions | 5)          |                   | Pass            |
|----------------|-------------|--------------|---------------|---------------|-------------|-------------------|-----------------|
| fuse #         | I rated (A) | U (V)        | P (W)         | I (mA)        | I fuse (mA) | condition/status  |                 |
| -              | -           | -            | -             | -             | -           | Model GTM9250P753 | 3.3             |
| F1             | 4           | 90           | 113.0         | 1256          | 4000        | Rated Load        |                 |
| F1             | 4           | 100          | 112.0         | 1120          | 4000        | Rated Load        |                 |
| F1             | 4           | 120          | 110.8         | 924           | 4000        | Rated Load        |                 |
| F1             | 4           | 180          | 108.6         | 607           | 4000        | Rated Load        |                 |
| F1             | 4           | 220          | 108.0         | 499           | 4000        | Rated Load        |                 |
| F1             | 4           | 240          | 107.6         | 460           | 4000        | Rated Load        |                 |
| F1             | 4           | 264          | 107.3         | 506           | 4000        | Rated Load        |                 |
| -              | _           | -            | -             | -             | -           | Model GTM9250P120 | )3.3            |
| F1             | 4           | 90           | 181.2         | 2014          | 4000        | Rated Load        |                 |
| F1             | 4           | 100          | 179.0         | 1792          | 4000        | Rated Load        |                 |
| F1             | 4           | 120          | 176.2         | 1471          | 4000        | Rated Load        |                 |
| F1             | 4           | 180          | 172.4         | 960           | 4000        | Rated Load        |                 |
| F1             | 4           | 220          | 171.0         | 782           | 4000        | Rated Load        |                 |
| F1             | 4           | 240          | 170.3         | 716           | 4000        | Rated Load        |                 |
| F1             | 4           | 264          | 170.0         | 765           | 4000        | Rated Load        |                 |
| -              | -           | -            | -             | -             | -           | Model GTM925P1503 | 3.3             |
| F1             | 4           | 90           | 232.1         | 2581          | 4000        | Rated Load        | <i>,</i>        |
| F1             | 4           | 100          | 228.8         | 2288          | 4000        | Rated Load        |                 |
| F1             | 4           | 120          | 224.8         | 1874          | 4000        | Rated Load        |                 |
| F1             | 4           | 180          | 218.9         | 1217          | 4000        | Rated Load        |                 |
| F1             | 4           | 220          | 216.4         | 987           | 4000        | Rated Load        |                 |
| F1             | 4           | 240          | 215.4         | 902           | 4000        | Rated Load        |                 |
| F1             | 4           | 264          | 214.5         | 865           | 4000        | Rated Load        |                 |
| -              | -           | -            | -             | -             | -           | Model GTM9250P150 | 112             |
| F1             | 4           | 90           | 186.0         | 2067          | 4000        | Rated Load        | 712             |
| F1             | 4           | 100          | 184.0         | 1841          | 4000        | Rated Load        |                 |
| F1             | 4           | 120          | 181.8         | 1518          | 4000        | Rated Load        |                 |
| F1             | 4           | 180          | 178.9         | 1000          | 4000        | Rated Load        |                 |
| F1             | 4           | 220          | 178.0         | 823           | 4000        | Rated Load        |                 |
| F1             | 4           | 240          | 177.7         | 760           | 4000        | Rated Load        |                 |
| F1             | 4           | 264          | 177.5         | 787           | 4000        | Rated Load        |                 |
| -              | -           | -            | -             | -             | -           | Model GTM9250P150 | )48             |
| <u>-</u><br>F1 | 4           | 90           | 189.5         | 2111          | 4000        | Rated Load        | / <del></del> U |
| F1             | 4           | 100          | 187.2         | 1875          | 4000        | Rated Load        |                 |
| F1             | 4           | 120          | 184.4         | 1539          | 4000        | Rated Load        |                 |
| F1             | 4           | 180          | 181.2         | 1016          | 4000        | Rated Load        |                 |
| F1             | 4           | 220          | 180.0         | 836           | 4000        | Rated Load        |                 |
| F1             | 4           | 240          | 179.6         | 773           | 4000        | Rated Load        |                 |
| F1             | 4           | 264          | 179.0         | 800           | 4000        | Rated Load        |                 |
| -              | -           |              | 118.3         | -             | 4000        | Model GTM9250P250 | 112             |
| <u>-</u><br>F1 | 4           | 90           | 221.4         | 2572          | 4000        |                   | 714             |
| F1<br>F1       |             |              | 321.4         | 3573          |             | Rated Load        |                 |
|                | 4           | 100          | 313.0         | 3131          | 4000        | Rated Load        |                 |
| F1             | 4           | 120          | 304.7         | 2539          | 4000        | Rated Load        |                 |

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| Clause | Requ | uirement + Test |       | lt - Remark | Verdict |                 |       |
|--------|------|-----------------|-------|-------------|---------|-----------------|-------|
|        |      |                 |       |             |         |                 |       |
| F1     | 4    | 180             | 296.3 | 1652        | 4000    | Rated Load      |       |
| F1     | 4    | 220             | 294.0 | 1346        | 4000    | Rated Load      |       |
| F1     | 4    | 240             | 293.1 | 1232        | 4000    | Rated Load      |       |
| F1     | 4    | 264             | 291.9 | 1122        | 4000    | Rated Load      |       |
| -      | -    | -               | -     | -           | -       | Model GTM9250P2 | 25048 |
| F1     | 4    | 90              | 309.8 | 3446        | 4000    | Rated Load      |       |
| F1     | 4    | 100             | 303.7 | 3042        | 4000    | Rated Load      |       |
| F1     | 4    | 120             | 297.1 | 2478        | 4000    | Rated Load      |       |
| F1     | 4    | 180             | 290.0 | 1617        | 4000    | Rated Load      |       |
| F1     | 4    | 220             | 288.0 | 1318        | 4000    | Rated Load      |       |
| F1     | 4    | 240             | 287.1 | 1208        | 4000    | Rated Load      |       |
| F1     | 4    | 264             | 286.3 | 1100        | 4000    | Rated Load      |       |
| -      | -    | -               | -     | -           | -       | Model GTM9250P2 | 27012 |
| F1     | 4    | 90              | 346.7 | 3858        | 4000    | Rated Load      |       |
| F1     | 4    | 100             | 338.0 | 3384        | 4000    | Rated Load      |       |
| F1     | 4    | 120             | 330.0 | 2754        | 4000    | Rated Load      |       |
| F1     | 4    | 180             | 320.4 | 1787        | 4000    | Rated Load      |       |
| F1     | 4    | 220             | 317.9 | 1456        | 4000    | Rated Load      |       |
| F1     | 4    | 240             | 316.8 | 1334        | 4000    | Rated Load      |       |
| F1     | 4    | 264             | 315.7 | 1214        | 4000    | Rated Load      |       |
| -      | -    | -               | -     | -           | -       | Model GTM9250P2 | 27048 |
| F1     | 4    | 90              | 343.1 | 3818        | 4000    | Rated Load      |       |
| F1     | 4    | 100             | 334.1 | 3350        | 4000    | Rated Load      |       |
| F1     | 4    | 120             | 326.1 | 2730        | 4000    | Rated Load      |       |
| F1     | 4    | 180             | 316.1 | 1778        | 4000    | Rated Load      |       |
| F1     | 4    | 220             | 314.1 | 1451        | 4000    | Rated Load      |       |
| F1     | 4    | 240             | 313.1 | 1333        | 4000    | Rated Load      |       |
| F1     | 4    | 264             | 312.2 | 1217        | 4000    | Rated Load      |       |

| 2.10.3 and 2.10.4 <b>TABLE: clearan</b>                                      | TABLE: clearance and creepage distance measurements |      |     |      |     |      |  |  |  |
|--|---|------|-----|------|-----|------|--|--|--|
| clearance cl and creepage Up U r.m.s. (V) required cl (mm) required dcr (mm) |   |      |     |      |     |      |  |  |  |
| AC Input L-N   | 264   | 2121 | 1.6 | 5.0  | 3.0 | 5.0  |  |  |  |
| AC Input N-G   | 264   | 2121 | 1.6 | 5.0  | 3.0 | 5.0  |  |  |  |
| LF4 to LF3   | 264   | 2121 | 2.5 | 3.0  | 3.0 | 4.5  |  |  |  |
| L1 to LF5  | 264   | 2121 | 2.5 | 6.5  | 4.0 | 10.0 |  |  |  |
| LF4 to LF5   | 264   | 2121 | 2.5 | 6.5  | 4.0 | 10.0 |  |  |  |
| T1 to L100   | 264   | 2121 | 2.5 | 6.5  | 4.0 | 10.0 |  |  |  |
| T1 Primary to Secondary  | 264   | 4242 | 5.0 | 5.0  | 8.0 | 12.0 |  |  |  |
| LF7 to R133  | 264   | 4242 | 5.0 | 12.0 | 8.0 | 15.0 |  |  |  |

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|----------------------------|--------------------|-----|------|----------------|---------|-----|-----|--|--|--|
| Clause                     | Requirement + Test |     |      | Result - Remar | Verdict |     |     |  |  |  |
|                            |                    |     |      |                |         |     |     |  |  |  |
| C101 to T1                 |                    | 264 | 4242 | 5.0            | 8.5     | 8.0 | 8.5 |  |  |  |
| supplementary information: |                    |     |      |                |         |     |     |  |  |  |
| _                          |                    |     |      |                |         |     |     |  |  |  |

| 2.10.5                     | TABLE: distance through insulation measurements |           |                  |                     |            |  |  |  |
|----------------------------|---|-----------|------------------|---------------------|------------|--|--|--|
| distance thro              | ough insulation di at/of:                       | Up<br>(V) | test voltage (V) | required di<br>(mm) | di<br>(mm) |  |  |  |
| Q1, Q2 (Sil-p              | pads) to chassis                                | 264       | 2121             | 0.4                 | 0.4        |  |  |  |
| BD1 (Insulat               | ing materials) to chassis                       | 264       | 2121             | 0.4                 | 0.4        |  |  |  |
| TRC1 (Insula               | ating material) to chassis                      | 264       | 2121             | 0.4                 | 0.4        |  |  |  |
| Q3, Q4 (Sil-r              | oad) to chassis                                 | 264       | 2121             | 0.4                 | 0.4        |  |  |  |
| supplementary information: |   |           |                  |                     |            |  |  |  |
| -                          |   |           |                  |                     |            |  |  |  |

| 4.5   | TABLE: temperature rise measureme | nts   |       |     |      |   | Pass                 |
|-------|-----------------------------------|-------|-------|-----|------|---|----------------------|
|       | test voltage (V)                  | 90    | 264   | -   | -    | - | _                    |
|       | t1 (°C)                           | 25    | 25    | -   | -    | - | _                    |
|       | t2 (°C)                           |       | -     | -   | -    | - | _                    |
| maxi  | mum temperature T of part/at:     |       |       | Т ( | (°C) | · | allowed<br>Tmax (°C) |
| -     |                                   | -     | -     | -   | -    | - | GTM9250<br>P753.3    |
| Ambi  | Ambient                           |       | 25.4  | -   | -    | - | Test<br>Passed       |
| T1 W  | T1 Winding                        |       | 95.1  | -   | -    | - | Test<br>Passed       |
| T1 C  | ore                               | 106.3 | 106.3 | -   | -    | - | Test<br>Passed       |
| D100  | ) Casing                          | 71.3  | 68.7  | -   | -    | - | Test<br>Passed       |
| L100  | Winding                           | 86.2  | 84.7  | -   | -    | - | Test<br>Passed       |
| C102  | 2 casing                          | 68.9  | 67.0  | -   | -    | - | Test<br>Passed       |
| PCB   | PCB at Input Inductor             |       | 72.1  | -   | -    | - | Test<br>Passed       |
| LF4 \ | Winding                           | 65.3  | 58.2  | -   | -    | - | Test<br>Passed       |
| Q1 C  | casing                            | 67.8  | 57.9  | -   | -    | - | Test<br>Passed       |

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

| BD1 Casing                                | 73.1  | 62.1 | _ | - | - | Test           |
|---|-------|------|---|---|---|----------------|
| DD 1 Gdoing                               | 70.1  | 02.1 |   |   |   | Passed         |
| L1 Winding                                | 92.3  | 75.9 | - | - | - | Test           |
|   |       |      |   |   |   | Passed         |
| -   | -     | -    | - | - | - | GTM9250        |
|   |       |      |   |   |   | P1203.3        |
| Ambient                                   | 25.1  | 25.9 | - | - | - | Test           |
|   |       |      |   |   |   | Passed         |
| T1 Winding                                | 50.4  | 49.6 | - | - | - | Test           |
|   |       |      |   |   |   | Passed         |
| T1 Core                                   | 55.5  | 55.0 | - | - | - | Test           |
|   |       |      |   |   |   | Passed         |
| D100 Casing                               | 49.1  | 48.6 | - | - | - | Test           |
| 1.400.14"                                 | 00.4  |      |   |   |   | Passed         |
| L100 Winding                              | 60.4  | 59.4 | - | - | - | Test           |
| 0400                                      | 40.4  | 40.0 |   |   |   | Passed         |
| C102 casing                               | 43.4  | 43.3 | - | - | - | Test           |
| DCD at law at landuster                   | CF 0  | 00.0 |   |   |   | Passed         |
| PCB at Input Inductor                     | 65.9  | 66.0 | - | - | - | Test           |
| LF4 Winding                               | 35.4  | 30.8 | _ | _ | _ | Passed<br>Test |
| LF4 Willding                              | 33.4  | 30.0 | - | - | - | Passed         |
| Q1 Casing                                 | 44.5  | 37.8 |   | _ | _ | Test           |
| Q i Casing                                | 14.5  | 37.0 |   |   |   | Passed         |
| BD1 Casing                                | 37.9  | 33.7 | - | - | - | Test           |
|   | 0.10  |      |   |   |   | Passed         |
| L1 Winding                                | 47.3  | 38.5 | - | - | - | Test           |
| 3   |       |      |   |   |   | Passed         |
| -   | -     | -    | - | - | - | GTM9250        |
|   |       |      |   |   |   | P15012         |
| Ambient                                   | 25.1  | 25.9 | - | - | - | Test           |
|   |       |      |   |   |   | Passed         |
| T1 Winding                                | 84.2  | 80.0 | - | - | - | Test           |
|   |       |      |   |   |   | Passed         |
| T1 Core                                   | 86.6  | 83.6 | - | - | - | Test           |
|   |       |      |   |   |   | Passed         |
| D100 Casing                               | 67.8  | 62.8 | - | - | - | Test           |
| 1.400 \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ | 00.4  | 00.0 |   |   |   | Passed         |
| L100 Winding                              | 98.1  | 93.8 | - | - | - | Test           |
| C102 anaing                               | 70.0  | 70.0 |   |   |   | Passed         |
| C102 casing                               | 72.8  | 70.3 | - | - | - | Test           |
| PCB at Input Inductor                     | 42.3  | 40.2 | _ |   | _ | Passed<br>Test |
| PCB at input inductor                     | 42.3  | 40.2 | - | - | - | Passed         |
| LF4 Winding                               | 79.8  | 59.9 | _ | _ | - | Test           |
| LI - WIIIQIIIG                            | 7 3.0 | 55.5 |   |   |   | Passed         |
| Q1 Casing                                 | 65.1  | 54.0 | - | _ | _ | Test           |
| a. caonig                                 | 00.1  | 3    |   |   |   | Passed         |

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|-------------|--------------------|--|-----------------|----------|--|--|--|
| Clause      | Requirement + Test |  | Result - Remark | Verdict  |  |  |  |
|             |                    |  |                 | <u>_</u> |  |  |  |

| BD1 Casing               | 76.5  | 59.5  | - | - | -                | Test           |
|--------------------------|-------|-------|---|---|------------------|----------------|
|                          |       |       |   |   |                  | Passed         |
| L1 Winding               | 91.0  | 65.7  | - | - | -                | Test           |
|                          |       |       |   |   |                  | Passed         |
| -                        | -     | -     | - | - | -                | GTM9250        |
|                          | 0.5.4 | 0.5.0 |   |   |                  | P25012         |
| Ambient                  | 25.1  | 25.9  | - | - | -                | Test           |
| T4 \A/in alin m          | 50.0  | 50.0  |   |   |                  | Passed         |
| T1 Winding               | 53.3  | 50.8  | - | - | -                | Test           |
| T1 Core                  | 54.5  | 52.3  |   | - |                  | Passed<br>Test |
| i i Core                 | 34.3  | 52.3  | - | - | -                | Passed         |
| D100 Cosing              | 59.1  | 54.6  |   | - |                  | Test           |
| D100 Casing              | 59.1  | 54.6  | - | - | -                | Passed         |
| L100 Winding             | 85.1  | 82.5  | - | - | _                | Test           |
| LT00 Willding            | 03.1  | 02.5  | - | _ | -                | Passed         |
| C102 casing              | 48.5  | 46.1  | - | - | <del>-  </del> - | Test           |
| C 102 casing             | 40.5  | 70.1  |   |   | _                | Passed         |
| PCB at Input Inductor    | 51.9  | 49.3  | - | - |                  | Test           |
| 1 OB at input inductor   | 01.5  | 75.5  |   |   |                  | Passed         |
| LF4 Winding              | 61.7  | 36.5  | - | _ | -                | Test           |
| Li i vvinding            | 01    | 00.0  |   |   |                  | Passed         |
| Q1 Casing                | 78.5  | 40.5  | - |   | -                | Test           |
| Q. 000g                  |       | 10.0  |   |   |                  | Passed         |
| BD1 Casing               | 71.6  | 46.4  | - | - | -                | Test           |
| 3                        |       |       |   |   |                  | Passed         |
| L1 Winding               | 69.4  | 45.9  | - | - | -                | Test           |
| G                        |       |       |   |   |                  | Passed         |
| -                        | -     | -     | - | - | -                | GTM9250        |
|                          |       |       |   |   |                  | P27            |
|                          |       |       |   |   |                  | 012            |
| Ambient                  | 25.1  | 25.9  | - | - | -                | Test           |
|                          |       |       |   |   |                  | Passed         |
| T1 Winding               | 53.6  | 49.3  | - | - | -                | Test           |
|                          |       |       |   |   |                  | Passed         |
| T1 Core                  | 56.6  | 53.3  | - | - | -                | Test           |
|                          |       |       |   |   |                  | Passed         |
| D100 Casing              | 60.3  | 54.3  | - | - | -                | Test           |
|                          |       |       |   |   |                  | Passed         |
| L100 Winding             | 79.8  | 78.1  | - | - | -                | Test           |
| 0400                     |       | 40.0  |   |   |                  | Passed         |
| C102 casing              | 41.7  | 42.2  | - | - | -                | Test           |
| DCD at langut lands at a | 40.4  | 47.0  |   |   |                  | Passed         |
| PCB at Input Inductor    | 49.4  | 47.9  | - | - | -                | Test           |
| LE4 Winding              | 40.0  | 26.0  |   |   |                  | Passed         |
| LF4 Winding              | 49.0  | 36.9  | - | - | -                | Test           |
| O1 Cooing                | 04.4  | 4E 0  |   |   |                  | Passed         |
| Q1 Casing                | 91.1  | 45.8  | - | - | -                | Test           |

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

|                            |      |               |               |        |           | Passed     |
|----------------------------|------|---------------|---------------|--------|-----------|------------|
| BD1 Casing                 | 70.9 | 46.9          | -             | -      | -         | Test       |
|                            |      |               |               |        |           | Passed     |
| L1 Winding                 | 79.0 | 47.5          | -             | -      | -         | Test       |
|                            |      |               |               |        |           | Passed     |
| temperature T of winding:  |      | $R_1(\Omega)$ | $R_2(\Omega)$ | T (°C) | allowed   | insulation |
|                            |      | ,             | _ ( /         | , ,    | Tmax (°C) | class      |
| -                          |      | -             | -             | -      | -         | -          |
| supplementary information: |      |               |               |        |           |            |
| -                          | •    |               | •             |        | •         |            |

| 4.5.2       | TABLE: ball pressure test of thermoplastics |  |  |                    |  |  |  |  |
|-------------|---|--|--|--------------------|--|--|--|--|
|             | allowed impression diameter (mm):           |  |  | _                  |  |  |  |  |
| part        |   |  |  | on diameter<br>mm) |  |  |  |  |
|             |   |  |  |                    |  |  |  |  |
| supplementa | supplementary information:                  |  |  |                    |  |  |  |  |
|             |   |  |  |                    |  |  |  |  |

| 4.7                        | N/A |                          |                  |               |                    |  |  |  |
|----------------------------|-----|--------------------------|------------------|---------------|--------------------|--|--|--|
| part                       |     | manufacturer of material | type of material | thickness(mm) | flammability class |  |  |  |
|                            |     |                          |                  |               |                    |  |  |  |
| supplementary information: |     |                          |                  |               |                    |  |  |  |
|                            |     |                          |                  |               |                    |  |  |  |

| 5.2          | TABLE: electric strength tests, impulse tests and voltage surge tests |                               |    |                   |  |  |
|--------------|---|-------------------------------|----|-------------------|--|--|
| test voltage | applied between:  | test voltage (V)<br>a.c./d.c. |    | akdown<br>es / No |  |  |
| Primary to C | hassis  | 2121                          | No |                   |  |  |
| Primary to S | econdary  | 5656                          | No |                   |  |  |
| supplementa  | ary information:  |                               |    |                   |  |  |
| -            |   |                               |    |                   |  |  |

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

| 5.3              | TABLE: fault condition tests   |                     |                  |             |                     |  |            |
|------------------|--------------------------------|---------------------|------------------|-------------|---------------------|--|------------|
|                  | ambient tempera                | ture (°C)           |                  | :           | 24.3                |  | _          |
|                  | model/type of power supply:    |                     |                  |             | See below           |  | _          |
|                  | manufacturer of p              |                     |                  |             | GlobTek             |  | _          |
|                  | rated markings of              | power supply        |                  | :           | 100-240 vac, 4      | A, 50-60 Hz  | _          |
| component<br>No. | fault                          | test voltage<br>(V) | test time        | fuse<br>No. | fuse current<br>(A) | result   |            |
| -                | -                              | -                   | -                | -           | -                   | GTM9250P150  | 3.3        |
| BD1              | Short ~ to +                   | 264                 | 1 sec.           | F1          | 22 pk               | IP (F1 opened);                                      | NB, NC, NT |
| Q1               | Short D to S                   | 264                 | 1 sec.           | F1          | 19 pk               | IP (F1 opened);                                      | NB, NC, NT |
| D2               | Short A to C                   | 264                 | 1 sec.           | F1          | 23 pk               | IP (F1 opened);                                      | NB, NC, NT |
| -                | -                              | -                   | -                | -           | -                   | GTM9250P150  | 48         |
| TRC1             | Short Across                   | 264                 | 1 hr.            | F1          | 0.79                | T1 Temp. 84.6 ;<br>CT, NC, NT                        | ; NCD, NB, |
| Q3               | Short A to C                   | 264                 | 1 sec.           | F1          | 22 pk               | IP (F1 opened);                                      | NB, NC, NT |
| C112             | Short Across                   | 264                 | 1 hr.            | F1          | 0.79                | T1 Temp. 83.9  |            |
| -                | -                              | -                   | -                | -           | -                   | GTM9250P250  | 48         |
| DC Fan           | Stalled blower                 | 264                 | 1 hr. 10<br>min. | F1          | 1.11                | T1 Temp. 117.1<br>F1 Cleared); CI<br>Q3), NB, CT, No | O (Q1, Q2, |
| -                | -                              | -                   | -                | -           | -                   | GTM9250P150  | 48         |
| T1               | Overload                       | 264                 | 2 hrs.           | F1          | 0.504               | T1 Temp. 108.0                                       | ); NB, NC, |
| -                | -                              | -                   | -                | -           | -                   | GTM9250P150  | 48         |
| +48 VDC          | Short Output                   | 264                 | 1 hr.            | F1          | 0.35                | T1 Temp. 46.3;<br>NC, NT                             | CT, NB,    |
| +48 VDC          | O/L Output                     | 264                 | 1 hr. 20<br>min. | F1          | 1.22                | T1 Temp. 56.3;                                       | NB, NC, NT |
| -                | -                              | 12                  | -                | -           | -                   | GTM9250P753  | .3         |
| Earthing<br>Test | Farthest point away on chassis | 12                  | 2 mins.          | -           | 40                  | Resistance = 0.                                      | 0011       |

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 = Tissue paper charred or flamed

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## **Enclosure**

## **National Differences**

**USA / Canada** 

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|           | IEC 60950-1       |                 |         |
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|         | USA / Canada - Differences to IEC 60950-1:200   | 01, 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.   | N/A               |
| 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.  | N/A               |
| 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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|         | 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.  | N/A |
| 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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| 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.  |   | N/A  |
| 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.  |   | Pass |
| 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.  | Wire is UL R/C OBJS2. See<br>Annex U for further details. | Pass |
| 3.1.1    | Permissible combinations of internal wiring/external   |   | Pass |

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|         | cable sizes for overcurrent and short circuit protection.   |  |     |
|---------|---|--|-----|
| 3.1.1   | All interconnecting cables protected against overcurrent and short circuit.   |  | N/A |
| 3.2     | Wiring methods permit connection of equipment to primary power supply in accordance with the NEC and CEC, Part 1.   | Unit is intended for building-in; to be determined in the end product. | N/A |
| 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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|       | 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.   | Neutral terminal marked with a large letter "N". | Pass |
| 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  |  | Pass |

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|          | washer or equivalent retention.   |      |
|----------|---|------|
| 3.3.4    | Terminals accept wire sizes (gauge) used in the U.S. and Canada.  | Pass |
| 3.3.4    | Terminals accept current-carrying conductors rated 125% of the equipment current rating.  | Pass |
| 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.   | Pass |
| 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-<br>connected equipment rated more than 12 A, or with<br>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.  | N/A  |
| 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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| 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 m³ 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 m² 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.   | N/A  |
| 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.   | N/A  |
| 5.3.6    | Tests interrupted by opening of a component repeated two additional times.  | Pass |
| 5.3.8.1  | Test interrupted by opening of wire or trace subject to certain conditions.   | 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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|       | 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 |
| Н     | 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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| 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 |