



Test Report issued under the responsibility of:



TEST REPORT

IEC 60950-1

Information technology equipment – Safety – Part 1: General requirements

Report Number.: T223-0285/16

Date of issue: 2016-04-19

Total number of pages..... 251 pages

Applicant's name.....: GlobTek, Inc.

Address: 186 Veterans Dr. Northvale, NJ 07647, USA

Test specification:

Standard: IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013

Test procedure.....: CB Scheme

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

Test Report Form No.....: IEC60950_1F

Test Report Form(s) Originator.....: SGS Fimko Ltd

Master TRF: Dated 2014-02

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This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

General disclaimer:

The test results presented in this report relate only to the object tested.

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| | | |
|---|--|---|
| Test item description | Switch Mode Power Supply for building-in | |
| Trade Mark |  | |
| Manufacturer..... | GlobTek, Inc. 186 Veterans Dr. Northvale, NJ 07647, USA | |
| Model/Type reference..... | GT(M or -)91110P240VV-ZA(W)-S or -HI0XX or -H0XXX or -HIXXX | |
| Ratings | Input: 100-240 V~; 50-60 Hz; 4,0 A or 130-320 Vdc; 2,5 A Output: 12 Vdc – 55 Vdc; max 20 A (for details see general information) | |
| Testing procedure and testing location: | | |
| <input checked="" type="checkbox"/> CB Testing Laboratory: | SIQ Ljubljana Testing Laboratory is accredited by Slovenian Accreditation, Reg. No.: LP-009 | |
| Testing location/ address | Tržaška c. 2, SI-1000 Ljubljana Slovenia | |
| <input type="checkbox"/> Associated CB Testing Laboratory: | | |
| Testing location/ address | | |
| Tested by (name + signature)..... | Ana Urh |  |
| Approved by (name + signature)..... | Boštjan Glavič |  |
| <input type="checkbox"/> Testing procedure: TMP/CTF Stage 1: | | |
| Testing location/ address | | |
| Tested by (name + signature)..... | | |
| Approved by (name + signature)..... | | |
| <input type="checkbox"/> Testing procedure: WMT/CTF Stage 2: | | |
| Testing location/ address | | |
| Tested by (name + signature)..... | | |
| Witnessed by (name + signature) | | |
| Approved by (name + signature)..... | | |
| <input type="checkbox"/> Testing procedure: SMT/CTF Stage 3 or 4: | | |
| Testing location/ address | | |
| Tested by (name + signature)..... | | |
| Witnessed by (name + signature) | | |
| Approved by (name + signature)..... | | |
| Supervised by (name + signature)..... | | |

| | |
|---|---|
| List of Attachments: <ol style="list-style-type: none"> 1. Test Report (139 pages) 2. National Differences – Enclosure No. 1 (41 pages) 3. European Group Differences and National Differences according to EN 60950-1:2006 + A1:2010 + A2:2013 + A11:2009 + A12:2011 – Enclosure No. 1a (21 pages) 4. Pictures – Enclosure No. 2 (7 pages) 5. Documentation - Enclosure No. 3 (43 pages) | |
| Summary of testing: | |
| Tests performed (name of test and test clause): | Testing location: |
| <p>1.6.2 Input Test</p> <p>1.7.11 Durability</p> <p>2.1.1.5 Energy Hazard Measurements (for info only)</p> <p>2.1.1.7 Capacitance Discharge Test</p> <p>2.1.1.8 Energy hazards – d.c. mains supplies</p> <p>2.2.2 SELV: Hazard Voltage (Circuit) Measurement Test</p> <p>2.2.3 SELV Reliability testing</p> <p>2.4 Limited Current Circuit (Bridging components)</p> <p>2.6 Earthing Test, earth trace test (UL PAG)</p> <p>2.9.2 Humidity Test</p> <p>2.10.2 Working Voltage measurement on PCB and Transformer</p> <p>2.10.3/2.10.4 Clearance and Creepage distance measurement</p> <p>2.10.5 Distance Through Insulation measurement</p> <p>2.10.5.6 Thin Sheet Material (barriers)</p> <p>4.2.2-4.2.4 Steady force test, 10N</p> <p>4.5.2 Heating (Temperature) Test</p> <p>4.5.5 Resistance to abnormal heat (Ball pressure test)</p> <p>5.1 Touch Current and protective conductor current</p> <p>5.2 Electric Strength Test</p> <p>5.3 Abnormal Operating Tests foreseeable misuse:</p> <p>SELV reliability and failure in the voltage regulation</p> <p>Functional insulation, Component faults, Overload and short, Air holes closed, Fan (external) blocked</p> | <p>SIQ Ljubljana, Tržaška c. 2, SI-1000 Ljubljana, Slovenia</p> |

Summary of compliance with National Differences

List of countries addressed:

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

* No national differences to IEC 60950-1:2005 (2nd edition) (+ A1 + A2) declared

** No national differences to IEC 60950-1:2005 (2nd edition) + A1 + A2 or IEC 60950-1:2001 (1st edition) declared

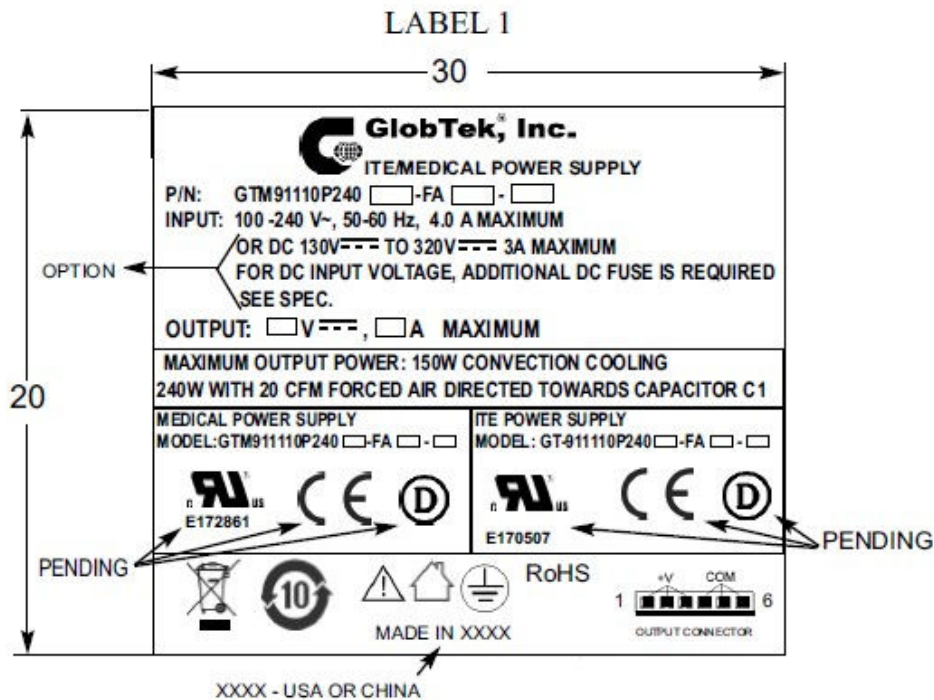
*** EU group differences

☒ **The product fulfils the requirements of EN 60950-1:2006 + A1:2010 + A2:2013 + A11:2009 + A12:2011 (see Enclosure No. 1a).**

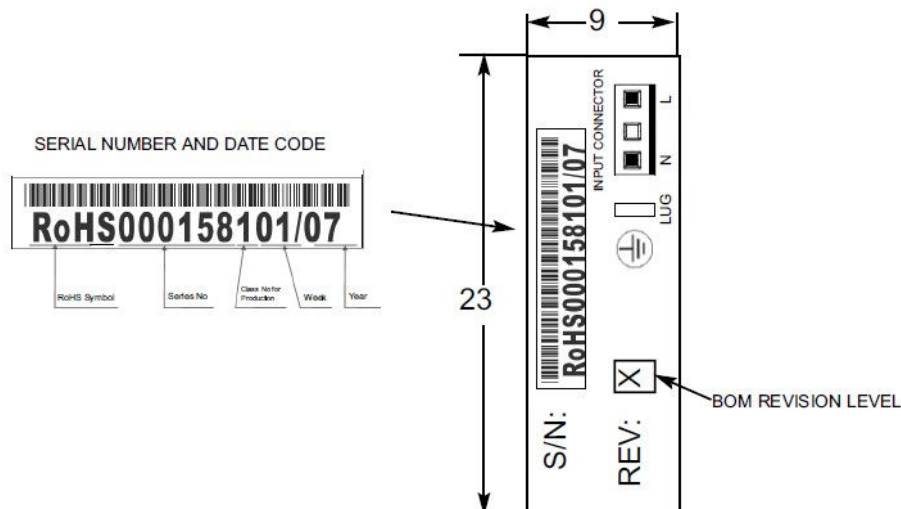
Copy of marking plate

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

a) LABEL FOR OPEN FRAME VERSION (With PE):

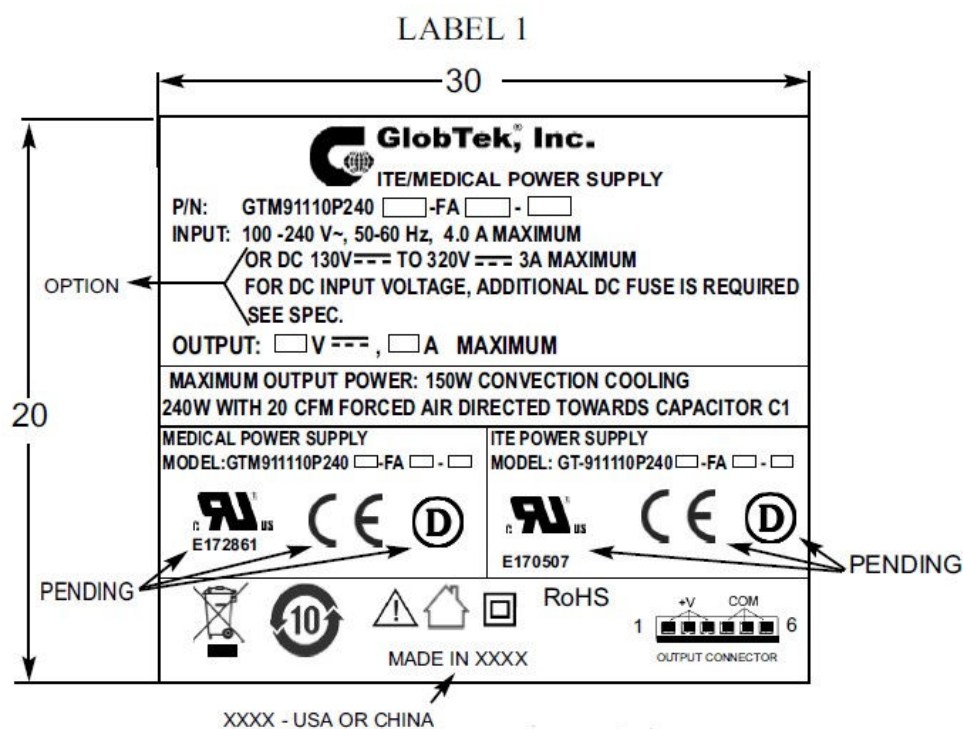


POSITION THIS LABEL ON THE VISIBLE SIDE OF CAPACITOR

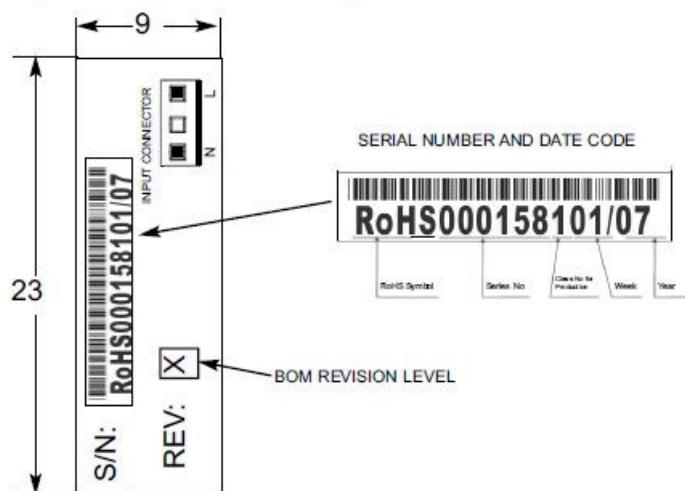


POSITION THIS LABELS ON TOP OF CXI
FACING THE INPUT CONNECTOR

b) LABEL FOR OPEN FRAME VERSION (Without PE):

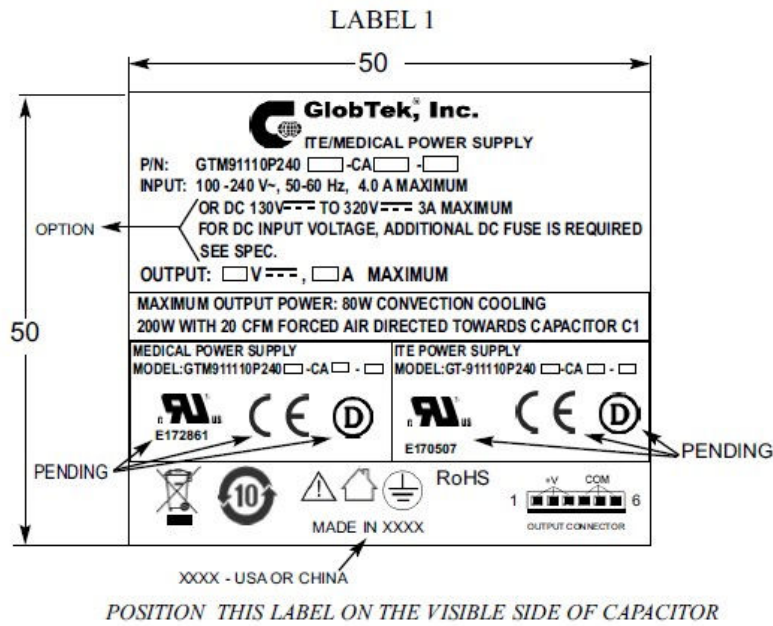


POSITION THIS LABEL ON THE VISIBLE SIDE OF CAPACITOR

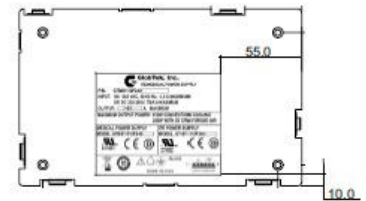


POSITION THIS LABELS ON TOP OF CX1
FACING THE INPUT CONNECTOR

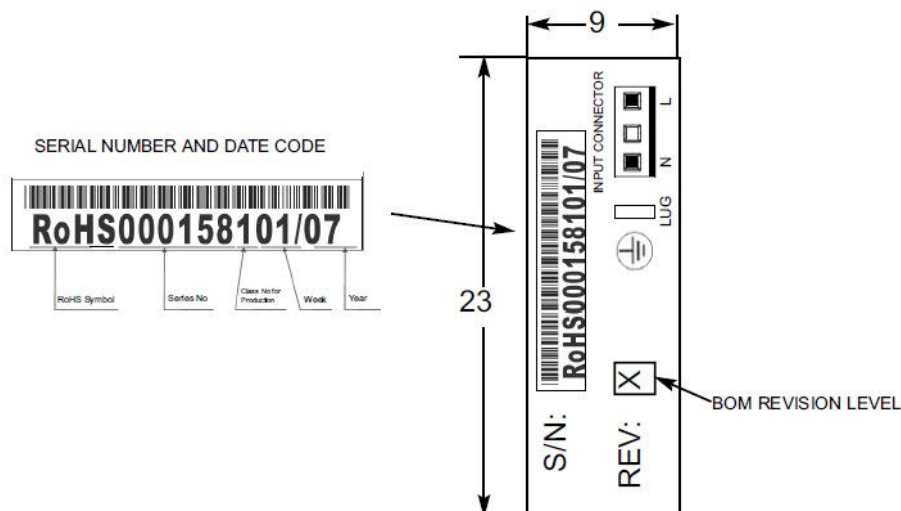
c) LABEL FOR PERFORATED ENCLOSURE VERSION (with PE):



LOCATION OF LABEL 1

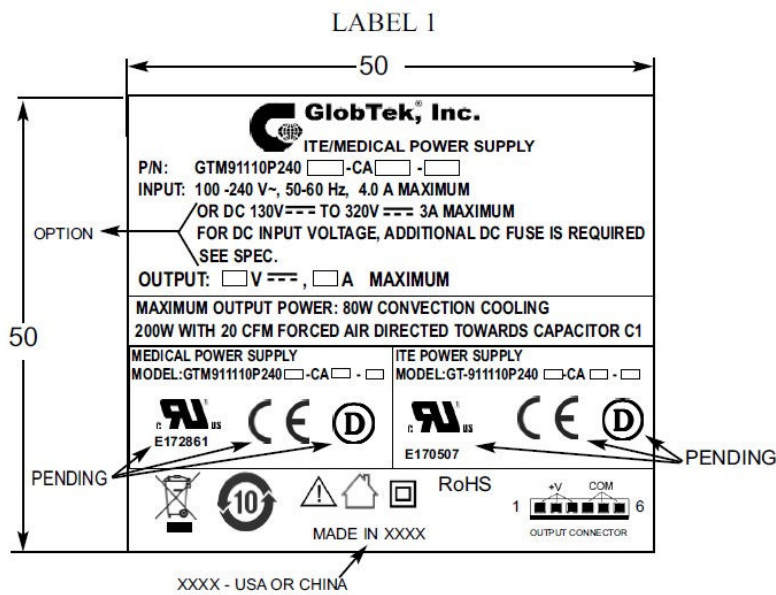


BOTTOM VIEW OF ENCLOSURE



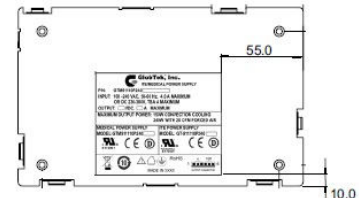
*POSITION THIS LABEL ON TOP OF CX1
FACING THE INPUT CONNECTOR*

d) LABEL FOR PERFORATED ENCLOSURE VERSION (Without PE):

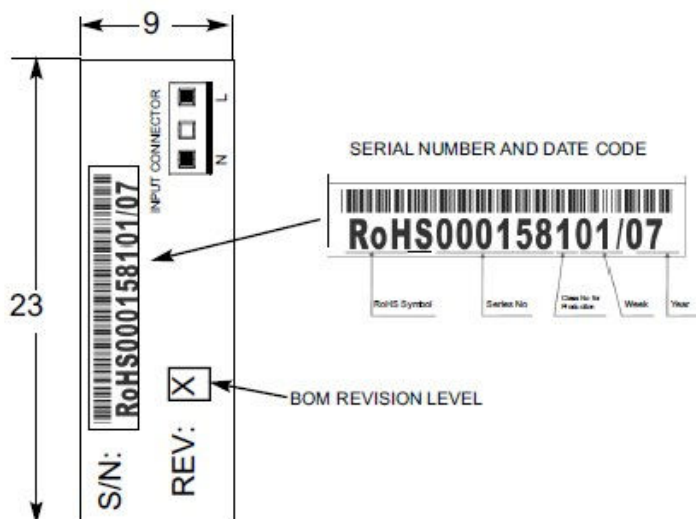


POSITION THIS LABEL ON THE VISIBLE SIDE OF CAPACITOR

LOCATION OF LABEL 1



BOTTOM VIEW OF ENCLOSURE



POSITION THIS LABEL ON TOP OF CX1
FACING THE INPUT CONNECTOR

| | |
|--|--|
| Test item particulars: | |
| Equipment mobility: | <input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> stationary <input checked="" type="checkbox"/> for building-in <input type="checkbox"/> direct plug-in |
| Connection to the mains: | <input type="checkbox"/> pluggable equipment <input type="checkbox"/> type A <input type="checkbox"/> type B <input type="checkbox"/> permanent connection <input type="checkbox"/> detachable power supply cord <input type="checkbox"/> non-detachable power supply cord <input checked="" type="checkbox"/> not directly connected to the mains |
| Operating condition: | <input checked="" type="checkbox"/> continuous <input type="checkbox"/> rated operating / resting time: |
| Access location | <input type="checkbox"/> operator accessible <input type="checkbox"/> restricted access location <input checked="" type="checkbox"/> service area (for building-in) |
| Over voltage category (OVC) | <input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other: |
| Mains supply tolerance (%) or absolute mains supply values | AC input: +/- 10% (90 – 264 Vac) DC input: 130 – 320 Vdc |
| Tested for IT power systems | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| IT testing, phase-phase voltage (V) | Norway 230V~ Phase to Phase |
| Class of equipment | <input checked="" type="checkbox"/> Class I <input type="checkbox"/> Class II <input type="checkbox"/> Class III <input type="checkbox"/> Not classified |
| Considered current rating of protective device as part of the building installation (A) | 20 A rating of external Circuit Breaker. |
| Pollution degree (PD) | <input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3 |
| IP protection class | IPX0 |
| Altitude during operation (m) | Up to 2000 |
| Altitude of test laboratory (m) | 300 |
| Mass of equipment (kg) | Approx. 0,65 kg |
| Possible test case verdicts: | |
| - test case does not apply to the test object : N/A | |
| - test object does meet the requirement..... : P (Pass) | |
| - test object does not meet the requirement : F (Fail) | |
| Testing: | |
| Date of receipt of test item : 2010-06-30 | |
| Date(s) of performance of tests | |
| From 2010-06-30 to 2010-12-15 | |
| General remarks: | |
| "(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. | |
| Throughout this report a <input checked="" type="checkbox"/> comma / <input type="checkbox"/> point is used as the decimal separator. | |

Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60950-1:

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

☒ **Yes**
☐ **Not applicable**

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

Name and address of factory (ies) : 1) GlobTek, Inc.
186 Veterans Dr. Northvale, NJ 07647, USA
2) GlobTek (Suzhou) Co., Ltd
Building 4, No. 76, Jin Ling East Rd., Suzhou
Industrial Park, Suzhou, Jiangsu CN 215021, China

General product information GT(M or -)91110P240VV-ZA(W)-S or -HI0XX or -H0XXX or -HIXXX

| | |
|------------|--|
| GT(M or -) | GLOBTEK series, M or - for market purpose |
| 91110P | Family designator |
| 240VV | 240W VV=the standard rated output voltage designation, which can be "12", "15", "18", "24", "36", "48" or "55" |
| "Z" | "Z"= "F": Open frame "Z"= "C": Perforated enclosure |
| A or blank | "A" for airflow for 240 W load, blank which means no airflow |
| W or blank | "W" for models without protective earth, or blank which means Class I. |
| -X.X | Output voltage deviation from standard model by subtracting X.X volt from standard output voltage, X.X not required to be added in model number for standard output voltage. |
| -S | Input header and output header connectors on board |
| -HI0XXX | Input and output wire harness. Where XXX can be from 000 to 500 to indicate harness length (maximum length for input and output harnesses is 500mm). |
| -H0XXX: | Input header connector on board and output wire harness. Where XXX can be from 000 to 500 to indicate harness length (maximum harness length for output is 500mm). |
| -HIXXX: | Input wire harness. Output header on board. |

Where XXX can be from 000 to 500 to indicate harness length (maximum harness length for input is 500mm).

| Standard Model Number For Open Frame Version: | Output Voltage* | Minimum Load* | Maximum Load w/o Airflow | Maximum Load with 20CFM Airflow |
|--|------------------------|----------------------|---------------------------------|--|
| GT(M)91110P24012-FA(W)-S or -HI0XX or -H0XXX or -HIXXX | 12Vdc | 0,2A | 12,5A | 20,0A |
| GT(M)91110P24015-X.X-FA(W)-S or -HI0XX or -H0XXX or -HIXXX | 15Vdc | 0,2A | 10,0A | 16,0A |
| GT(M)91110P24018-X.X-FA(W)-S or -HI0XX or -H0XXX or -HIXXX | 18Vdc | 0,2A | 8,33A | 13,3A |
| GT(M)91110P24024-X.X-FA(W)-S or -HI0XX or -H0XXX or -HIXXX | 24Vdc | 0,1A | 6,25A | 10,0A |
| GT(M)91110P24036-X.X-FA(W)-S or -HI0XX or -H0XXX or -HIXXX | 36Vdc | 0,1A | 4,17A | 6,7A |
| GT(M)91110P24048-X.X-FA(W)-S or -HI0XX or -H0XXX or -HIXXX | 48Vdc | 0,1A | 3,12A | 5,0A |
| GT(M)91110P24055-X.X-FA(W)-S or -HI0XX or -H0XXX or -HIXXX | 55Vdc | 0,1A | 2,72A | 4,36A |

| Standard Model Number For with Perforated Enclosure Version | Output Voltage* | Minimum Load* | Maximum Load w/o Airflow | Maximum Load with 20CFM Airflow |
|--|------------------------|----------------------|---------------------------------|--|
| GT(M)91110P24012-CA(W)-S or -HI0XX or -H0XXX or -HIXXX | 12Vdc | 0,2A | 6,7A | 16,67A |
| GT(M)91110P24015-X.X-CA(W)-S or -HI0XX or -H0XXX or -HIXXX | 15Vdc | 0,2A | 5,3A | 13,38A |
| GT(M)91110P24018-X.X-CA(W)-S or -HI0XX or -H0XXX or -HIXXX | 18Vdc | 0,2A | 4,4A | 11,11A |
| GT(M)91110P24024-X.X-CA(W)-S or -HI0XX or -H0XXX or -HIXXX | 24Vdc | 0,1A | 3,3A | 8,33A |
| GT(M)91110P24036-X.X-CA(W)-S or -HI0XX or -H0XXX or -HIXXX | 36Vdc | 0,1A | 2,2A | 5,5A |
| GT(M)91110P24048-X.X-CA(W)-S or -HI0XX or -H0XXX or -HIXXX | 48Vdc | 0,1A | 1,7A | 4,17A |
| GT(M)91110P24055-X.X-CA(W)-S or -HI0XX or -H0XXX or -HIXXX | 55Vdc | 0,1A | 1,4A | 3,64A |

* Other output voltages from 12V to 55V in 0,1V increment available upon request.

** Output voltage is within regulation range even at no load, but minimal level of audible noise may be heard from the supply.

Information about the Product:

The power supply is a switch mode power supply for building in. The unit has universal input (AC or DC) with active power factor correction. Factory configurable output is from 12 V to 55 V in 0,1 V increments. The unit have built in EMI filter, there is also remote output sensing options.

Unit is provided as open frame power supply or as power supply unit with performed enclosure. Power supply unit can be provided with or without PE (Protective Earthing).

Perforated enclosure with PE: Bottom metal plate is connected to protective earthing. Bottom metal plate is separated from primary circuit by basic insulation. Faston blade terminal used for connection of the protective earthing. PCB is connected to metal bottom plate by four screws (2 on primary side and 2 on secondary side). Primary screws provide protective earthing of the bottom metal plate. Additional insulation foil provided between PCB and bottom metal plate.

Perforated enclosure without PE: The following capacitors shall be removed from the equipment (CY1, CY2, CY3, CY4, CY5, CY6 and CY7). Connecting wire between internal primary parts (marked with "B") shall be also removed from the equipment. Metal bottom plate is separated from primary circuit by reinforced insulation; there is also reinforced insulation between primary and secondary circuit. Additional insulation foil provided between PCB and bottom metal plate not protectively earthed.

Open-frame power supply unit with PE: Faston blade terminal used for connection of the protective earthing. PCB shall be secured within the end product by four screws. Spacers provided between PCB of the power supply unit and end product plate (length of 10 mm). Shorten than 10,0 mm spacers are allowed when a plastic insulator, 0,4 mm minimum thickness and with dielectric withstand voltage rating of 4000 Vac minimum, is provided between the bottom side of the power supply unit and the system plate or chassis. End product consideration.

Open-frame power supply unit without PE: PCB shall be secured within the end product by four screws. Spacers provided between PCB of the power supply unit and end product plate (length of 10 mm). Shorten than 10,0 mm spacers are allowed when a plastic insulator, 0,4 mm minimum thickness and with dielectric withstand voltage rating of 4000 Vac minimum, is provided between the bottom side of the power supply unit and the system plate or chassis. End product consideration.

In the unit, there is single output plus fan voltage for 20 CFM airflow (External Fan is optional used).

Explanation of the test program:

The component was tested according to the standard IEC 60950-1:2005 (2nd Edition) + A1:2009 + A2:2013 and/or EN 60950-1:2006 + A1:2010 + A2:2013 + A11:2009 + A12:2011.

Additionally the component was also evaluated according to the standards CSA C22.2 No. 60950-1:2007 + A1:2011 + A2:2014 and UL60950-1:2007 (2nd Edition) + A1:2011 + A2:2014 and fulfils the requirements of these standards.

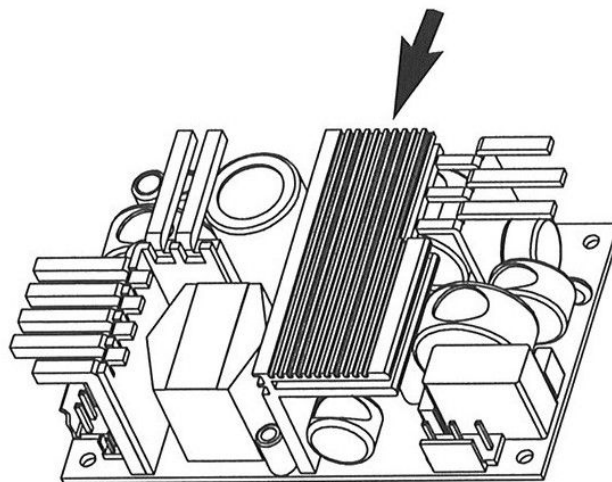
1. The products were tested to be suitable for connection to 20A (USA and IEC) branch circuit The unit is approved for TN mains star connections and IT mains with 230 Vac phase to phase voltages. The unit provides internally two fuses (F1, F2). For DC input, end user must provide DC rated fuse on the (+) side of the input. Fuse rating is 3 A / 350 Vdc.
2. All secondary output circuits are separated from mains by reinforced insulation and rated SELV. The outputs provide hazard energy level, therefore accessibility of the output should be considered in the end use product.
3. Safety Instructions: Built in product, safety instructions are end product considerations.
4. The input and output terminals and connectors are evaluated for factory wiring.
5. The power supply is rated as class I (provided with PE) or as power supply unit without PE (class II construction). For power supply unit without PE capacitors CY1, CY2, CY3, CY4, CY5, CY6, CY7 and connecting wire marked as "B" shall be removed from the equipment. There is reinforced insulation between screws on the primary side and primary side of the power supply unit (after removal of above mentioned elements).
6. Power supply (provided with protective earthing) shall be properly bonded to the main protective

bonding termination in the end product. The earth leakage current is below 3,5 mA.

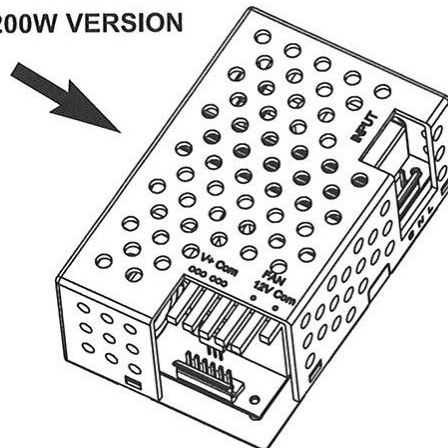
7. Power supply shall be provided as open-frame power supply unit or power supply unit with perforated enclosure.
8. The transformer T1 provides reinforced insulation. This transformer is built up to fulfil the requirement of insulation class B and provide in addition an UR (OBJY2) insulation system (See also list of safety critical components).
9. The equipment has been evaluated for use in a Pollution Degree 2 and overvoltage category II environment and a maximum altitude of 2000 m.
10. A suitable Electrical and Fire enclosure shall be provided in the end equipment.
11. Approval within the end product: Leakage current measurement should be verified with the unit built into the end product.

The product with 50% output power was evaluated for a maximum ambient temperature of 70°C for AC input voltage with 20 CFM airflow cooling. The product with 50% output power was evaluated for a maximum ambient temperature of 55°C for DC input voltage with 20 CFM airflow cooling. The product with 50% output power was evaluated for a maximum ambient temperature of 55°C for AC input voltage with air convention cooling. The product with 50% output power was evaluated for a maximum ambient temperature of 50°C for DC input voltage with air convention cooling. The product with 100% output power was evaluated for a maximum ambient temperature of 40°C for AC and DC input voltage with air convention cooling. The temperature test was performed 100 mm above bench. See next page for air flow direction.

AIRFLOW DIRECTION FOR 240W VERSION



AIRFLOW DIRECTION FOR 200W VERSION



History Sheet:

| Date | Report No. | Change/Modification | Rev. No. |
|------------|--------------|---|----------|
| 2011-01-03 | T223-0388/10 | Initial report issued. | - |
| 2012-07-30 | T223-0260/12 | Update of the report to include amendment A12:2011 to EN 60950-1:2006 + A1 + A11. No additional tests considered required. | 1.0 |
| 2016-04-19 | T223-0285/16 | Update of the report to include amendment A2:2013 of IEC/EN 60950-1. No additional tests considered required. | 2.0 |


Abbreviations used in the report:

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

Indicate used abbreviations (if any)

| IEC 60950-1 | | | |
|-------------|--|--|------------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 1 | GENERAL | | P |
| 1.5 | Components | | P |
| 1.5.1 | General | | P |
| | Comply with IEC 60950-1 or relevant component standard | (see appended tables 1.5.1) | P |
| 1.5.2 | Evaluation and testing of components | <p>Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of this standard.</p> <p>Components not certified are used in accordance with their ratings and they comply with applicable parts of IEC 60950-1 and the relevant component standard.</p> <p>Components, for which no relevant IEC-standard exists, have been tested under the conditions occurring in the equipment, using applicable parts of IEC 60950-1.</p> | P |
| 1.5.3 | Thermal controls | <p>The unit provides thermo sensors switching off in case of mal function.</p> <p>This sensor is not used in normal mode.</p> <p>Therefore, the sensors are not related to Safety.</p> | N/A |
| 1.5.4 | Transformers | (see list of safety critical components table 1.5.1 and the transformer drawings in the Enclosure No. 3) | P |
| 1.5.5 | Interconnecting cables | No interconnecting cables. | N/A |
| 1.5.6 | Capacitors bridging insulation | <p>Certified capacitors X1 or X2 acc. IEC 60384-14 are used Line to Neutral, certified Y1 or Y2 capacitors acc. IEC 60384-14 are used primary to PE.</p> <p>Capacitor CY8 is bridging double/reinforced insulation. Circuit complies with 2.4; capacitor complies with IEC60384-14 2nd ed., class Y1.</p> | P |

| IEC 60950-1 | | | |
|-------------|--|--|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 1.5.7 | Resistors bridging insulation | No such resistors are bridging double/reinforced insulation. | N/A |
| 1.5.7.1 | Resistors bridging functional, basic or supplementary insulation | -- | N/A |
| 1.5.7.2 | Resistors bridging double or reinforced insulation between a.c. mains and other circuits | -- | N/A |
| 1.5.7.3 | Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable | -- | N/A |
| 1.5.8 | Components in equipment for IT power systems | Certified capacitors connected between line and earth, ref. List of Critical Components. | P |
| 1.5.9 | Surge suppressors | MOV2 | P |
| 1.5.9.1 | General | Surge suppressors comply with IEC 61051-2. | P |
| 1.5.9.2 | Protection of VDRs | Fuse in Line and Neutral is protecting VDR. | P |
| 1.5.9.3 | Bridging of functional insulation by a VDR | Surge suppressors connected Line to Neutral comply with IEC 61051-2. | P |
| 1.5.9.4 | Bridging of basic insulation by a VDR | No VDR bridging basic insulation. | N/A |
| 1.5.9.5 | Bridging of supplementary, double or reinforced insulation by a VDR | No VDR bridging double or reinforced insulation. | N/A |
| 1.6 | Power interface | | P |
| 1.6.1 | AC power distribution systems | TN and IT for 230 Vac. | P |
| 1.6.2 | Input current | (see appended table 1.6.2) | P |
| 1.6.3 | Voltage limit of hand-held equipment | The equipment is not hand-held. | N/A |
| 1.6.4 | Neutral conductor | Neutral is insulated from earth with basic insulation throughout the equipment. | P |
| 1.7 | Marking and instructions | | P |
| 1.7.1 | Power rating and identification markings | Rating marking on the unit, built in product. | P |
| 1.7.1.1 | Power rating marking | -- | P |
| | Multiple mains supply connections.....: | -- | N/A |
| | Rated voltage(s) or voltage range(s) (V) : | AC input: 100 - 240 Vac DC input: 130 - 320 Vdc | P |

| IEC 60950-1 | | | |
|-------------|--|--|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Symbol for nature of supply, for d.c. only | IEC 60417-1, symbol No. 5031, is used. | P |
| | Rated frequency or rated frequency range (Hz) | 50-60 Hz | P |
| | Rated current (mA or A) | AC input: 4,0A max. DC input: 3,0A max. | P |
| 1.7.1.2 | Identification markings | -- | P |
| | Manufacturer's name or trade-mark or identification mark |  | P |
| | Model identification or type reference | GT(M)91110P24012-ZA(W)-S or -HI0XX or -H0XXX or -HIXXX (see general information) | P |
| | Symbol for Class II equipment only | EUT is provided with or without PE connection. Without PE connection can be used only within Class II application. | N/A |
| | Other markings and symbols | There are no additional markings provided. | N/A |
| 1.7.1.3 | Use of graphical symbols | | N/A |
| 1.7.2 | Safety instructions and marking | Built in product, safety instructions are end product considerations. | N/A |
| 1.7.2.1 | General | Must be checked in the end product. | N/A |
| 1.7.2.2 | Disconnect devices | -- | N/A |
| 1.7.2.3 | Overcurrent protective device | Unit provides appropriate overcurrent protective device inside the equipment. The external protection for DC input described within Summary of testing. | P |
| 1.7.2.4 | IT power distribution systems | Approved for IT power system phase to phase voltage 230 V for Norway only. No additional marking required. | N/A |
| 1.7.2.5 | Operator access with a tool | The unit is for built in use not operator accessible. | N/A |
| 1.7.2.6 | Ozone | Unit does not produce ozone. | N/A |
| 1.7.3 | Short duty cycles | The equipment is intended for continuous operation. | N/A |

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|-------------|--|---|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 1.7.4 | Supply voltage adjustment | No voltage selector. | N/A |
| | Methods and means of adjustment; reference to installation instructions | -- | N/A |
| 1.7.5 | Power outlets on the equipment | No standard power outlet. | N/A |
| 1.7.6 | Fuse identification (marking, special fusing characteristics, cross-reference) | Fuse ratings and fuse designations are marked adjacent to the fuses on the layout. | P |
| 1.7.7 | Wiring terminals | -- | N/A |
| 1.7.7.1 | Protective earthing and bonding terminals | Protective earthing to be evaluated in the end product. | N/A |
| 1.7.7.2 | Terminals for a.c. mains supply conductors | The equipment is not permanently connected or provided with a non-detachable power supply cord. | N/A |
| 1.7.7.3 | Terminals for d.c. mains supply conductors | Approved connector is used. | N/A |
| 1.7.8 | Controls and indicators | -- | P |
| 1.7.8.1 | Identification, location and marking | There are no controls affecting safety. | N/A |
| 1.7.8.2 | Colours | A green LED is illuminated when the unit is operating. | N/A |
| 1.7.8.3 | Symbols according to IEC 60417..... | There are no switches in the equipment. | N/A |
| 1.7.8.4 | Markings using figures | No controls in the sense of this clause. | N/A |
| 1.7.9 | Isolation of multiple power sources | Only one connection supplying hazardous voltages and energy levels to the equipment. | N/A |
| 1.7.10 | Thermostats and other regulating devices | The unit provides thermal sensor or switch, which will switch the unit off in case of overheating. This was not considered as a thermal control in the sense of this clause. | N/A |
| 1.7.11 | Durability | The marking withstands required tests. | P |
| 1.7.12 | Removable parts | No removable parts. | N/A |
| 1.7.13 | Replaceable batteries | No lithium battery in the equipment. | N/A |
| | Language(s) | | — |
| 1.7.14 | Equipment for restricted access locations | End product consideration. | N/A |

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|-------------|--|--|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2 | PROTECTION FROM HAZARDS | | P |
| 2.1 | Protection from electric shock and energy hazards | | P |
| 2.1.1 | Protection in operator access areas | Unit is intended for building-in, not intended to be used in operator access area. | N/A |
| 2.1.1.1 | Access to energized parts | -- | N/A |
| | Test by inspection | -- | N/A |
| | Test with test finger (Figure 2A) | -- | N/A |
| | Test with test pin (Figure 2B) | -- | N/A |
| | Test with test probe (Figure 2C) | No TNV circuit. | N/A |
| 2.1.1.2 | Battery compartments | No battery compartment. | N/A |
| 2.1.1.3 | Access to ELV wiring | No ELV wiring. | N/A |
| | Working voltage (V _{peak} or V _{rms}); minimum distance through insulation (mm) | | — |
| 2.1.1.4 | Access to hazardous voltage circuit wiring | -- | N/A |
| 2.1.1.5 | Energy hazards | No operator access area. The output of the unit represents an energy hazard. Test was performed for information only. (see enclosed test results) | N/A |
| 2.1.1.6 | Manual controls | No shafts of knobs etc. at ELV or hazardous voltage. | N/A |
| 2.1.1.7 | Discharge of capacitors in equipment | The capacitance of the input circuit is > 0,1μF. The measurements were performed in worst-case condition. | P |
| | Measured voltage (V); time-constant (s) | See appended table 2.1.1.7. | — |
| 2.1.1.8 | Energy hazards – d.c. mains supply | See appended table 2.1.1.8. | P |
| | a) Capacitor connected to the d.c. mains supply .. | Measured voltage after 2 seconds: 0V | P |
| | b) Internal battery connected to the d.c. mains supply | There is no battery provided in the unit. | N/A |
| 2.1.1.9 | Audio amplifiers | No audio amplifier within the unit. | N/A |
| 2.1.2 | Protection in service access areas | EUT is intended for building-in. | N/A |
| 2.1.3 | Protection in restricted access locations | -- | N/A |

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

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

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

| | | | |
|------------|---------------------------------|---|---|
| 2.4 | Limited current circuits | | P |
| 2.4.1 | General requirements | The bridging capacitors (CY8) was treated as limited current circuit. | P |
| 2.4.2 | Limit values | See enclosed Table 2.4 | P |
| | Frequency (Hz) | See enclosed Table 2.4 | — |
| | Measured current (mA) | See enclosed Table 2.4 | — |
| | Measured voltage (V) | See enclosed Table 2.4 | — |

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|-------------|---|--|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Measured circuit capacitance (nF or μ F) | See enclosed Table 2.4 | — |
| 2.4.3 | Connection of limited current circuits to other circuits | LCC only connected to SELV | P |
| 2.5 | Limited power sources | | N/A |
| | a) Inherently limited output | | N/A |
| | b) Impedance limited output | | N/A |
| | c) Regulating network limited output under normal operating and single fault condition | | N/A |
| | Use of integrated circuit (IC) current limiters | | N/A |
| | d) Overcurrent protective device limited output | | N/A |
| | Max. output voltage (V), max. output current (A), max. apparent power (VA) | | — |
| | Current rating of overcurrent protective device (A) .. | | — |
| 2.6 | Provisions for earthing and bonding | | P |
| 2.6.1 | Protective earthing | The unit is for built in. The enclosure is not intended for operator contact: the enclosure is properly bonded. | P |
| 2.6.2 | Functional earthing | No functional earthing is provided. | N/A |
| | Use of symbol for functional earthing | | N/A |
| 2.6.3 | Protective earthing and protective bonding conductors | Male faston soldered on the PCB. | P |
| 2.6.3.1 | General | -- | P |
| 2.6.3.2 | Size of protective earthing conductors | Power Supply cord not provided with the equipment. | N/A |
| | Rated current (A), cross-sectional area (mm^2), AWG | | — |
| 2.6.3.3 | Size of protective bonding conductors | Verified by 2.6.3.4. | P |
| | Rated current (A), cross-sectional area (mm^2), AWG | 4 A max; AWG18 | — |
| | Protective current rating (A), cross-sectional area (mm^2), AWG..... | 20 A; AWG12 | — |
| 2.6.3.4 | Resistance of earthing conductors and their terminations; resistance (Ω), voltage drop (V), test current (A), duration (min) | See appended table 2.6. | P |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.6.3.5 | Colour of insulation | The built in Power Supply does not provide wiring (for earthing). | N/A |
| 2.6.4 | Terminals | Male faston soldered on the PCB. Test according to Clause 2.6.3.4 was performed through protective bonding conductor path. | P |
| 2.6.4.1 | General | -- | N/A |
| 2.6.4.2 | Protective earthing and bonding terminals | Male faston soldered on the PCB. | N/A |
| | Rated current (A), type, nominal thread diameter (mm) | | — |
| 2.6.4.3 | Separation of the protective earthing conductor from protective bonding conductors | The Power Supply is for built in use. | N/A |
| 2.6.5 | Integrity of protective earthing | -- | P |
| 2.6.5.1 | Interconnection of equipment | No interconnection of equipment. | N/A |
| 2.6.5.2 | Components in protective earthing conductors and protective bonding conductors | There are no switches or over current protective devices in the protective earthing or bonding conductors. | P |
| 2.6.5.3 | Disconnection of protective earth | The Power Supply is for built in use. | N/A |
| 2.6.5.4 | Parts that can be removed by an operator | No operator removable parts. | N/A |
| 2.6.5.5 | Parts removed during servicing | Protective earthed parts cannot be removed in a way, which impair safety. | N/A |
| 2.6.5.6 | Corrosion resistance | No risk of corrosion. | P |
| 2.6.5.7 | Screws for protective bonding | Adequate connection of protective bonding. | P |
| 2.6.5.8 | Reliance on telecommunication network or cable distribution system | Protective earthing does not rely on a telecommunication network. | N/A |

| | | | |
|------------|---|--|----------|
| 2.7 | Overcurrent and earth fault protection in primary circuits | | P |
| 2.7.1 | Basic requirements | The unit is rated to be connected to mains with rating max. 20A. | P |
| | Instructions when protection relies on building installation | End product consideration. | N/A |
| 2.7.2 | Faults not simulated in 5.3.7 | | P |

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|-------------|---|--|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.7.3 | Short-circuit backup protection | Adequate protective device. | P |
| 2.7.4 | Number and location of protective devices : | Two fuses provided, line and neutral. (Fuse F1, F2) | P |
| 2.7.5 | Protection by several devices | Fuses are located in proximity to each other. Both fuses are provided on the top side of the PCB. | P |
| 2.7.6 | Warning to service personnel : | Not permanently connected equipment or equipment provided with non-reversible plug. | N/A |

| | | | |
|------------|---|----------------------|-----|
| 2.8 | Safety interlocks | | N/A |
| 2.8.1 | General principles | No safety interlock. | N/A |
| 2.8.2 | Protection requirements | | N/A |
| 2.8.3 | Inadvertent reactivation | | N/A |
| 2.8.4 | Fail-safe operation | | N/A |
| | Protection against extreme hazard | | N/A |
| 2.8.5 | Moving parts | | N/A |
| 2.8.6 | Overriding | | N/A |
| 2.8.7 | Switches, relays and their related circuits | | N/A |
| 2.8.7.1 | Separation distances for contact gaps and their related circuits (mm) : | | N/A |
| 2.8.7.2 | Overload test | | N/A |
| 2.8.7.3 | Endurance test | | N/A |
| 2.8.7.4 | Electric strength test | | N/A |
| 2.8.8 | Mechanical actuators | | N/A |

| | | | |
|------------|---|---|---|
| 2.9 | Electrical insulation | | P |
| 2.9.1 | Properties of insulating materials | Neither natural rubber, materials containing asbestos nor hygroscopic materials are used as insulation. No driving belts or couplings used. | P |
| 2.9.2 | Humidity conditioning | | P |
| | Relative humidity (%), temperature (°C) : | See appended table 2.9.2. | — |
| 2.9.3 | Grade of insulation | Insulation is considered to be functional, basic, supplementary, reinforced or double. | P |

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|-------------|------------------------------------|---|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.9.4 | Separation from hazardous voltages | | P |
| | Method(s) used | Accessible conductive parts, SELV circuits or TNV circuits are separated from parts at hazardous voltage by double or reinforced insulation (Method 1). | — |

| | | | |
|-------------|--|--|-----|
| 2.10 | Clearances, creepage distances and distances through insulation | | P |
| 2.10.1 | General | -- | P |
| 2.10.1.1 | Frequency | Switching frequency: 100 kHz | P |
| 2.10.1.2 | Pollution degrees | Pollution degree 2 | P |
| 2.10.1.3 | Reduced values for functional insulation | Functional insulation Line to Neutral before fuse complies with 2.10.3 & 2.10.4. Other functional insulations comply with 5.3.4 c). | P |
| 2.10.1.4 | Intervening unconnected conductive parts | Distance to unconnected conductive parts considered during evaluation of clearances and creepage distances. | P |
| 2.10.1.5 | Insulation with varying dimensions | No such transformer used. | N/A |
| 2.10.1.6 | Special separation requirements | No TNV circuits. | N/A |
| 2.10.1.7 | Insulation in circuits generating starting pulses | No such circuit. | N/A |
| 2.10.2 | Determination of working voltage | -- | P |
| 2.10.2.1 | General | -- | P |
| 2.10.2.2 | RMS working voltage | Considered. | P |
| 2.10.2.3 | Peak working voltage | Considered. | P |
| 2.10.3 | Clearances | -- | P |
| 2.10.3.1 | General | -- | P |
| 2.10.3.2 | Mains transient voltages | -- | P |
| | a) AC mains supply | Overvoltage Category II (2500 V _{peak}) | P |
| | b) Earthed d.c. mains supplies | Input of the unit may be earthed in the final system. Overvoltage category II was assumed anyway. | P |
| | c) Unearthed d.c. mains supplies | Overvoltage category II was assumed. | P |
| | d) Battery operation | No battery. | N/A |

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|-------------|---|---|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.10.3.3 | Clearances in primary circuits | (see appended table 2.10.3 and 2.10.4) | P |
| 2.10.3.4 | Clearances in secondary circuits | (see appended table 2.10.3 and 2.10.4) | P |
| 2.10.3.5 | Clearances in circuits having starting pulses | -- | N/A |
| 2.10.3.6 | Transients from a.c. mains supply | Secondary circuit is not earthed therefore same transients as for a.c. mains considered. | P |
| 2.10.3.7 | Transients from d.c. mains supply | DC input: 2500V _{peak} was assumed (worse-case). | P |
| 2.10.3.8 | Transients from telecommunication networks and cable distribution systems | Unit not intended for connection to telecommunication network or cable distribution system. | N/A |
| 2.10.3.9 | Measurement of transient voltage levels | Measurement not relevant. | N/A |
| | a) Transients from a mains supply | -- | N/A |
| | For an a.c. mains supply | -- | N/A |
| | For a d.c. mains supply | -- | N/A |
| | b) Transients from a telecommunication network : | -- | N/A |
| 2.10.4 | Creepage distances | -- | P |
| 2.10.4.1 | General | -- | P |
| 2.10.4.2 | Material group and comparative tracking index | -- | P |
| | CTI tests | Material group IIIb is assumed to be used | — |
| 2.10.4.3 | Minimum creepage distances | (see appended table 2.10.3 and 2.10.4) | P |
| 2.10.5 | Solid insulation | -- | P |
| 2.10.5.1 | General | -- | P |
| 2.10.5.2 | Distances through insulation | (see appended table 2.10.5) | P |
| 2.10.5.3 | Insulating compound as solid insulation | No such potted components. | N/A |
| 2.10.5.4 | Semiconductor devices | Approved optical insulators are used. See list of critical components. | P |
| 2.10.5.5 | Cemented joints | (see appended table 2.10.3 and 2.10.4) | N/A |
| 2.10.5.6 | Thin sheet material – General | -- | P |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.10.5.7 | Separable thin sheet material | The core of transformer T1 is wrapped by 3 layer of insulating tape. Insulation primary to secondary inside these power transformers is achieved by triple insulated wire. | P |
| | Number of layers (pcs) | 3 layers between primary and secondary winding. | — |
| 2.10.5.8 | Non-separable thin sheet material | No such insulation. | N/A |
| 2.10.5.9 | Thin sheet material – standard test procedure | | N/A |
| | Electric strength test | | — |
| 2.10.5.10 | Thin sheet material – alternative test procedure | | N/A |
| | Electric strength test | | — |
| 2.10.5.11 | Insulation in wound components | Transformers provided with triple insulated wire complying with 2.10.5.12. | P |
| 2.10.5.12 | Wire in wound components | Approved triple insulated wire is used inside transformers. See list of critical components. | P |
| | Working voltage | >71Vpk | P |
| | a) Basic insulation not under stress | -- | N/A |
| | b) Basic, supplementary, reinforced insulation | TIW separately approved to Annex U. | P |
| | c) Compliance with Annex U | -- | N/A |
| | Two wires in contact inside wound component; angle between 45° and 90° | No contact between 45° and 90°. | P |
| 2.10.5.13 | Wire with solvent-based enamel in wound components | | N/A |
| | Electric strength test | | — |
| | Routine test | -- | N/A |
| 2.10.5.14 | Additional insulation in wound components | -- | N/A |
| | Working voltage | -- | N/A |
| | - Basic insulation not under stress | -- | N/A |
| | - Supplementary, reinforced insulation | -- | N/A |
| 2.10.6 | Construction of printed boards | -- | P |
| 2.10.6.1 | Uncoated printed boards | (see appended table 2.10.3 and 2.10.4) | P |
| 2.10.6.2 | Coated printed boards | -- | N/A |

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|-------------|--|---|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.10.6.3 | Insulation between conductors on the same inner surface of a printed board | -- | N/A |
| 2.10.6.4 | Insulation between conductors on different layers of a printed board | -- | N/A |
| | Distance through insulation | - | N/A |
| | Number of insulation layers (pcs)..... : | -- | N/A |
| 2.10.7 | Component external terminations | -- | N/A |
| 2.10.8 | Tests on coated printed boards and coated components | -- | N/A |
| 2.10.8.1 | Sample preparation and preliminary inspection | -- | N/A |
| 2.10.8.2 | Thermal conditioning | -- | N/A |
| 2.10.8.3 | Electric strength test | -- | N/A |
| 2.10.8.4 | Abrasion resistance test | -- | N/A |
| 2.10.9 | Thermal cycling | -- | N/A |
| 2.10.10 | Test for Pollution Degree 1 environment and insulating compound | -- | N/A |
| 2.10.11 | Tests for semiconductor devices and cemented joints | -- | N/A |
| 2.10.12 | Enclosed and sealed parts | Approved optocouplers between primary and secondary provided. See list of critical components for details. | P |

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

| | | | |
|------------|--|---|-----|
| 3 | WIRING, CONNECTIONS AND SUPPLY | | P |
| 3.1 | General | | P |
| 3.1.1 | Current rating and overcurrent protection | No internal wiring. | N/A |
| 3.1.2 | Protection against mechanical damage | -- | N/A |
| 3.1.3 | Securing of internal wiring | -- | N/A |
| 3.1.4 | Insulation of conductors | (see appended table 5.2) | P |
| 3.1.5 | Beads and ceramic insulators | No beads or similar ceramic insulators on conductors. | P |
| 3.1.6 | Screws for electrical contact pressure | Electrical screw connection is only connecting protective earth to chassis. Metal screw engages more than 2 threads. Screws made of insulating material are not used where electrical connections, including protective earthing, are involved. | P |
| 3.1.7 | Insulating materials in electrical connections | No contact pressure through insulating material. | N/A |
| 3.1.8 | Self-tapping and spaced thread screws | Thread-cutting or space thread screws are not used for electrical connections. | N/A |
| 3.1.9 | Termination of conductors | Terminations cannot become displaced so that clearances and Creepage distances can be reduced. | N/A |
| | 10 N pull test | -- | N/A |
| 3.1.10 | Sleeving on wiring | -- | N/A |

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

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 3.2.3 | Permanently connected equipment | The equipment is not intended for permanent connection to the mains. | N/A |
| | Number of conductors, diameter of cable and conduits (mm) | | — |
| 3.2.4 | Appliance inlets | No appliance inlet is used. | N/A |
| 3.2.5 | Power supply cords | -- | N/A |
| 3.2.5.1 | AC power supply cords | Power supply cord is not provided. | N/A |
| | Type | | — |
| | Rated current (A), cross-sectional area (mm ²), AWG | | — |
| 3.2.5.2 | DC power supply cords | Power supply cord is not provided. | N/A |
| 3.2.6 | Cord anchorages and strain relief | -- | N/A |
| | Mass of equipment (kg), pull (N) | | — |
| | Longitudinal displacement (mm) | | — |
| 3.2.7 | Protection against mechanical damage | -- | N/A |
| 3.2.8 | Cord guards | -- | N/A |
| | Diameter or minor dimension D (mm); test mass (g) | | — |
| | Radius of curvature of cord (mm)..... | | — |
| 3.2.9 | Supply wiring space | -- | N/A |

| | | | |
|------------|---|---|-----|
| 3.3 | Wiring terminals for connection of external conductors | | N/A |
| 3.3.1 | Wiring terminals | Unit for building-in provided with special connector. No wiring terminal provided. | N/A |
| 3.3.2 | Connection of non-detachable power supply cords | Not equipment with special non-detachable power supply cord. | N/A |
| 3.3.3 | Screw terminals | Screws do not clamp the external supply wiring. | N/A |
| 3.3.4 | Conductor sizes to be connected | -- | N/A |
| | Rated current (A), cord/cable type, cross-sectional area (mm ²) | | — |
| 3.3.5 | Wiring terminal sizes | -- | N/A |
| | Rated current (A), type, nominal thread diameter (mm) | | — |
| 3.3.6 | Wiring terminal design | -- | N/A |

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

| | | | |
|-------|------------------------------|----|-----|
| 3.3.7 | Grouping of wiring terminals | -- | N/A |
| 3.3.8 | Stranded wire | -- | N/A |

| | | | |
|------------|---|--|-----|
| 3.4 | Disconnection from the mains supply | | N/A |
| 3.4.1 | General requirement | Unit for building-in. Disconnect device is end product requirement. | N/A |
| 3.4.2 | Disconnect devices | End product requirement. | N/A |
| 3.4.3 | Permanently connected equipment | Not permanently connected equipment. | N/A |
| 3.4.4 | Parts which remain energized | No parts remain energized. | N/A |
| 3.4.5 | Switches in flexible cords | No isolating switch in the flexible cord. | N/A |
| 3.4.6 | Number of poles - single-phase and d.c. equipment | -- | N/A |
| 3.4.7 | Number of poles - three-phase equipment | Single phase equipment. | N/A |
| 3.4.8 | Switches as disconnect devices | No switch as disconnect device. | N/A |
| 3.4.9 | Plugs as disconnect devices | -- | N/A |
| 3.4.10 | Interconnected equipment | No interconnections using hazardous voltages or hazardous energy levels. | N/A |
| 3.4.11 | Multiple power sources | End product consideration. | 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 |
| 3.5.4 | Data ports for additional equipment | | N/A |

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

| | | | |
|------------|------------------------------|--|-----|
| 4 | PHYSICAL REQUIREMENTS | | P |
| 4.1 | Stability | | P |
| | Angle of 10° | | N/A |
| | Test force (N) | | N/A |

| | | | |
|------------|--|--|-----|
| 4.2 | Mechanical strength | | P |
| 4.2.1 | General | | P |
| | Rack-mounted equipment. | EUT is not intended for rack-mounting. | N/A |
| 4.2.2 | Steady force test, 10 N | No hazard. See appended table 4.2.2. | P |
| 4.2.3 | Steady force test, 30 N | No internal enclosure. | N/A |
| 4.2.4 | Steady force test, 250 N | No external enclosure. Unit for building-in. | N/A |
| 4.2.5 | Impact test | -- | N/A |
| | Fall test | -- | N/A |
| | Swing test | -- | N/A |
| 4.2.6 | Drop test; height (mm) | The EUT is not hand-held, direct plug-in or transportable. | N/A |
| 4.2.7 | Stress relief test | -- | 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) | Unit is not intended to be mounted on a wall or ceiling. | N/A |

| | | | |
|------------|---|--|-----|
| 4.3 | Design and construction | | P |
| 4.3.1 | Edges and corners | Component for building in. To be determinate in the end product. | N/A |
| 4.3.2 | Handles and manual controls; force (N)..... | No knobs, grips, handles, lever, etc. | N/A |
| 4.3.3 | Adjustable controls | No hazardous adjustable controls. | N/A |
| 4.3.4 | Securing of parts | No loosening of parts impairing creepage distances or clearances is likely to occur. | P |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 4.3.5 | Connection by plugs and sockets | Secondary connectors do not comply with IEC60320 or IEC60083 or IEC60309 connectors. | P |
| 4.3.6 | Direct plug-in equipment | EUT is not direct plug-in equipment. | N/A |
| | Torque | | — |
| | Compliance with the relevant mains plug standard | -- | N/A |
| 4.3.7 | Heating elements in earthed equipment | -- | N/A |
| 4.3.8 | Batteries | No batteries in the equipment. | N/A |
| | - Overcharging of a rechargeable battery | -- | N/A |
| | - Unintentional charging of a non-rechargeable battery | -- | N/A |
| | - Reverse charging of a rechargeable battery | -- | N/A |
| | - Excessive discharging rate for any battery | -- | N/A |
| 4.3.9 | Oil and grease | Insulation is not exposed to oil, grease etc. | N/A |
| 4.3.10 | Dust, powders, liquids and gases | The equipment does not generate dust, powder, does not contain liquid or gas. The unit is specified for office environment. | N/A |
| 4.3.11 | Containers for liquids or gases | No containers for liquids or gases in the equipment. | N/A |
| 4.3.12 | Flammable liquids | -- | N/A |
| | Quantity of liquid (l) | -- | N/A |
| | Flash point (°C) | -- | N/A |
| 4.3.13 | Radiation | -- | N/A |
| 4.3.13.1 | General | -- | N/A |
| 4.3.13.2 | Ionizing radiation | -- | N/A |
| | Measured radiation (pA/kg) | | — |
| | Measured high-voltage (kV) | | — |
| | Measured focus voltage (kV) | | — |
| | CRT markings | | — |
| 4.3.13.3 | Effect of ultraviolet (UV) radiation on materials | -- | N/A |
| | Part, property, retention after test, flammability classification | -- | N/A |
| 4.3.13.4 | Human exposure to ultraviolet (UV) radiation | -- | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 4.3.13.5 | Lasers (including laser diodes) and LEDs | | P |
| 4.3.13.5.1 | Lasers (including laser diodes) | | N/A |
| | Laser class | | — |
| 4.3.13.5.2 | Light emitting diodes (LEDs) | Low power LED used. | — |
| 4.3.13.6 | Other types | | N/A |

| | | | |
|------------|--|--|-----|
| 4.4 | Protection against hazardous moving parts | | N/A |
| 4.4.1 | General | | N/A |
| 4.4.2 | Protection in operator access areas | | N/A |
| | Household and home/office document/media shredders | | N/A |
| 4.4.3 | Protection in restricted access locations | | N/A |
| 4.4.4 | Protection in service access areas | | N/A |
| 4.4.5 | Protection against moving fan blades | | N/A |
| 4.4.5.1 | General | | N/A |
| | Not considered to cause pain or injury. a)..... | | N/A |
| | Is considered to cause pain, not injury. b) | | N/A |
| | Considered to cause injury. c) | | N/A |
| 4.4.5.2 | Protection for users | | N/A |
| | Use of symbol or warning | | N/A |
| 4.4.5.3 | Protection for service persons | | N/A |
| | Use of symbol or warning | | N/A |

| | | | |
|------------|---|--|-----|
| 4.5 | Thermal requirements | | P |
| 4.5.1 | General | | P |
| 4.5.2 | Temperature tests | | P |
| | Normal load condition per Annex L | Rated load, as specified by Manufacturer. | — |
| 4.5.3 | Temperature limits for materials | (see appended table 4.5) | P |
| 4.5.4 | Touch temperature limits | (see appended table 4.5) | P |
| 4.5.5 | Resistance to abnormal heat | Approved thermoplastic material used. Refer to "List of Critical Components". | N/A |

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

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|-------------|--|--|----------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 4.6.1 | Top and side openings | Unit is for building-in, to be determined in end product. | N/A |
| | Dimensions (mm) : | | — |
| 4.6.2 | Bottoms of fire enclosures | -- | N/A |
| | Construction of the bottom, dimensions (mm) .. : | | — |
| 4.6.3 | Doors or covers in fire enclosures | No doors or covers in fire enclosure. | N/A |
| 4.6.4 | Openings in transportable equipment | Not transportable equipment. | N/A |
| 4.6.4.1 | Constructional design measures | -- | N/A |
| | Dimensions (mm) : | | — |
| 4.6.4.2 | Evaluation measures for larger openings | -- | N/A |
| 4.6.4.3 | Use of metallized parts | -- | N/A |
| 4.6.5 | Adhesives for constructional purposes | No barrier secured by adhesive inside enclosure. | N/A |
| | Conditioning temperature (°C), time (weeks) : | | — |
| 4.7 | Resistance to fire | | P |
| 4.7.1 | Reducing the risk of ignition and spread of flame | | P |
| | Method 1, selection and application of components wiring and materials | (see appended table 4.7) | P |
| | Method 2, application of all of simulated fault condition tests | -- | N/A |
| 4.7.2 | Conditions for a fire enclosure | Component power supply for building-in, fire enclosure must be considered for the end product. | N/A |
| 4.7.2.1 | Parts requiring a fire enclosure | -- | N/A |
| 4.7.2.2 | Parts not requiring a fire enclosure | The fire enclosure is required to cover all parts. Fire enclosure must be considered for the end product. | N/A |
| 4.7.3 | Materials | | P |
| 4.7.3.1 | General | Components and materials have adequate flammability classification. Refer to "List of Critical Components". | P |
| 4.7.3.2 | Materials for fire enclosures | -- | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 4.7.3.3 | Materials for components and other parts outside fire enclosures | Equipment for building in must be considered in the end product. | N/A |
| 4.7.3.4 | Materials for components and other parts inside fire enclosures | All internal materials are rated V-2 or better or are mounted on a PWB rated V-1 or better. | P |
| 4.7.3.5 | Materials for air filter assemblies | No air filters in the equipment. | N/A |
| 4.7.3.6 | Materials used in high-voltage components | No parts exceeding 4kV. | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 5 | ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS | | P |
| 5.1 | Touch current and protective conductor current | | P |
| 5.1.1 | General | (see appended Table 5.1) | P |
| 5.1.2 | Configuration of equipment under test (EUT) | | P |
| 5.1.2.1 | Single connection to an a.c. mains supply | | P |
| 5.1.2.2 | Redundant multiple connections to an a.c. mains supply | -- | N/A |
| 5.1.2.3 | Simultaneous multiple connections to an a.c. mains supply | -- | N/A |
| 5.1.3 | Test circuit | According to Fig. 5A | P |
| 5.1.4 | Application of measuring instrument | Measuring instrument D1 was used. | P |
| 5.1.5 | Test procedure | -- | P |
| 5.1.6 | Test measurements | -- | P |
| | Supply voltage (V) | (see appended table 5.1) | — |
| | Measured touch current (mA) | (see appended table 5.1) | — |
| | Max. allowed touch current (mA) | 0,25 mA to unearthed accessible parts (output) 3,5 mA to earthed accessible parts | — |
| | Measured protective conductor current (mA) | Not applicable. Measured touch current was lower than 3,5 mA. | — |
| | Max. allowed protective conductor current (mA)... : | See above. | — |
| 5.1.7 | Equipment with touch current exceeding 3,5 mA | Touch current less than 3,5 mA | N/A |
| 5.1.7.1 | General | -- | N/A |
| 5.1.7.2 | Simultaneous multiple connections to the supply | -- | N/A |
| 5.1.8 | Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks | -- | N/A |
| 5.1.8.1 | Limitation of the touch current to a telecommunication network or to a cable distribution system | -- | N/A |
| | Supply voltage (V) | | — |
| | Measured touch current (mA) | | — |
| | Max. allowed touch current (mA) | | — |
| 5.1.8.2 | Summation of touch currents from telecommunication networks | -- | N/A |

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|-------------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | a) EUT with earthed telecommunication ports: | -- | N/A |
| | b) EUT whose telecommunication ports have no reference to protective earth | -- | N/A |

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

| | | | |
|------------|---|---|-----|
| 5.3 | Abnormal operating and fault conditions | | P |
| 5.3.1 | Protection against overload and abnormal operation | (see appended table 5.3) | P |
| 5.3.2 | Motors | Approved fan is used, no abnormal testing was considered as required. External ventilation fan is not part of the investigation. | N/A |
| 5.3.3 | Transformers | (see appended Annex C) | P |
| 5.3.4 | Functional insulation.....: | Method c). | P |
| 5.3.5 | Electromechanical components | -- | N/A |
| 5.3.6 | Audio amplifiers in ITE: | -- | N/A |
| 5.3.7 | Simulation of faults | -- | P |
| 5.3.8 | Unattended equipment | The unit is intended for continuous operation. There is no thermal sensor or cut-off for operational condition. | N/A |
| 5.3.9 | Compliance criteria for abnormal operating and fault conditions | -- | P |
| 5.3.9.1 | During the tests | No fire, emission of molten metal or deformation was noted during the tests. | P |
| 5.3.9.2 | After the tests | The tested units passed the electric strenght test. | P |

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

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

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

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

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

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

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|-------------|---|--|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| A | ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE | | N/A |
| A.1 | Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2) | Approved materials are used. See list of critical components. | N/A |
| A.1.1 | Samples | | — |
| | Wall thickness (mm) | | — |
| A.1.2 | Conditioning of samples; temperature (°C) | | N/A |
| A.1.3 | Mounting of samples | | N/A |
| A.1.4 | Test flame (see IEC 60695-11-3) | | N/A |
| | Flame A, B, C or D | | — |
| A.1.5 | Test procedure | | N/A |
| A.1.6 | Compliance criteria | | N/A |
| | Sample 1 burning time (s)..... | | — |
| | Sample 2 burning time (s)..... | | — |
| | Sample 3 burning time (s)..... | | — |
| A.2 | Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4) | | N/A |
| A.2.1 | Samples, material | | — |
| | Wall thickness (mm) | | — |
| A.2.2 | Conditioning of samples; temperature (°C) | | N/A |
| A.2.3 | Mounting of samples | | N/A |
| A.2.4 | Test flame (see IEC 60695-11-4) | | N/A |
| | Flame A, B or C | | — |
| A.2.5 | Test procedure | | N/A |
| A.2.6 | Compliance criteria | | N/A |
| | Sample 1 burning time (s)..... | | — |
| | Sample 2 burning time (s)..... | | — |
| | Sample 3 burning time (s)..... | | — |
| A.2.7 | Alternative test acc. to IEC 60695-11-5, cl. 5 and 9 | | N/A |
| | Sample 1 burning time (s)..... | | — |
| | Sample 2 burning time (s)..... | | — |
| | Sample 3 burning time (s)..... | | — |
| A.3 | Hot flaming oil test (see 4.6.2) | | N/A |
| A.3.1 | Mounting of samples | | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| A.3.2 | Test procedure | | N/A |
| A.3.3 | Compliance criterion | | N/A |

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|-------------|---|--|-----|
| B | ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2) | | N/A |
| B.1 | General requirements | | N/A |
| | Position | | — |
| | Manufacturer | | — |
| | Type | | — |
| | Rated values | | — |
| B.2 | Test conditions | | N/A |
| B.3 | Maximum temperatures | | N/A |
| B.4 | Running overload test | | N/A |
| B.5 | Locked-rotor overload test | | N/A |
| | Test duration (days) | | — |
| | Electric strength test: test voltage (V) | | — |
| B.6 | Running overload test for d.c. motors in secondary circuits | | N/A |
| B.6.1 | General | | N/A |
| B.6.2 | Test procedure | | N/A |
| B.6.3 | Alternative test procedure | | N/A |
| B.6.4 | Electric strength test; test voltage (V) | | N/A |
| B.7 | Locked-rotor overload test for d.c. motors in secondary circuits | | N/A |
| B.7.1 | General | | N/A |
| B.7.2 | Test procedure | | N/A |
| B.7.3 | Alternative test procedure | | N/A |
| B.7.4 | Electric strength test; test voltage (V) | | N/A |
| B.8 | Test for motors with capacitors | | N/A |
| B.9 | Test for three-phase motors | | N/A |
| B.10 | Test for series motors | | N/A |
| | Operating voltage (V) | | — |

| | | | |
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| C | ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3) | | P |
| | Position | Primary to Secondary | — |
| | Manufacturer | GLOBTEK | — |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| | Type | Switch mode | — |
| | Rated values | 320 Vdc or 240 Vac to SELV | — |
| | Method of protection | Primary current limitation | — |
| C.1 | Overload test | (see appended table 5.3) | P |
| C.2 | Insulation | (see appended table 5.2) | P |
| | Protection from displacement of windings | Triple insulated wire is used. No special precaution is required. | P |
| D | ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4) | | P |
| D.1 | Measuring instrument | Measuring instrument D1 was used. | P |
| D.2 | Alternative measuring instrument | | N/A |
| E | ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13) | | N/A |
| F | ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G) | | P |
| G | ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES | | N/A |
| G.1 | Clearances | | N/A |
| G.1.1 | General | | N/A |
| G.1.2 | Summary of the procedure for determining minimum clearances | | N/A |
| G.2 | Determination of mains transient voltage (V) | | N/A |
| G.2.1 | AC mains supply | | N/A |
| G.2.2 | Earthed d.c. mains supplies | | N/A |
| G.2.3 | Unearthed d.c. mains supplies | | N/A |
| G.2.4 | Battery operation | | N/A |
| G.3 | Determination of telecommunication network transient voltage (V) | | N/A |
| G.4 | Determination of required withstand voltage (V) | | N/A |
| G.4.1 | Mains transients and internal repetitive peaks | | N/A |
| G.4.2 | Transients from telecommunication networks | | N/A |
| G.4.3 | Combination of transients | | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| G.4.4 | Transients from cable distribution systems | | N/A |
| G.5 | Measurement of transient voltages (V) | | N/A |
| | a) Transients from a mains supply | | N/A |
| | For an a.c. mains supply | | N/A |
| | For a d.c. mains supply | | N/A |
| | b) Transients from a telecommunication network | | N/A |
| G.6 | Determination of minimum clearances | | N/A |
| H | ANNEX H, IONIZING RADIATION (see 4.3.13) | | N/A |
| J | ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6) | | P |
| | Metal(s) used | Verified. | — |
| K | ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8) | | N/A |
| K.1 | Making and breaking capacity | The unit provides thermo sensors switching off in case of mal function. This sensor is not used in normal mode. Therefore, the sensors are not related to safety. | N/A |
| K.2 | Thermostat reliability; operating voltage (V) | | N/A |
| K.3 | Thermostat endurance test; operating voltage (V) | | N/A |
| K.4 | Temperature limiter endurance; operating voltage (V) | | N/A |
| K.5 | Thermal cut-out reliability | | N/A |
| K.6 | Stability of operation | | N/A |
| L | ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2) | | P |
| L.1 | Typewriters | | N/A |
| L.2 | Adding machines and cash registers | | N/A |
| L.3 | Erasers | | N/A |
| L.4 | Pencil sharpeners | | N/A |
| L.5 | Duplicators and copy machines | | N/A |
| L.6 | Motor-operated files | | N/A |

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

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| L.7 | Other business equipment | Rated load, as specified by Manufacturer. | P |
|-----|--------------------------|---|---|

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| M | ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1) | | N/A |
| M.1 | Introduction | | N/A |
| M.2 | Method A | | N/A |
| M.3 | Method B | | N/A |
| M.3.1 | Ringing signal | | N/A |
| M.3.1.1 | Frequency (Hz) | | — |
| M.3.1.2 | Voltage (V) | | — |
| M.3.1.3 | Cadence; time (s), voltage (V) | | — |
| M.3.1.4 | Single fault current (mA) | | — |
| M.3.2 | Tripping device and monitoring voltage | | N/A |
| M.3.2.1 | Conditions for use of a tripping device or a monitoring voltage | | N/A |
| M.3.2.2 | Tripping device | | N/A |
| M.3.2.3 | Monitoring voltage (V) | | N/A |

| | | | |
|----------|--|--|-----|
| N | ANNEX N, IMPULSE TEST GENERATORS (see 1.5.7.2, 1.5.7.3, 2.10.3.9, 6.2.2.1, 7.3.2, 7.4.3 and Clause G.5) | | N/A |
| N.1 | ITU-T impulse test generators | | N/A |
| N.2 | IEC 60065 impulse test generator | | N/A |

| | | | |
|----------|--------------------------------------|--|---|
| P | ANNEX P, NORMATIVE REFERENCES | | — |
|----------|--------------------------------------|--|---|

| | | | |
|----------|--|------------------------------|-----|
| Q | ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1) | | P |
| | a) Preferred climatic categories | Minimum climatic category | P |
| | b) Maximum continuous voltage | | P |
| | c) Combination pulse current | Min. 6kV/3kA pulse 1,2/50 µs | P |
| | Body of the VDR Test according to IEC60695-11-5..... | | N/A |
| | Body of the VDR. Flammability class of material (min V-1)..... | V-1 Min | P |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| R | ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES | | N/A |
| R.1 | Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2) | | N/A |
| R.2 | Reduced clearances (see 2.10.3) | | N/A |
| S | ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3) | | N/A |
| S.1 | Test equipment | | N/A |
| S.2 | Test procedure | | N/A |
| S.3 | Examples of waveforms during impulse testing | | N/A |
| T | ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2) | | N/A |
| | | | — |
| U | ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4) | | N/A |
| | | See list of critical components. All used triple insulated wires are already approved to Annex U. No additional tests considered required. | — |
| V | ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1) | | P |
| V.1 | Introduction | | P |
| V.2 | TN power distribution systems | | P |
| W | ANNEX W, SUMMATION OF TOUCH CURRENTS | | N/A |
| W.1 | Touch current from electronic circuits | | N/A |
| W.1.1 | Floating circuits | | N/A |
| W.1.2 | Earthed circuits | | N/A |
| W.2 | Interconnection of several equipments | | N/A |
| W.2.1 | Isolation | | N/A |
| W.2.2 | Common return, isolated from earth | | N/A |
| W.2.3 | Common return, connected to protective earth | | N/A |

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

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| X | ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1) | | P |
| X.1 | Determination of maximum input current | Input current was measured and recorded (see appended table 5.3). | P |
| X.2 | Overload test procedure | | P |

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

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| Z | ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2) | | N/A |
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| AA | ANNEX AA, MANDREL TEST (see 2.10.5.8) | | N/A |
|-----------|--|--|-----|

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

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| CC | ANNEX CC, Evaluation of integrated circuit (IC) current limiters | | N/A |
| CC.1 | General | | N/A |
| CC.2 | Test program 1..... | | N/A |
| CC.3 | Test program 2..... | | N/A |
| CC.4 | Test program 3..... | | N/A |
| CC.5 | Compliance..... | | N/A |

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

| | | | |
|-----------|---|--|-----|
| EE | ANNEX EE, Household and home/office document/media shredders | | N/A |
| EE.1 | General | | N/A |
| EE.2 | Markings and instructions | | N/A |

| IEC 60950-1 | | | |
|-------------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Use of markings or symbols.....: | | N/A |
| | Information of user instructions, maintenance and/or servicing instructions.....: | | N/A |
| EE.3 | Inadvertent reactivation test.....: | | N/A |
| EE.4 | Disconnection of power to hazardous moving parts: | | N/A |
| | Use of markings or symbols.....: | | N/A |
| EE.5 | Protection against hazardous moving parts | | N/A |
| | Test with test finger (Figure 2A) | | N/A |
| | Test with wedge probe (Figure EE1 and EE2) | | N/A |

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

| 1.5.1 | TABLE: list of critical components | | | | | P |
|--|---|-------------------------|--|---|---|---|
| object/part No. | manufacturer/ trademark | type/model | technical data | standard | mark(s) of conformity ¹⁾ | |
| Enclosure top | Sabic Innovative Plastics | C2950 | OD approx 140 by 87,6 mm Thickness 2, 5mm Min. UL94-V0 | IEC/EN 60950-1 UL 94 | Accepted cURus E45329 | |
| Enclosure top, alternate 1 | Sabic Innovative plastics | SE1X, SE100X, CX7211 | OD approx 140 by 87,6 mm Thickness 2,5 mm Min. UL94-V1 | IEC/EN 60950-1 UL 94 | Accepted cURus E45329 E121562 | |
| Enclosure top, alternate 2 | Sabic Innovative | SE1, SE100 | OD approx 140 by 87,6mm; thickness 2,5mm, Min. UL94-V1 | IEC/EN 60950-1 UL 94 | Accepted cURus E45329 | |
| Insulation sheet on the bottom enclosure | +Formex | Formex GK | OD approx 133,8 by 81,4 mm Thickness min. 0,4 mm UL94-V0 Min RTI = 115°C | IEC/EN 60950- UL94 | Accepted cURus E121855 | |
| Enclosure bottom | OD approx 140 by 87,6 mm Thickness 0,6 mm Nickel plated | | | IEC/EN 60950-1 | Accepted | |
| Bonding wire | +HUESON CORP. | UL AWM Style 1569 | 300V; 105°C 18 AWG | (AVLV2) (AVLV8) IEC/EN 60950-1 | cURus E174416 Accepted | |
| Input connector male (CON1) for -S version Class I | +Molex | KK 26-60-4030 | UL94-V0 7 A / 250 Vac 75°C max. | UL 1977 IEC/EN 60947 | cURus E29179 TÜV R75108 | |
| Input connector male (CON1)) for -S version Class II | +Molex | KK 26-60-4030 | UL94-V0 7 A / 250 Vac 75°C max. | UL 1977 IEC/EN 60947 | cURus E29179 TÜV R75108 | |
| Input connector male (CON1) for -HOXXX version Class I | +Molex | KK 26-60-4030 | UL94-V0 7 A / 250 Vac 75°C max. | UL 1977 IEC/EN 60947 | cURus E29179 TÜV R75108 | |
| Input connector male (CON1) for -HOXXX version Class II | +Molex | KK 26-60-4030 | UL94-V0 7 A / 250 Vac 75°C max. | UL 1977 IEC/EN 60947 | cURus E29179 TÜV R75108 | |

| IEC 60950-1 | | | | | |
|---|--------------------|-----------------------|--|-------------------------|----------------------------|
| Clause | Requirement + Test | | Result - Remark | | Verdict |
| Input connector male (CON1) for –HIXXX version Class I | +Molex | KK 09-50-3031 | UL94-V0 7 A / 250 Vac 75°C max. | UL 1977 IEC/EN 60947 | cURus E29179 TÜV R75108 |
| Input connector male (CON1) for –HIXXX version Class II | +Molex | KK 09-50-3031 | UL94-V0 7 A / 250 Vac 75°C max. | UL 1977 IEC/EN 60947 | cURus E29179 TÜV R75108 |
| Output connector male (CON2) for -S version | +Molex | KK 26-60-4060 | UL94-V0 7 A / 250 Vac 75°C max. | UL 1977 IEC/EN 60947 | cURus E29179 TÜV R75108 |
| Output connector male (CON2)) for –HOXXX version | +Molex | KK 09-50-3061 | UL94-V0 7 A / 250 Vac 75°C max. | UL 1977 IEC/EN 60947 | cURus E29179 TÜV R75108 |
| Output connector male (CON2)) for –HIXXX version | +Molex | KK 26-60-4060 | UL94-V0 7 A / 250 Vac 75°C max. | UL 1977 IEC/EN 60947 | cURus E29179 TÜV R75108 |
| Output Connector Fan male (CON3) for -S version | +JST | B2B-PH-K-SLFSN | UL94-V0 4 A / 250 Vac 75°C max. | UL 1977 IEC/EN 60947 | cURus E60389 TÜV R75087 |
| Output Connector Fan male (CON3) for –HOXXX version | +JST | B2B-PH-K-SLFSN | UL94-V0 4 A / 250 Vac 75°C max. | UL 1977 IEC/EN 60947 | cURus E60389 TÜV R75087 |
| Output Connector Fan male (CON3) for –HIXXX version | +JST | B2B-PH-K-SLFSN | UL94-V0 4 A / 250 Vac 75°C max. | UL 1977 IEC/EN 60947 | cURus E60389 TÜV R75087 |
| Earth quick connector (Faston Class I units) | +Kanyang | PCH250 | Double crimped Uninsulated 6.35 x 0,8 mm | IEC/EN 60950-1 | Accepted |
| Input connector female (CON1) | +Molex | 09-50-3031 | UL94-V0 5 A / 250 Vac 75°C max. | UL 1977 IEC/EN 60947 | cURus E29179 TÜV R75108 |
| Output connector female (CON2) | +Molex | 09-50-3061 | UL94-V0 7 A / 250 Vac (Phosphor Bronze) 75°C max. | UL 1977 IEC/EN 60947 | cURus E29179 TÜV R75108 |
| Output Connector Fan female (CON3) | +JST | PHR-2; SPH-002T-P0.5S | UL94-V0 4 A / 250 Vac 75°C max. | UL 1977 IEC/EN 60947 | cURus E60389 TÜV R75087 |

| IEC 60950-1 | | | | | |
|---|---------------------------------|-----------|---|--------------------------------------|------------------------|
| Clause | Requirement + Test | | Result - Remark | | Verdict |
| PCB Main Board | +Xinke | 530-0096 | Material: FR-4; UL94-V0 Min. 130°C Overall approx. 76,2 by 127 mm | (ZPMV2) IEC/EN 60950-1 | UL E231590 Accepted |
| PCB Control Board | +Xinke | 530-0097 | Material: FR-4 UL94-V0 Min. 130°C Overall approx. 23,8 by 31,3 mm | (ZPMV2) IEC/EN 60950-1 | UL E231590 Accepted |
| Heatsink (Secondary) connected to minus output | +GlobTek | 500-0189A | L-shaped OD approx 44,5 by 24 by 36 mm Thick. 4mm Copper | IEC/EN 60950-1 | Accepted |
| Heatsink, (Secondary) connected to minus output | +GlobTek | 500-0189B | L-shaped OD approx 44,5 by 24 by 36 mm Thick. 4 mm Aluminium alloy | IEC/EN 60950-1 | Accepted |
| Heatsink Primary | +GlobTek | 500-0184 | L-shaped OD approx 76 by 36 by 30 mm Thick. 4mm Aluminium alloy | IEC/EN 60950-1 | Accepted |
| Heatsink Primary (for BD1) | +GlobTek | 500-0183 | L-shaped OD approx 33 by 31,5 by 35 mm Thick. 1,8 mm Copper | IEC/EN 60950-1 | Accepted |
| Clamp semiconductor on heatsink primary | +GlobTek | 500-0186 | L-shaped OD approx 12 by 22 1mm thick. Galvanized iron | IEC/EN 60950-1 | Accepted |
| Fuse (F1) | +Walter | ICP | 250 Vac / 5 A Time delay | (JDYX2) IEC/EN 60127-4 | UL E56092 VDE |
| Fuse (F2) | LITTELFUSE WICKMANN WERKE | 392 | 250 Vac / 5 A Time delay | (JDYX2) (JDYX8) IEC/EN 60127-3 | UL E67006 VDE |

| IEC 60950-1 | | | | | |
|---------------------------------|---|---------------|--|--|--------------------------------|
| Clause | Requirement + Test | | Result - Remark | | Verdict |
| Fuse (F2) | EVER ISLAND ELECTRIC CO LTD & WALTER ELECTRIC | 2010 | 250 Vac / 5 A Time delay | JDYX2) (JDYX8) IEC/EN 60127-3 | UL E220181 VDE 40018781 |
| Fuse (F2) | CONQUER ELECTRONICS CO., LTD | MST | 250 Vac / 5 A Time delay | (JDYX2) (JDYX8) IEC/EN 60127-3 | cURus E82636 VDE |
| Fuse (F2) | BEL FUSE INC | RST | 250 Vac / 5 A Time delay | (JDYX2) (JDYX8) IEC/EN 60127-3 | cURus E20624 VDE |
| Fuse (F2) | COOPER BUSSMANN INC. | SS-5 | 250 Vac / 5 A Time delay | (JDYX2) (JDYX8) IEC/EN 60127-3 | URus E19180 VDE |
| Varistor MOV2 (Line to Neutral) | THINKING ELECTRONIC INDUSTRIAL CO., LTD | TVR10471-V | 300 Vrms; 385 Vdc, 3,5 kA (8/20 us) Diameter: 10 mm V-1 Min | (VZCA2) (VZCA8) IEC/EN 61051-2 IEC/EN 60950-1 Annex Q | cURus E314979 VDE |
| Varistor MOV2 (Line to Neutral) | + JOYIN CO., LTD | JVR14S471K | 300 Vrms; 385 Vdc, min. 3kA (8/20 us) diameter: 14 mm V-1 Min | (VZCA2) (VZCA8) IEC/EN 61051-2 IEC/EN 60950-1 Annex Q | cURus E325508 VDE |
| Varistor MOV2 (Line to Neutral) | + EPCOS | S(NF)14K300E2 | 300 Vrms; 385 Vdc, min. 3kA (8/20 us) diameter: 14 mm V-1 Min | (VZCA2) (VZCA8) IEC/EN 61051-2 IEC/EN 60950-1 Annex Q | URus E321126 VDE |
| Varistor MOV2 (Line to Neutral) | WALSIN TECHNOLOGY CORP | SR471K14D | 300 Vrms; 385 Vdc, 4,5kA (8/20 us) diameter: 14 mm V-1 Min | (VZCA2) (VZCA8) IEC/EN 61051-2 IEC/EN 60950-1 Annex Q | cURus E309297 VDE |

| IEC 60950-1 | | | | | |
|----------------|--------------------|-----------------|--|----------------|----------|
| Clause | Requirement + Test | | Result - Remark | | Verdict |
| Inductor (LF1) | GlobTek (Suzhou) | 321-02176004(R) | Open type construction with tubing Overall approx. dimension: 30 by 10 mm Rating: 60 mH Min; 1KHz / 0,25V Core: Ferrite Coil: Enamelled copper magnet wire wound on core Temp. Class: Class B 2 Layers Myler tape after the copper shield is installed. | IEC/EN 60950-1 | Accepted |
| Inductor (LF2) | GlobTek (Suzhou) | 321-02176003(R) | Open type construction with tubing Overall approx. dimension: 26 by 12 mm Rating: 6 mH Min; 1KHz / 0,25V Core: Ferrite Coil: Enameled copper magnet wire wound on Core Temp. Class: Class B Epoxy fixing on the bottom as a drawing. | IEC/EN 60950-1 | Accepted |
| Inductor (LF3) | GlobTek (Suzhou) | 321-02171003(R) | Open type construction with outerwrap Myler tape overall Overall approx. dimension: 15 by 8 mm Rating: 1 to 1,5mH Min; 1KHz/0.25V Core: Ferrite Coil: Enameled copper magnet wire wound on Core Temp. Class: Class B 2 Layers Myler tape after the copper shield is installed. Epoxy fixing on the bottom as a drawing | IEC/EN 60950-1 | Accepted |

| IEC 60950-1 | | | | | |
|-------------------|--------------------|-----------------|---|----------------|----------|
| Clause | Requirement + Test | | Result - Remark | | Verdict |
| Inductor (LF4) | GlobTek (Suzhou) | 321-02172802(R) | <p>Open type construction with outerwrap Myler tape</p> <p>Overall approx. dimension: 12 by 7,5 mm</p> <p>Rating: 280uH to 320uH; 1KHz/0,25V</p> <p>Core: Ferrite</p> <p>Coil: Enameled copper magnet wire wound on Core</p> <p>Temp. Class: Class B</p> <p>Epoxy fixing on the bottom as a drawing</p> | IEC/EN 60950-1 | Accepted |
| PFC Inductor (L1) | GlobTek | 405-0005 | <p>Open type construction with tubing</p> <p>Overall approx. dimension: 27 by 21 mm</p> <p>Rating: 1.3uH to 1.8uH; 1KHz/0.25V</p> <p>Core: Ferrite</p> <p>Coil: Enameled copper magnet wire wound on Core</p> <p>Temp. Class: Class F</p> <p>Epoxy to hold wires to the core. 1 Layer Myler tape, 18mm wide shield 1, than 2 Layers Myler tape, 18mm wide shield 2.</p> | IEC/EN 60950-1 | Accepted |

| IEC 60950-1 | | | | | |
|-----------------------------------|--|--------------------------------|---|---------------------------------------|--------------------------|
| Clause | Requirement + Test | | Result - Remark | | Verdict |
| Inductor (L100) | + GlobTek | 403-0056 for 48V to 55V Output | Open type construction with tubing Overall approx. dimension: 28 by 14 mm Rating: 150uH to 170uH; 1KHz/0.25V Core: Ferrite Coil: Enameled copper magnet wire wound on Core Temp. Class: Class B Epoxy to hold wires to the core. 1 Layer Mylar tape, 14mm wide shield | IEC/EN 60950-1 | Accepted |
| Capacitor (CX1) (X2 capacitor) | + ULTRA TECH XIPHI ENTERPRISE CO.,LTD. | HQX | 250 Vac (UL) 275 Vac (IEC) 1,0uF max. X2, 100°C | (FOWX2) (FOWX8) IEC/EN 60384-14 | cURus E183780 VDE |
| Capacitor Bulk (C1) | Various | Various | Rated: Min. 400V Min 105°C Min 120uF | IEC/EN 60950-1 | Accepted |
| Y-Capacitor (CY8) | +SUCCESS ELECTRONICS CO., LTD | SE, SB | 250Vac Max. 4700pF Y1 type | (FOWX2) IEC/EN 60384-14 | cURus E114280 VDE |
| Y-Capacitor (CY8) | +WALSIN TECHNOLOGY CORP. | AH | 250Vac Max. 4700pF Y1 type | (FOWX2) IEC/EN 60384-14 | cURus E146544 VDE |
| Y-Capacitor (CY8) | +MURATA MFG CO., LTD. | Type KX | 250Vac Max. 4700pF Y1 type | (FOWX2) IEC/EN 60384-14 | URus E37921 VDE |
| Y-Capacitor (CY8) | +TDK-EPC CORP. | Type CD | 250Vac Max. 4700pF Y1 type | (FOWX2) IEC/EN 60384-14 | URus E37861 VDE |
| Y-Capacitor (CY8) | +WELSON INDUSTRIAL CO., LTD | Type WD | 250Vac Max. 4700pF Y1 type | (FOWX2) IEC/EN 60384-14 | cURus E104572 VDE |
| Y-Capacitor (CY8) | +JYA-NAY CO., LTD. | Type JN | 250Vac Max. 4700pF Y1 type | (FOWX2) IEC/EN 60384-14 | cURus E201384 VDE |

| IEC 60950-1 | | | | | |
|---|--|----------------------------------|--|---------------------------|------------------------|
| Clause | Requirement + Test | | Result - Remark | | Verdict |
| Electrolytic Capacitor (C103, C104, C105) | Various | Various | Various, depending on power supply output voltage, Min. 105°C | IEC/EN 60950-1 | Accepted |
| NTC (RTH1) | + THINKING ELECTRONIC INDUSTRIAL CO., LTD. | SCK 153 | 240 Vac 3 A 200°C | (XGPU2) IEC/EN 60950-1 | cURus E138827 TUV |
| Thermistor (RTH2) | + Epcos | B57703M0103G040 | Rated: 125°C Secured to Secondary heatsink by screw. | IEC/EN 60950-1 | Accepted |
| Transistor (Q1, Q2, Q3) | +Toshiba | TK20A60U | Rated: 600 V / 20 A Mounted on Primary heatsink by clamp semiconductor secured by screw. | IEC/EN 60950-1 | Accepted |
| Optical insulator (U3, U4, U5) | +Vishay Semiconductor GmbH | TCLT1003 | Isolation voltage: 5000 Vac Ext. creepage: 7,9 mm | UL 1577 IEC/EN 60950-1 | cURus E76222 BSI |
| Optical insulator (U3, U4, U5) | +FAIRCHILD Semiconductor Corp. | FOD817C FOD817A (H11A817X) | Isolation voltage: 5000 Vac Ext. creepage: 7,8 mm | UL 1577 IEC/EN 60950-1 | cURus E90700 FIMKO |
| Optical insulator (U3, U4, U5) | +EVERLIGHT ELECTRONICS CO., LTD | EL817C | Isolation voltage: 5000 Vac Ext. creepage: 7,7 mm | UL 1577 IEC/EN 60950-1 | cURus E214129 SEMKO |

| IEC 60950-1 | | | | | |
|--|--------------------|-------------|--|----------------|----------|
| Clause | Requirement + Test | | Result - Remark | | Verdict |
| Transformer (T1) Primary to Secondary (Reinforced) | GlobTek | 403-0051(R) | <p>Open type construction</p> <p>Overall dimension: 34 by 33 by 36 mm</p> <p>Rating: Output: 48V and 55V</p> <p>Switching frequency: 100 kHz Nominal</p> <p>Core: Ferrite PC44PQ32/30Z-12 or equivalent</p> <p>Coil: Polyurethane enamelled copper wire 130C and copper foil wound on bobbin</p> <p>Bobbin: FR PHENOL BPQ 32/32-1112CP or equivalent</p> <p>Phenolic T375J 94V0 150C</p> <p>(E59481(S) cURus (QMFZ2, QMFZ8))</p> <p>Insulation:</p> <p>Pri/Sec: 3 Layer; min 0,025 mm Polyester tape</p> <p>Pri/Pri 1 Layer; min. 0,025 mm Polyester tape</p> <p>Outerwrap: Myler type around the core, 2 Layers, 0,025mm; shield E3 and Myler type on top of shield E3, 3 Layers, 0,025mm</p> <p>Insulation between primary and secondary winding is achieved by triple insulation wire TEX-E or equiv and copper foil.</p> <p>All outlets are provided with Teflon-tube.</p> <p>Temp. Class: Class B</p> | IEC/EN 60950-1 | Accepted |

| IEC 60950-1 | | | | | |
|--|--------------------|-------------|--|----------------|----------|
| Clause | Requirement + Test | | Result - Remark | | Verdict |
| Transformer (T1) Primary to Secondary (reinforced) | GlobTek | 403-0052(R) | <p>Open type construction</p> <p>Overall dimension: 34 by 33 by 36 mm</p> <p>Rating: Output: 24V</p> <p>Switching frequency: 100 kHz nominal</p> <p>Core: Ferrite PC44PQ32/30Z-12 or equivalent</p> <p>Coil: Polyurethane enamelled copper wire 130C and copper foil wound on bobbin</p> <p>Bobbin: FR PHENOL BPQ 32/32-1112CP or equivalent</p> <p>Phenolic T375J 94V0 150C</p> <p>(E59481(S) cURus (QMFZ2, QMFZ8))</p> <p>Insulation:</p> <p>Pri/Sec: 3 Layer; min 0,025 mm Polyester tape</p> <p>Pri/Pri 1 Layer; min. 0,025 mm Polyester tape</p> <p>Outerwrap: Myler type around the core before belly band is installed, than 3 Layers of Myler tape around the belly band.</p> <p>Insulation between primary and secondary winding is achieved by triple insulation wire TEX-E or equiv, and copper foil.</p> <p>All outlets are provided with Teflon-tube.</p> <p>Temp. Class: Class B</p> | IEC/EN 60950-1 | Accepted |

| IEC 60950-1 | | | | | |
|--|--------------------|-------------|--|----------------|----------|
| Clause | Requirement + Test | | Result - Remark | | Verdict |
| Transformer (T1) Primary to Secondary (reinforced) | GlobTek | 403-0053(R) | <p>Open type construction</p> <p>Overall dimension: 34 by 33 by 36 mm</p> <p>Rating: Output: 18V</p> <p>Switching frequency: 100 kHz, nominal</p> <p>Core: Ferrite PC44PQ32/30Z-12 or equivalent</p> <p>Coil: Polyurethane enamelled copper wire 130°C and copper foil wound on bobbin</p> <p>Bobbin: FR PHENOL BPQ 32/32-1112CP or equivalent</p> <p>Phenolic T375J 94V0 150C</p> <p>(E59481(S) cURus (QMFZ2, QMFZ8))</p> <p>Insulation:</p> <p>Pri/Sec: 3 Layer; min 0,025 mm Polyester tape</p> <p>Pri/Pri 1 Layer; min. 0,025 mm Polyester tape</p> <p>Outerwrap: Myler type around the core. After the shield is installed are 3 Layers of Myler tape (15mm).</p> <p>Insulation between primary and secondary winding is achieved by triple insulation wire TEX-E or equiv , and copper foil.</p> <p>All outlets are provided with Teflon-tube.</p> <p>Temp. Class: Class B</p> | IEC/EN 60950-1 | Accepted |

| IEC 60950-1 | | | | | |
|--|--------------------|-----------------|--|----------------|----------|
| Clause | Requirement + Test | | Result - Remark | | Verdict |
| Transformer (T1) Primary to Secondary (reinforced) | GlobTek | 403-0054(R) | <p>Open type construction</p> <p>Overall dimension: 34 by 33 by 36 mm</p> <p>Rating: Output: 12V</p> <p>Switching frequency: 100 kHz nominal</p> <p>Core: Ferrite PC44PQ32/30Z-12 or equivalent</p> <p>Coil: Polyurethane enamelled copper wire 130°C and copper foil wound on bobbin</p> <p>Bobbin: FR PHENOL BPQ 32/32-1112CP</p> <p>Phenolic T375J 94V0 150C or equivalent (E59481(S) cURus (QMFZ2, QMFZ8))</p> <p>Insulation:</p> <p>Pri/Sec: 3 Layer; min 0,025 mm Polyester tape</p> <p>Pri/Pri 1 Layer; min. 0,025 mm Polyester tape</p> <p>Outerwrap: Myler type around the core. After the shield is installed are 3 Layers of Myler tape (15 mm).</p> <p>Insulation between primary and secondary winding is achieved by triple insulation wire TEX-E or equiv, and copper foil.</p> <p>All outlets are provided with Teflon-tube.</p> <p>Temp. Class: Class B</p> | IEC/EN 60950-1 | Accepted |
| Drive Transformer (T2) | GlobTek | 320-02320004(R) | <p>Open type construction</p> <p>Overall dimension: 16 by 7 mm</p> <p>Rating: 544 μH to 1011 μH</p> <p>Temp. Class: Class B</p> | IEC/EN 60950-1 | Accepted |

| IEC 60950-1 | | | | | |
|--|--------------------------|-------------|--|------------------------------------|----------------------------|
| Clause | Requirement + Test | | Result - Remark | | Verdict |
| PFC Diode (D1) | +CREE | C3D06060A | Rated: 500V / min 5A Mounted on Primary heatsink by clamp semiconductor secured by screw. | IEC/EN 60950-1 | Accepted |
| Rectifier Diode (D100, D101) | Various | Various | Rating varies depending on the output voltage and power of the power supply. Secured to Secondary heatsink. by screw. | IEC/EN 60950-1 | Accepted |
| Diode Bridge (BD1) | +DIODES INC | GBU1010 | Rated: 700V min, 10A min Secured to Primary heatsink. by screw, and between is insulation foil | (QQX2) | URus E94661 |
| SMD Capacitor (CY1, CY2, CY3, CY4, CY5, CY6, CY7) (Primary - PE) | +PANASONIC CORPORATION | ECCTFC220JG | 250 Vac 330 pF max Y2 Type | (FOWX2) IEC 60384-14 | URus E62674 S, D, N, FI |
| SMD Capacitor (CY1, CY2, CY3, CY4, CY5, CY6, CY7) (Primary - PE) | +MURATA MFG CO., LTD. | Type GC | 250 Vac 330 pF max Y2 Type | (FOWX2) (FOWX8) IEC 60384-14 | cURus E37921 VDE |
| Capacitor (C106, C107) Output to PE | + VISHAY ELECTRONIC GMBH | VY1 | 250 Vac 22 pF max X1/Y1 type | (FOWX8) (FOWX2) IEC 60384-14 | cURus E183844 VDE |
| <p>1) ¹⁾ Provided evidence ensures the agreed level of compliance. See OD-CB2039.</p> <p>2) + means, that components from other vendor and other model number, but with the same or better/higher rating and equivalent approvals are accepted.</p> | | | | | |

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

| 1.6.2 | TABLE: electrical data (in normal conditions) | | | | | | P |
|---|---|-------|-------|-------|-----------------------|------------------------|---|
| fuse # | I _{rated} (A) | U (V) | P (W) | I (A) | I _{fuse} (A) | condition/status | |
| GT(M)91110P24055-X.X-FA(W)-S or -HI0XX or -H0XXX or -HIXXX (AC input) | | | | | | | |
| F1/F2 | -- | 90 | 280 | 3,1 | 5 | Rated load 4,36A@55Vdc | |
| F1/F2 | 4 | 100 | 277 | 2,8 | 5 | Rated load 4,36A@55Vdc | |
| F1/F2 | 4 | 200 | 269 | 1,4 | 5 | Rated load 4,36A@55Vdc | |
| F1/F2 | 4 | 240 | 268 | 1,1 | 5 | Rated load 4,36A@55Vdc | |
| F1/F2 | -- | 264 | 267 | 1,0 | 5 | Rated load 4,36A@55Vdc | |
| GT(M)91110P24055-X.X-FA(W)-S or -HI0XX or -H0XXX or -HIXXX (DC input) | | | | | | | |
| F1/F2 | 2,5 | 130 | 273 | 2,1 | 3 | Rated load 4,36A@55Vd | |
| F1/F2 | 2,5 | 200 | 270 | 1,4 | 3 | Rated load 4,36A@55Vd | |
| F1/F2 | 2,5 | 300 | 263 | 0,9 | 3 | Rated load 4,36A@55Vd | |
| F1/F2 | 2,5 | 320 | 262 | 0,8 | 3 | Rated load 4,36A@55Vd | |
| GT(M)91110P24012-FA(W)-S or -HI0XX or -H0XXX or -HIXXX (AC input) | | | | | | | |
| F1/F2 | -- | 90 | 289 | 3,2 | 5 | Rated load 20A@12Vdc | |
| F1/F2 | 4 | 100 | 286 | 2,9 | 5 | Rated load 20A@12Vdc | |
| F1/F2 | 4 | 200 | 277 | 1,4 | 5 | Rated load 20A@12Vdc | |
| F1/F2 | 4 | 240 | 276 | 1,2 | 5 | Rated load 20A@12Vdc | |
| F1/F2 | -- | 264 | 275 | 1,1 | 5 | Rated load 20A@12Vdc | |
| GT(M)91110P24012-FA(W)-S or -HI0XX or -H0XXX or -HIXXX (DC input) | | | | | | | |
| F1/F2 | 2,5 | 130 | 283 | 2,2 | 3 | Rated load 20A@12Vdc | |
| F1/F2 | 2,5 | 200 | 279 | 1,4 | 3 | Rated load 20A@12Vdc | |
| F1/F2 | 2,5 | 300 | 275 | 0,9 | 3 | Rated load 20A@12Vdc | |
| F1/F2 | 2,5 | 320 | 274 | 0,8 | 3 | Rated load 20A@12Vdc | |
| Comment: The steady-state input current did not exceed the rated current at the rated voltage by more than 10% under the maximum normal load. | | | | | | | |

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

| 2.1.1.5 c) 1) | TABLE: max. V, A, VA test | | | | N/A |
|--|---------------------------|-----------------------|-----------------------|-------------------|-----|
| Voltage (rated) (V) | Current (rated) (A) | Voltage (max.) (V) | Current (max.) (A) | VA (max.) (VA) | |
| GT(M)91110P24055-X.X-FA(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | |
| 55 | 4,36 | 54,9 | 5,74 | 315 | |
| GT(M)91110P24012-FA(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | |
| 12 | 20 | 12,1 | 22,5 | 272 | |
| supplementary information: | | | | | |
| Unit is intended for building-in. | | | | | |
| Test was performed for information only. | | | | | |
| Accessibility of the output: End product consideration. | | | | | |

| | | | |
|--|----------------------|--------------|-----|
| 2.1.1.5 c) 2) | TABLE: stored energy | | N/A |
| Capacitance C (μF) | Voltage U (V) | Energy E (J) | |
| GT(M)91110P24055-X.X-FA(W)-S or -HI0XX or -H0XXX or –HIXXX | | | |
| 660 | 55,0 | 1,0 | |
| GT(M)91110P24012-FA(W)-S or -HI0XX or -H0XXX or -HIXXX | | | |
| 4500 | 12,0 | 0,3 | |
| supplementary information: | | | |
| Unit is intended for building-in. | | | |
| Test was performed for information only. | | | |
| Accessibility of the output: End product consideration. | | | |

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

| | | |
|---------|---|---|
| 2.1.1.7 | TABLE: Discharge of capacitors in the primary circuit | P |
|---------|---|---|

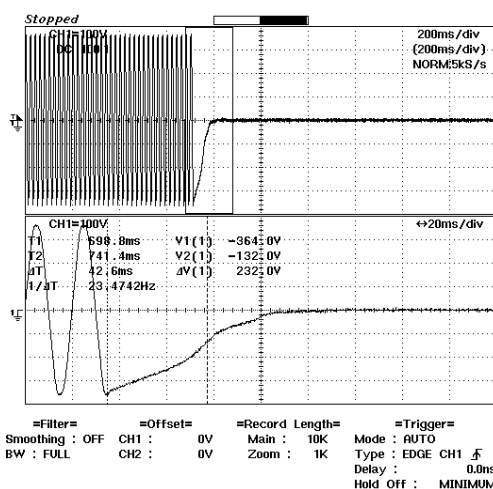
The unit was connected to 264 a.c , 50Hz. A storage oscilloscope was connected across the external point of disconnection of the mains supply. With all switches in the unit initially set to the off position, the unit was disconnected from the supply source. The voltage at the time of disconnection, Vo, and the voltage Vtc at 1 second was recorded.

| Model | Location | Time Constant | Measured voltage after 1 sec. | Condition |
|---|--------------------|---------------|-------------------------------|-------------|
| GT(M)91110P2405 5-X.X-FA(W)-S or - HI0XX or -H0XXX or -HIXXX | Between L and N | 42,6ms | 0V | No load |
| GT(M)91110P2401 2-FA(W)-S or - HI0XX or -H0XXX or -HIXXX | Between L and N | 51,8ms | 0V | No load |
| GT(M)91110P2405 5-X.X-FA(W)-S or - HI0XX or -H0XXX or -HIXXX | Between L and N | 800µs | 0V | 4,36A@55Vdc |
| GT(M)91110P2401 2-FA(W)-S or - HI0XX or -H0XXX or -HIXXX | Between L and N | 550µs | 0V | 20,0A@12Vdc |

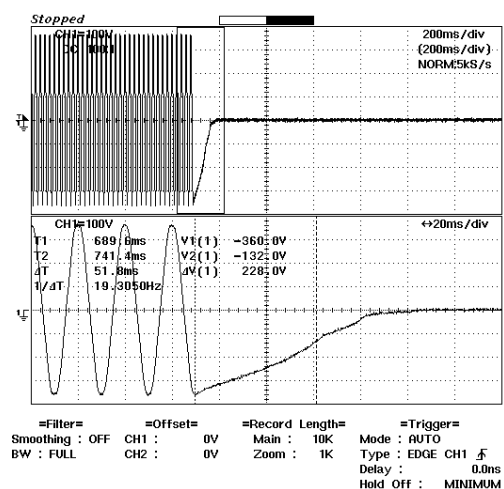
Comments: The voltage across the line capacitor did decay to less than 37 percent of it's original value in 1 second.

Scope pictures:

GT(M)91110P24055-X.X-FA(W)-S or -HI0XX or -
H0XXX or -HIXXX
No load



GT(M)91110P24012-FA(W)-S or -HI0XX or -
H0XXX or -HIXXX
No load



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

| | | |
|---|---|--|
| 2.1.1.7 | TABLE: Discharge of capacitors in the primary circuit | P |
| <p>GT(M)91110P24055-X.X-FA(W)-S or -HI0XX or -H0XXX or -HIXXX Rated load</p> <p>CH1=100V 200ms/div (200ms/div) NORM5kS/s</p> <p>CH1=100V 10ms/div</p> <p>T1=710.4ms V1(1)=360.0V T2=711.2ms V2(1)=104.0V dT=800us dV(1)=-256.0V 1/dT=1.25000kHz</p> <p>=Filter= =Offset= =Record Length= =Trigger= Smoothing : OFF CH1 : 0V Main : 10K Mode : AUTO BW : FULL CH2 : 0V Zoom : 500 Type : EDGE CH1 \overline{f} Delay : 0.0ns Hold Off : MINIMUM</p> | | <p>GT(M)91110P24012-FA(W)-S or -HI0XX or -H0XXX or -HIXXX Rated load</p> <p>CH1=100V 200ms/div (200ms/div) NORM5kS/s</p> <p>CH1=100V 5ms/div</p> <p>T1=771.25ms V1(1)=359.5V T2=771.80ms V2(1)=127.5V dT=550us dV(1)=-232.0V 1/dT=1.81818kHz</p> <p>=Filter= =Offset= =Record Length= =Trigger= Smoothing : OFF CH1 : 0V Main : 10K Mode : AUTO BW : FULL CH2 : 0V Zoom : 250 Type : EDGE CH1 \overline{f} Delay : 0.0ns Hold Off : MINIMUM</p> |

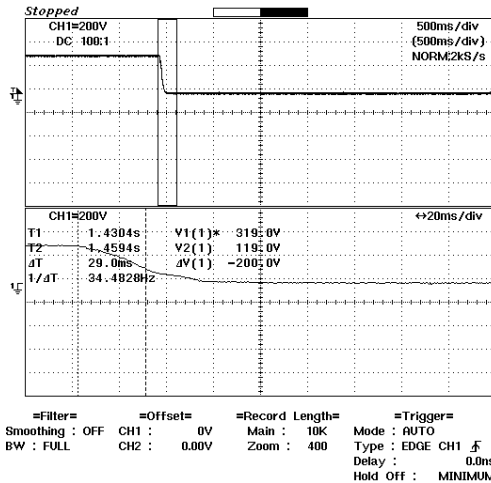
| | | | | |
|---|---|---------------|-------------------------------|-------------|
| 2.1.1.8 | TABLE: Energy hazards-d.c. mains supply | | | P |
| The unit was connected 320Vdc. A storage oscilloscope was connected across the external point of disconnection of the mains supply. With all switches in the unit initially set to the off position, the unit was disconnected from the supply source. The voltage at the time of disconnection, Vo, and the voltage Vtc at 2 seconds was recorded. | | | | |
| Model | Location | Time Constant | Measured voltage after 2 sec. | Condition |
| GT(M)91110P24055-X.X-FA(W)-S or -HI0XX or -H0XXX or -HIXXX | Between L and N | 29,0ms | 0V | No load |
| GT(M)91110P24012-FA(W)-S or -HI0XX or -H0XXX or -HIXXX | Between L and N | 44,5ms | 0V | No load |
| GT(M)91110P24055-X.X-FA(W)-S or -HI0XX or -H0XXX or -HIXXX | Between L and N | 1,3ms | 0V | 4,36A@55Vdc |
| GT(M)91110P24012-FA(W)-S or -HI0XX or -H0XXX or -HIXXX | Between L and N | 2,1ms | 0V | 20,0A@12Vdc |
| Comments: Total available energy on the input connector after 2 seconds:<<<20J. | | | | |

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

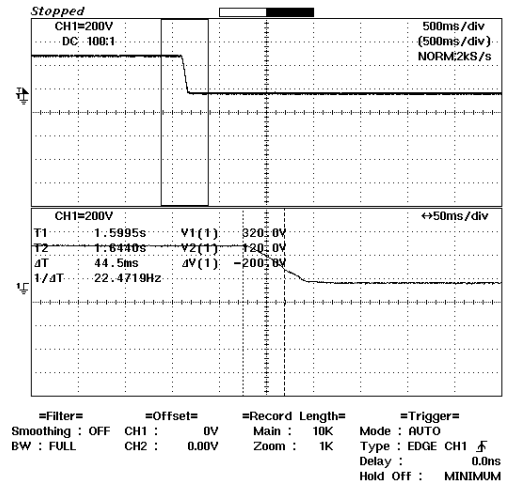
| | | | |
|---------|---|---|--|
| 2.1.1.8 | TABLE: Energy hazards-d.c. mains supply | P | |
|---------|---|---|--|

Scope pictures:

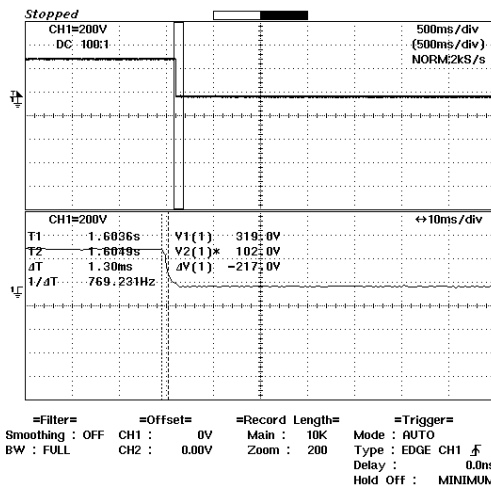
GT(M)91110P24055-X.X-FA(W)-S or -HI0XX or -H0XXX or -HIXXX
No load



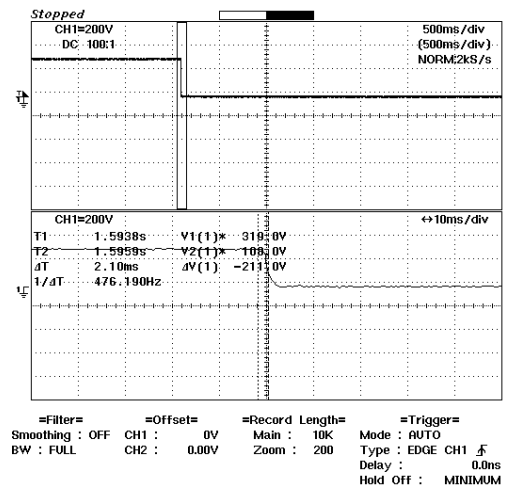
GT(M)91110P24012-FA(W)-S or -HI0XX or -H0XXX or -HIXXX
No load



GT(M)91110P24055-X.X-FA(W)-S or -HI0XX or -H0XXX or -HIXXX
Rated load



GT(M)91110P24012-FA(W)-S or -HI0XX or -H0XXX or -HIXXX
Rated load



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

| | | | | |
|--|---|---|-------------------------|-----------------------------|
| 2.2 | TABLE: evaluation of voltage limiting components in SELV circuits | | | P |
| Component (measured between) | | max. voltage (V) (normal operation) | | Voltage Limiting Components |
| | | V peak | V d.c. | |
| Input 240 Vac | | | | |
| GT(M)91110P24055-X.X-FA(W)-S or -HI0XX or -H0XXX or –HIXXX | | | | |
| Transformer T1 (FL1 to FL2) | 276,0 | 119,5 Vrms | | |
| Diode D100 (Cathode to FL2) | 264,0 | 87,6 Vrms | D100 | |
| Choke L100 (FL2 to S1) | -- | 55,6 | L100 (pin F1 to pin S1) | |
| Choke L100 (FL2 to F2) | 20,4 | 11,6 Vrms | L100 (pin F2 to pin S2) | |
| GT(M)91110P24012-FA(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | |
| Transformer T1 (FL1 to FL2) | 64,0 | 20,7 Vrms | | |
| Diode D100 (Cathode to FL2) | 14,4 | 12,0 Vrms | D100 | |
| Choke L100 (FL2 to S1) | -- | 11,5 | L100 (pin F1 to pin S1) | |
| Choke L100 (FL2 to F2) | 19,6 | 11,5 Vrms | L100 (pin F2 to pin S2) | |
| Input 320 Vac | | | | |
| GT(M)91110P24055-X.X-FA(W)-S or -HI0XX or -H0XXX or –HIXXX | | | | |
| Transformer T1 (FL1 to FL2) | 272,0 | 125,0 Vrms | | |
| Diode D100 (Cathode to FL2) | 260,0 | 93,1 Vrms | D100 | |
| Choke L100 (FL2 to S1) | -- | 57,8 | L100 (pin F1 to pin S1) | |
| Choke L100 (FL2 to F2) | 20,2 | 11,7 Vrms | L100 (pin F2 to pin S2) | |
| GT(M)91110P24012-FA(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | |
| Transformer T1 (FL1 to FL2) | 68,0 | 38,4 Vrms | | |
| Diode D100 (Cathode to FL2) | 26,1 | 24,7 Vrms | D100 | |
| Choke L100 (FL2 to S1) | -- | 11,3 | L100 (pin F1 to pin S1) | |
| Choke L100 (FL2 to F2) | 19,50 | 11,4 Vrms | L100 (pin F2 to pin S2) | |
| Fault test performed on voltage limiting components | | Voltage measured (V) in SELV circuits (V peak or V d.c.) | | |
| Diode (D100 short) | | <60 V dc | | |
| Choke (L100 pin F1 to pin S1 short) | | <60 V dc | | |
| supplementary information: | | | | |
| | | | | |

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

| | | |
|--|---|---|
| 2.4 | TABLE: Limited current circuit | P |
| <i>The unit was connected to 264Vac, 50Hz. A 2000 Ohms non-inductive resistor and a switch were connected between the user accessible part of a limited current circuit and either pole of the limited current circuit or earth. A storage oscilloscope was connected across the points under consideration. The switch was closed and voltages on resistor were measured.</i> | | |
| Limit values | 70 mApeak | |
| Circuit(s) tested | Bridging components CY8 | |
| Measured working voltage: | Measured working voltage: 364,0Vpk, 183,5Vrms | |
| Measured frequency | CY8: 100kHz | |
| Measured current through 2000Ω | CY8 was opened and the 2000 Ohm resistor in series to CY8 was connected to output minus and output plus. The output was connected to the PE of simulated TN mains. 40,00Vpk, 4,989 Vrms 20,0 mApeak, 2,49 mArms | |
| Measured capacitance | Capacitance across CY8= 4,7 nF | |
| Comments: According to an UL PAG the touch current with D1 was measured between the capacitor to PE. The measured value was: 0,3 mA The dielectric test was performed on the unit (see table dielectric testing) before the above measurements were done. | | |

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

| | | | | |
|--|---|--|--------------------------|----------------------------|
| 2.6 | TABLE: Resistance of earthing conductors and their terminations | | | P |
| Using a maximum 12 V dc power source, a current of 40 A was passed between the equipment earthing terminal and the part in the equipment that is required by 2.6.1 to be earthed listed below for a period of 120 s. The voltage drop from the earthing terminal to the accessible metal part required to be earthed was recorded and the resistance was calculated. | | | | |
| Model | Location | Test Current in A | Measured Voltage in (mV) | Calculated Resistance (mΩ) |
| GTM91110P24012 | Input pin PE to metal plate PE | 40,0 | 273 | 6,8 |
| Comments: | | | | |
| Earth trace test | | | | |
| Sample | PE to enclosure before Earth trace test (Ω) | PE to enclosure after Earth trace test (Ω) | | |
| 1 | 0,020 | 0,023 | | |
| 2 | 0,018 | 0,021 | | |
| 3 | 0,019 | 0,020 | | |
| Comment: The Earth trace test was performed with a 20 A UL R/C circuit breaker. Max current was >> 200 A during the short of Line to PE. Dielectric test after passed. | | | | |
| There was no deterioration or any change on the ground traces visible. | | | | |
| (*) and earth fault trace special UL requirement | | | | |

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

| | | |
|---|---|----------------|
| 2.9.1, 2.9.2, 5.2.2 | TABLE: Humidity test Model: GTM91110P20024 | P |
| <p>A humidity chamber was maintained within 1°C of temperature “t” at a temperature of 21°C. The unit and any other separate components were brought to a temperature between t and t + 4°C They were then placed in the chamber and held at a relative humidity of 95% for a period of 48 hours. Prior to conditioning, parts of the unit (covers) which could be removed without the use of tools were removed and separately placed in the chamber. During conditioning, cable entrances and/or a conduit openings were left open. During this treatment, the unit was not energized.</p> <p>While still in the humidity chamber, but after all parts have been placed back on the unit, a dielectric potential was applied and maintained for a period of one minute between the points indicated below. During this test, all switching devices (switches, relays, triacs, etc.) in the primary circuit were closed.</p> | | |
| Location | Insulation type | Potential used |
| Input to output (SELV) | Reinforced | 4243 Vdc |
| Input to PE | Basic | 2594 Vdc |
| <p>Comment: There was no breakdown of insulation.</p> <p>Based on Vpk measurement of T1.</p> | | |

| | | | | |
|----------------------|---|-----------------|------------------|----------|
| 2.10.2 | Table: working voltage measurement | | | P |
| Location | | RMS voltage (V) | Peak voltage (V) | Comments |
| Transformer T1 | | | | |
| Pin 1 to PE | | 168,6 | 336,0 | |
| Pin 2 to PE | | 170,7 | 352,0 | |
| Pin 4 to PE | | 234,7 | 392,0 | |
| Pin 5 to PE | | 220,5 | 392,0 | |
| Pin 4 to Pin FL1 | | 177,0 | 352,0 | |
| Pin 4 to Pin FL2 | | 230,3 | 392,0 | |
| Optical insulator U3 | | | | |
| Pin 1 to pin 3 | | 174,1 | 344,0 | |
| Pin 1 to pin 4 | | 171,9 | 344,0 | |
| Pin 2 to pin 3 | | 173,0 | 344,0 | |
| Pin 2 to pin 4 | | 170,6 | 344,0 | |
| Optical insulator U4 | | | | |
| Pin 1 to pin 3 | | 206,6 | 392,0 | |
| Pin 1 to pin 4 | | 196,1 | 376,0 | |
| Pin 2 to pin 3 | | 216,4 | 400,0 | |

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

| | | | | |
|---|---|-------|--|---|
| 2.10.2 | Table: working voltage measurement | | | P |
| Pin 2 to pin 4 | 205,1 | 384,0 | | |
| Optical insulator U5 | | | | |
| Pin 1 to pin 3 | 169,5 | 336,0 | | |
| Pin 1 to pin 4 | 169,4 | 336,0 | | |
| Pin 2 to pin 3 | 168,0 | 336,0 | | |
| Pin 2 to pin 4 | 168,1 | 336,0 | | |
| supplementary information: | | | | |
| Input voltage: 240Vac. Test Condition was: 4,36A@55Vdc. | | | | |
| Minus of the output, input N and PE were connected. | | | | |

| | | | | |
|----------------------|------------------------------------|-----------------|------------------|----------|
| 2.10.2 | Table: working voltage measurement | | | P |
| Location | | RMS voltage (V) | Peak voltage (V) | Comments |
| Transformer T1 | | | | |
| Pin 1 to PE | 169,4 | 344,0 | | |
| Pin 2 to PE | 164,6 | 344,0 | | |
| Pin 4 to PE | 222,4 | 392,0 | | |
| Pin 5 to PE | 220,7 | 392,0 | | |
| Pin 4 to Pin FL1 | 221,7 | 392,0 | | |
| Pin 4 to Pin FL2 | 202,7 | 376,0 | | |
| Optical insulator U3 | | | | |
| Pin 1 to pin 3 | 168,7 | 336,0 | | |
| Pin 1 to pin 4 | 166,6 | 336,0 | | |
| Pin 2 to pin 3 | 168,2 | 336,0 | | |
| Pin 2 to pin 4 | 166,0 | 336,0 | | |
| Optical insulator U4 | | | | |
| Pin 1 to pin 3 | 171,0 | 336,0 | | |
| Pin 1 to pin 4 | 161,7 | 328,0 | | |
| Pin 2 to pin 3 | 170,8 | 336,0 | | |
| Pin 2 to pin 4 | 162,2 | 328,0 | | |
| Optical insulator U5 | | | | |
| Pin 1 to pin 3 | 163,9 | 328,0 | | |

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

| | | | | |
|--|---|-------|--|----------|
| 2.10.2 | Table: working voltage measurement | | | P |
| Pin 1 to pin 4 | 164,3 | 328,0 | | |
| Pin 2 to pin 3 | 163,4 | 328,0 | | |
| Pin 2 to pin 4 | 163,4 | 328,0 | | |
| supplementary information: | | | | |
| Input voltage: 240Vac Test Condition was: 20A@12Vdc. | | | | |
| Minus of the output, input N and PE were connected. | | | | |

| | | | | |
|----------------------------|------------------------------------|-----------------|------------------|----------|
| 2.10.2 | Table: working voltage measurement | | | P |
| Location | | RMS voltage (V) | Peak voltage (V) | Comments |
| Transformer T1 | | | | |
| Pin 1 to PE | 1,43 | 5,12 | | |
| Pin 2 to PE | 15,49 | 23,60 | | |
| Pin 4 to PE | 255,9 | 392,0 | | |
| Pin 5 to PE | 252,0 | 392,0 | | |
| Pin 4 to Pin FL1 | 203,1 | 360,0 | | |
| Pin 4 to Pin FL2 | 255,7 | 396,0 | | |
| Optical insulator U3 | | | | |
| Pin 1 to pin 3 | 5,7 | 16,0 | | |
| Pin 1 to pin 4 | 8,4 | 20,0 | | |
| Pin 2 to pin 3 | 8,2 | 20,0 | | |
| Pin 2 to pin 4 | 6,5 | 16,0 | | |
| Optical insulator U4 | | | | |
| Pin 1 to pin 3 | 43,7 | 56,0 | | |
| Pin 1 to pin 4 | 29,0 | 40,0 | | |
| Pin 2 to pin 3 | 49,4 | 64,0 | | |
| Pin 2 to pin 4 | 35,3 | 52,0 | | |
| Optical insulator U5 | | | | |
| Pin 1 to pin 3 | 10,9 | 20,0 | | |
| Pin 1 to pin 4 | 11,2 | 24,0 | | |
| Pin 2 to pin 3 | 12,3 | 24,0 | | |
| Pin 2 to pin 4 | 12,1 | 24,0 | | |
| supplementary information: | | | | |

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

| | | |
|--|---|---|
| 2.10.2 | Table: working voltage measurement | P |
| Input voltage: 320Vdc Test Condition was: 4,36A@55Vdc Minus of the input, output minus and PE were connected. | | |

| | | | | |
|---|------------------------------------|-----------------|------------------|----------|
| 2.10.2 | Table: working voltage measurement | | | P |
| Location | | RMS voltage (V) | Peak voltage (V) | Comments |
| Transformer T1 | | | | |
| Pin 1 to PE | 11,35 | 24,0 | | |
| Pin 2 to PE | 18,14 | 40,0 | | |
| Pin 4 to PE | 252,3 | 392,0 | | |
| Pin 5 to PE | 253,0 | 396,0 | | |
| Pin 5 to Pin FL1 | 253,9 | 392,0 | | |
| Pin 5 to Pin FL2 | 270,7 | 452,0 | | |
| Optical insulator U3 | | | | |
| Pin 1 to pin 3 | 4,3 | 12,0 | | |
| Pin 1 to pin 4 | 7,2 | 16,0 | | |
| Pin 2 to pin 3 | 5,5 | 16,0 | | |
| Pin 2 to pin 4 | 8,1 | 16,0 | | |
| Optical insulator U4 | | | | |
| Pin 1 to pin 3 | 3,1 | 16,0 | | |
| Pin 1 to pin 4 | 14,2 | 28,0 | | |
| Pin 2 to pin 3 | 3,2 | 12,0 | | |
| Pin 2 to pin 4 | 13,9 | 24,0 | | |
| Optical insulator U5 | | | | |
| Pin 1 to pin 3 | 10,9 | 20,0 | | |
| Pin 1 to pin 4 | 11,0 | 20,0 | | |
| Pin 2 to pin 3 | 11,6 | 20,0 | | |
| Pin 2 to pin 4 | 12,1 | 24,0 | | |
| supplementary information: | | | | |
| Input voltage: 320Vdc Test Condition was: 20A@12Vdc | | | | |
| Minus of the input, output minus and PE were connected. | | | | |

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

| | | | | |
|---|------------------------------------|-----------------|------------------|----------|
| 2.10.2 | Table: working voltage measurement | | | P |
| Location | | RMS voltage (V) | Peak voltage (V) | Comments |
| Transformer T1 | | | | |
| Pin 1 to PE | 308,3 | 320,0 | | |
| Pin 2 to PE | 309,5 | 336,0 | | |
| Pin 4 to PE | 202,0 | 316,0 | | |
| Pin 5 to PE | 199,5 | 316,0 | | |
| Pin 2 to Pin FL1 | 325,3 | 544,0 | | |
| Pin 2 to Pin FL2 | 309,8 | 336,0 | | |
| Optical insulator U3 | | | | |
| Pin 1 to pin 3 | 316,7 | 328,0 | | |
| Pin 1 to pin 4 | 213,5 | 324,0 | | |
| Pin 2 to pin 3 | 315,6 | 328,0 | | |
| Pin 2 to pin 4 | 312,1 | 324,0 | | |
| Optical insulator U4 | | | | |
| Pin 1 to pin 3 | 364,3 | 376,0 | | |
| Pin 1 to pin 4 | 349,0 | 360,0 | | |
| Pin 2 to pin 3 | 368,0 | 384,0 | | |
| Pin 2 to pin 4 | 352,5 | 368,0 | | |
| Optical insulator U5 | | | | |
| Pin 1 to pin 3 | 310,4 | 320,0 | | |
| Pin 1 to pin 4 | 310,2 | 320,0 | | |
| Pin 2 to pin 3 | 309,1 | 320,0 | | |
| Pin 2 to pin 4 | 308,9 | 320,0 | | |
| supplementary information: | | | | |
| Input voltage: Input voltage: 320Vdc Test Condition was: 4,36A@55Vdc. | | | | |
| Plus of the input, output minus and PE were connected. | | | | |

| | | | | |
|----------------|------------------------------------|-----------------|------------------|----------|
| 2.10.2 | Table: working voltage measurement | | | P |
| Location | | RMS voltage (V) | Peak voltage (V) | Comments |
| Transformer T1 | | | | |
| Pin 1 to PE | | 308,7 | 320,0 | |

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

| | | | | |
|--|---|-------|--|----------|
| 2.10.2 | Table: working voltage measurement | | | P |
| Pin 2 to PE | 309,6 | 340,0 | | |
| Pin 4 to PE | 198,7 | 320,0 | | |
| Pin 5 to PE | 196,0 | 312,0 | | |
| Pin 2 to Pin FL1 | 309,3 | 352,0 | | |
| Pin 2 to Pin FL2 | 308,9 | 336,0 | | |
| Optical insulator U3 | | | | |
| Pin 1 to pin 3 | 317,2 | 328,0 | | |
| Pin 1 to pin 4 | 314,1 | 324,0 | | |
| Pin 2 to pin 3 | 316,2 | 328,0 | | |
| Pin 2 to pin 4 | 312,9 | 324,0 | | |
| Optical insulator U4 | | | | |
| Pin 1 to pin 3 | 320,5 | 332,0 | | |
| Pin 1 to pin 4 | 305,9 | 316,0 | | |
| Pin 2 to pin 3 | 320,4 | 332,0 | | |
| Pin 2 to pin 4 | 305,7 | 316,0 | | |
| Optical insulator U5 | | | | |
| Pin 1 to pin 3 | 310,1 | 320,0 | | |
| Pin 1 to pin 4 | 310,0 | 320,0 | | |
| Pin 2 to pin 3 | 309,0 | 320,0 | | |
| Pin 2 to pin 4 | 308,5 | 320,0 | | |
| supplementary information: | | | | |
| Input voltage: 320Vdc Test Condition was: 20A@12Vdc | | | | |
| Plus of the input, output minus and PE were connected. | | | | |

| | | | | | | | |
|--|--|--------------|------------------|---------|------------------|---------|----------|
| 2.10.3 and 2.10.4 | TABLE: Clearance and creepage distance measurements | | | | | | P |
| Clearance (cl) and creepage distance (cr) at/of/between: | U peak (V) | U r.m.s. (V) | Required cl (mm) | cl (mm) | Required cr (mm) | cr (mm) | |
| Power supply unit with protective earthing (PE) | | | | | | | |
| Functional: | | | | | | | |
| A- Primary to Primary before fuse (for 240 Vac) | 340 | 240 | 1,5 | 3,7 | 2,4* | 3,7 | |
| A- Primary to Primary before fuse (for 320 Vdc) | 320 Vdc | 320 Vdc | 1,5 | 3,7 | 3,2 | 3,7 | |

| IEC 60950-1 | | | | | | |
|---|---|--------------|------------------|-----------------|------------------|---------|
| Clause | Requirement + Test | | | Result - Remark | | Verdict |
| 2.10.3 and 2.10.4 | TABLE: Clearance and creepage distance measurements | | | | | P |
| Clearance (cl) and creepage distance (cr) at/of/between: | U peak (V) | U r.m.s. (V) | Required cl (mm) | cl (mm) | Required cr (mm) | cr (mm) |
| B- Primary to Primary after fuse (for 240 Vac) | 340 | 240 | Method c) used | | | |
| B- Primary to Primary after fuse (for 320 Vdc) | 320 Vdc | 320 Vdc | Method c) used | | | |
| Basic/supplementary: | | | | | | |
| C- Primary to Earth (for 240 Vac) | 340 | 240 | 2,0 | 2,5 | 2,4* | 4,0 |
| C- Primary to Earth (for 320V dc) | 320 Vdc | 320 Vdc | 2,0 | 2,5 | 3,2 | 4,0 |
| E- Secondary to earth (for 240 Vac) | Method c) used | | | | | |
| E- Secondary to earth (for 320 Vdc) | Method c) used | | | | | |
| F– Secondary to Secondary (for 240 Vac) | Method c) used | | | | | |
| F– Secondary to Secondary (for 320 Vdc) | Method c) used | | | | | |
| Reinforced: | | | | | | |
| D1 - Primary to Secondary in Transformer T1 (for 240 Vac) | 392 | 240 {230,3} | 4,0 | 10,7 | 4,8* | 10,7 |
| D1 - Primary to Secondary in Transformer T1 (for 320 Vdc) | 544 | 325 | 4,4 | 10,7 | 6,5* | 10,7 |
| D2 - Primary to Secondary on PCB adjacent to Transformer T1 (for 240 Vac) | 392 | 240 {230,3} | 4,0 | 8,5 | 4,8* | 9,8 |
| D2 - Primary to Secondary on PCB adjacent to Transformer T1 (for 320 Vdc) | 544 | 325 | 4,4 | 8,5 | 6,5* | 9,8 |
| D3 - Primary to Secondary on PCB near Optical insulators (for 240 Vac) | 400 | 240 {216,4} | 4,0 | 7,4 | 4,8* | 7,4 |
| D3 - Primary to Secondary on PCB near Optical insulators (for 320 Vdc) | 384 | 368 | 4,0 | 7,4 | 7,4* | 7,4 |
| D4 - Primary to Secondary on PCB (for 240 Vac) | 392 | 240 {230,3} | 4,0 | 6,9 | 4,8* | 9,8 |
| D4 - Primary to Secondary on PCB (for 320 Vdc) | 544 | 325 | 4,4 | 6,9 | 6,5* | 9,8 |

| IEC 60950-1 | | | | | | |
|---|--|----------------|----------------|------------------|---------|-----------------------------|
| Clause | Requirement + Test | | | Result - Remark | | Verdict |
| 2.10.3 and 2.10.4 | TABLE: Clearance and creepage distance measurements | | | | | P |
| Clearance (cl) and creepage distance (cr) at/of/between: | | U peak (V) | U r.m.s. (V) | Required cl (mm) | cl (mm) | Required cr (mm) cr (mm) |
| Power supply unit without protective earthing | | | | | | |
| Functional: | | | | | | |
| A- Primary to Primary before fuse (for 240 Vac) | | 340 | 240 | 1,5 | 3,7 | 2,4* 3,7 |
| A- Primary to Primary before fuse (for 320 Vdc) | | 320 Vdc | 320 Vdc | 1,5 | 3,7 | 3,2 3,7 |
| B- Primary to Primary after fuse (for 240 Vac) | | 340 | 240 | Method c) used | | |
| B- Primary to Primary after fuse (for 320 Vdc) | | 320 Vdc | 320 Vdc | Method c) used | | |
| Basic/supplementary: | | | | | | |
| F– Secondary to Secondary (for 240 Vac) | | Method c) used | | | | |
| F– Secondary to Secondary (for 320 Vdc) | | Method c) used | | | | |
| Reinforced: | | | | | | |
| D1 - Primary to Secondary in Transformer T1 (for 240 Vac) | | 392 | 240 {230,3} | 4,0 | 10,7 | 4,8* 10,7 |
| D1 - Primary to Secondary in Transformer T1 (for 320 Vdc) | | 544 | 325 | 4,4 | 10,7 | 6,5* 10,7 |
| D2 - Primary to Secondary on PCB adjacent to Transformer T1 (for 240 Vac) | | 392 | 240 {230,3} | 4,0 | 8,5 | 4,8* 9,8 |
| D2 - Primary to Secondary on PCB adjacent to Transformer T1 (for 320 Vdc) | | 544 | 325 | 4,4 | 8,5 | 6,5* 9,8 |
| D3 - Primary to Secondary on PCB near Optical insulators (for 240 Vac) | | 400 | 240 {216,4} | 4,0 | 7,4 | 4,8* 7,4 |
| D3 - Primary to Secondary on PCB near Optical insulators (for 320 Vdc) | | 384 | 368 | 4,0 | 7,4 | 7,4* 7,4 |
| D4 - Primary to Secondary on PCB (for 240 Vac) | | 392 | 240 {230,3} | 4,0 | 6,9 | 4,8* 9,8 |
| D4 - Primary to Secondary on PCB (for 320 Vdc) | | 544 | 325 | 4,4 | 6,9 | 6,5* 9,8 |

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|---|--|--------------|------------------|-----------------|------------------|----------|
| Clause | Requirement + Test | | | Result - Remark | | Verdict |
| 2.10.3 and 2.10.4 | TABLE: Clearance and creepage distance measurements | | | | | P |
| Clearance (cl) and creepage distance (cr) at/of/between: | U peak (V) | U r.m.s. (V) | Required cl (mm) | cl (mm) | Required cr (mm) | cr (mm) |
| E1 - Primary to primary mounting tracks (connected to enclosure) (for 240 Vac) | 340 | 240 | 4,0 | 4,0 | 4,8* | 7,0 |
| E2 - Primary to primary mounting tracks (connected to enclosure) (for 320 Vdc) | 320 Vdc | 320 Vdc | 4,0 | 4,0 | 6,4* | 7,0 |
| Supplementary information: | | | | | | |
| * Value was interpolated. | | | | | | |
| { } means, that maximum rated input voltage was applied, but the measured value is mentioned in brackets. | | | | | | |
| 1) For Power Supply Unit without protective earthing (PE) the following elements shall be removed from the equipment: CY1, CY2, CY3, CY4, CY5, CY6, CY7 and connecting wire between internal primary parts (marked with "B"). Additional slots (width of 1,2 mm) provided in place of CY1, CY5, CY6 and CY7 to achieve required creepage distance between primary and primary mounting tracks (connected to enclosure). | | | | | | |

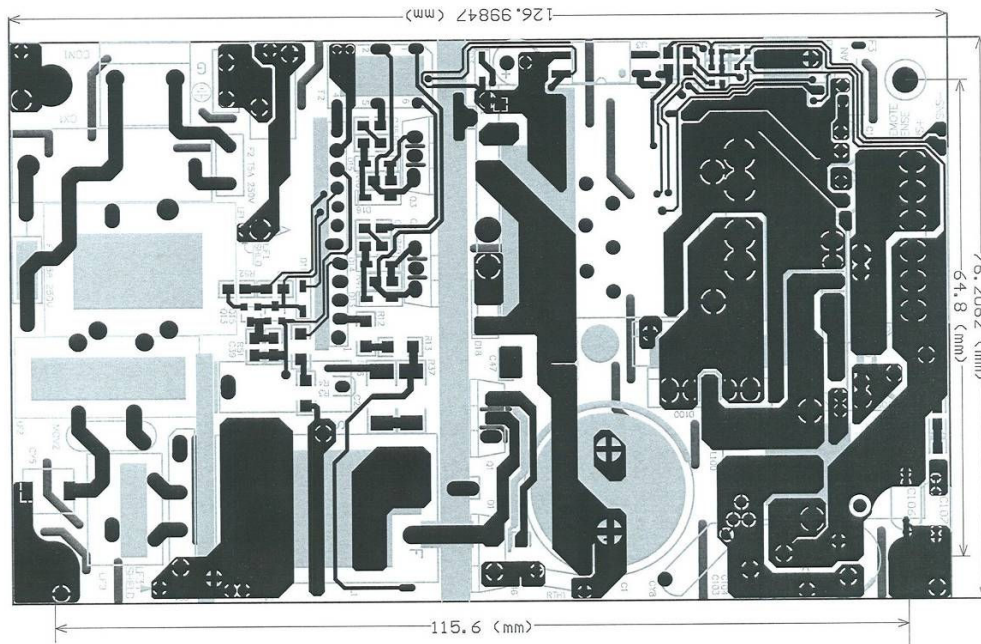
| IEC 60950-1 | | | |
|-------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | | | | | |
|--|--|---|--------------|------------------|---------|------------------|---------|
| 2.10.3 and 2.10.4 | | TABLE: Clearance and creepage distance measurements | | | | | P |
| Clearance (cl) and creepage distance (cr) at/of/between: | | U peak (V) | U r.m.s. (V) | Required cl (mm) | cl (mm) | Required cr (mm) | cr (mm) |
| Block diagram for power supply units with PE: | | | | | | | |
| | | | | | | | |
| Block diagram for power supply units without PE: | | | | | | | |
| | | | | | | | |

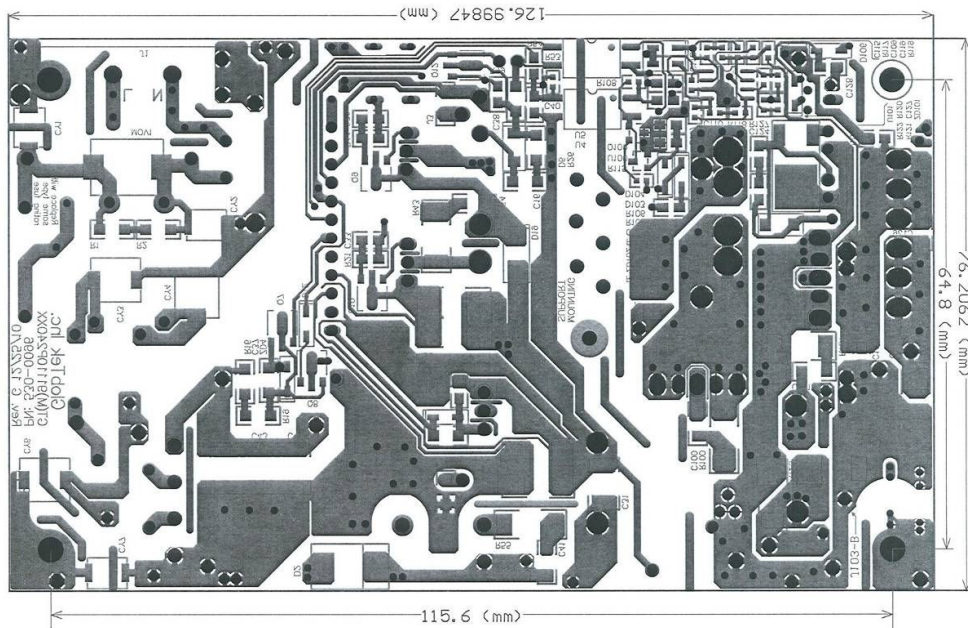
| IEC 60950-1 | | | |
|-------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | | | | |
|--|---|--------------|------------------|---------|------------------|---------|
| 2.10.3 and 2.10.4 | TABLE: Clearance and creepage distance measurements | | | | | P |
| Clearance (cl) and creepage distance (cr) at/of/between: | U peak (V) | U r.m.s. (V) | Required cl (mm) | cl (mm) | Required cr (mm) | cr (mm) |

Layout top side, for power supply units with PE:



Layout bottom side, for power supply units with PE:



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

| | | | | | | |
|--|--|------------|-----------|--------------------|-------------------|----------|
| 2.10.5 | TABLE: Distance through insulation measurements | | | | | P |
| Distance through insulation (DTI) at/of: | | U peak (V) | U rms (V) | Test voltage (Vdc) | Required DTI (mm) | DTI (mm) |
| Tubing on Capacitor C1 | | 544 | 325 | 4243 | 0,4 | 0,6 |
| Supplementary information: | | | | | | |

| | | | |
|---|--|-------|-------------|
| 2.10.3, 4.2.2, 4.2.3, 4.2.4 | TABLE: Steady force test (internal spacings push test) | P | |
| <p>Components and parts, other than parts serving as an enclosure, are subjected to a steady force of 10 N ± 1 N.Parts of an enclosure located in Operator Access Area, which are protected by a cover or door, are subjected to a steady force of 30 N ± 3 N for a period of 5 s, applied by means of a straight unjointed version of the test finger, to the part on or within the equipment.</p> <p>External enclosures are subjected to a steady force of 250 N ± 10 N for a period of 5 s, applied in turn to the top, bottom and sides of the enclosure fitted to the equipment, by means of a suitable test tool providing contact over a circular plane surface 30 mm in diameter. However, this test is not applied to the bottom of an enclosure of equipment having a mass of more than 18 kg.</p> | | | |
| Part | Thickness | Force | Observation |
| Components | — | 10 N | Pass |
| Comments: No part or component can be bend with <10N. | | | |

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

| | | | | | | | |
|--|--------------------------------------|-----------|-------|-------|-------|-------|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~): | 90 | 90 | 100 | 100 | 200 | — |
| | Frequency (Hz): | 50 | 60 | 50 | 60 | 50 | — |
| | Ambient T _{min} (°C): | 25,8 | 26,0 | 25,5 | 25,9 | 25,2 | — |
| | Ambient T _{max} (°C): | 40,0 | 40,0 | 40,0 | 40,0 | 40,0 | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24012-C(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 82,2 | 82,2 | 78,7 | 79,1 | 69,7 | 130 |
| 2. | Input Choke LF2 (Winding) | 85,5 | 85,8 | 82,1 | 82,1 | 72,2 | 130 |
| 3. | Diode Bridge BD1 | 105,2 | 105,4 | 101,1 | 101,0 | 86,9 | 130 |
| 4. | PFC Choke L1 (Winding) | 115,6 | 115,6 | 113,9 | 113,8 | 108,6 | 155 |
| 5. | PFC Transistor Q1 | 121,2 | 121,2 | 119,0 | 118,9 | 108,2 | 130 |
| 6. | PFC Diode D1 | 111,5 | 111,4 | 109,3 | 109,2 | 101,8 | 130 |
| 7. | Bulk C1 | 96,4 | 96,5 | 94,9 | 94,9 | 90,4 | 105 |
| 8. | Switching Transistor Q3 | 109,9 | 109,7 | 108,2 | 108,1 | 101,5 | 130 |
| 9. | Power Transformer T1 (Core) | 98,4 | 98,2 | 97,7 | 97,8 | 95,6 | 120 |
| 10. | Power Transformer T1 (Winding) | 101,7 | 101,6 | 100,8 | 101,2 | 98,7 | 120 |
| 11. | Rectifier Diode D100 | 99,9 | 99,9 | 99,1 | 99,2 | 97,9 | 130 |
| 12. | Rectifier Diode D101 | 94,7 | 94,8 | 94,1 | 94,1 | 93,4 | 130 |
| 13. | Output Choke L100 (winding) | 98,8 | 98,7 | 97,9 | 97,8 | 97,2 | 130 |
| 14. | Output Bulk C105 | 75,2 | 75,3 | 74,5 | 74,3 | 74,5 | 105 |
| 15. | Thermistor RTH2 | 94,7 | 94,6 | 93,9 | 93,8 | 92,7 | 125 |
| Output load: | | 6,7A @12V | | | | | -- |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 100% output load with air convention cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer). | | | | | | | |

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

| | | | | | | | |
|--|---------------------------------------|-----------|-------|-------|-------|-------|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~) : | 200 | 240 | 240 | 264 | 264 | — |
| | Frequency (Hz) : | 60 | 50 | 60 | 50 | 60 | — |
| | Ambient T _{min} (°C) : | 25,4 | 25,0 | 25,0 | 26,0 | 26,0 | — |
| | Ambient T _{max} (°C) : | 40,0 | 40,0 | 40,0 | 40,0 | 40,0 | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24012-C(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 69,6 | 67,8 | 67,8 | 65,9 | 66,1 | 130 |
| 2. | Input Choke LF2 (Winding) | 72,0 | 70,0 | 70,2 | 67,6 | 68,1 | 130 |
| 3. | Diode Bridge BD1 | 86,9 | 83,0 | 83,1 | 79,7 | 80,1 | 130 |
| 4. | PFC Choke L1 (Winding) | 108,3 | 102,8 | 102,8 | 97,7 | 98,4 | 155 |
| 5. | PFC Transistor Q1 | 108,6 | 103,6 | 104,0 | 101,1 | 101,6 | 130 |
| 6. | PFC Diode D1 | 101,9 | 98,2 | 98,9 | 95,5 | 96,6 | 130 |
| 7. | Bulk C1 | 90,3 | 88,5 | 88,4 | 86,9 | 87,4 | 105 |
| 8. | Switching Transistor Q3 | 101,2 | 98,5 | 99,0 | 96,4 | 97,4 | 130 |
| 9. | Power Transformer T1 (Core) | 95,9 | 94,7 | 94,6 | 93,4 | 94,4 | 120 |
| 10. | Power Transformer T1 (Winding) | 98,1 | 97,7 | 97,6 | 96,4 | 96,7 | 120 |
| 11. | Rectifier Diode D100 | 98,0 | 97,4 | 97,6 | 96,3 | 96,8 | 130 |
| 12. | Rectifier Diode D101 | 93,6 | 92,9 | 93,4 | 92,2 | 92,8 | 130 |
| 13. | Output Choke L100 (winding) | 97,1 | 97,0 | 97,2 | 96,0 | 97,0 | 130 |
| 14. | Output Bulk C105 | 74,8 | 74,6 | 75,4 | 73,7 | 74,4 | 105 |
| 15. | Thermistor RTH2 | 92,6 | 92,5 | 93,3 | 91,8 | 93,1 | 125 |
| Output load: | | 6,7A @12V | | | | | -- |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 100% output load with air convention cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|--------------------------------------|------------|-------|-------|-------|-------|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~): | 90 | 90 | 100 | 100 | 200 | — |
| | Frequency (Hz): | 50 | 60 | 50 | 60 | 50 | — |
| | Ambient T _{min} (°C): | 25,8 | 26,0 | 25,5 | 25,9 | 25,2 | — |
| | Ambient T _{max} (°C): | 40,0 | 40,0 | 40,0 | 40,0 | 40,0 | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24012-F(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 97,1 | 96,9 | 90,7 | 91,1 | 70,7 | 130 |
| 2. | Input Choke LF2 (Winding) | 99,1 | 99,0 | 90,7 | 91,2 | 67,2 | 130 |
| 3. | Diode Bridge BD1 | 118,8 | 119,0 | 114,1 | 113,8 | 92,6 | 130 |
| 4. | PFC Choke L1 (Winding) | 139,1 | 139,0 | 134,9 | 135,1 | 123,6 | 155 |
| 5. | PFC Transistor Q1 | 120,8 | 120,7 | 118,3 | 118,0 | 108,8 | 130 |
| 6. | PFC Diode D1 | 118,0 | 117,9 | 115,0 | 115,0 | 105,8 | 130 |
| 7. | Bulk C1 | 89,7 | 89,7 | 88,0 | 87,8 | 104,8 | 105 |
| 8. | Switching Transistor Q3 | 119,6 | 119,4 | 116,4 | 116,4 | 107,2 | 130 |
| 9. | Power Transformer T1 (Core) | 99,6 | 99,5 | 98,0 | 98,1 | 95,7 | 120 |
| 10. | Power Transformer T1 (Winding) | 112,4 | 112,2 | 110,8 | 111,0 | 107,4 | 120 |
| 11. | Rectifier Diode D100 | 123,5 | 123,6 | 122,9 | 123,1 | 121,7 | 130 |
| 12. | Rectifier Diode D101 | 118,1 | 117,9 | 116,9 | 117,1 | 117,0 | 130 |
| 13. | Output Choke L100 (winding) | 121,4 | 121,3 | 120,7 | 120,9 | 119,6 | 130 |
| 14. | Output Bulk C105 | 91,1 | 91,1 | 90,4 | 90,8 | 89,8 | 105 |
| 15. | Thermistor RTH2 | 116,9 | 116,7 | 116,2 | 116,4 | 115,1 | 125 |
| Output load: | | 12,5A @12V | | | | | -- |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 100% output load with air convention cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|---------------------------------------|------------|-------|-------|-------|-------|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~) : | 200 | 240 | 240 | 264 | 264 | — |
| | Frequency (Hz) : | 60 | 50 | 60 | 50 | 60 | — |
| | Ambient T _{min} (°C) : | 25,4 | 25,0 | 25,0 | 26,0 | 26,0 | — |
| | Ambient T _{max} (°C) : | 40,0 | 40,0 | 40,0 | 40,0 | 40,0 | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24012-F(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 70,5 | 66,4 | 66,9 | 64,6 | 64,4 | 130 |
| 2. | Input Choke LF2 (Winding) | 67,6 | 63,6 | 63,4 | 62,2 | 62,6 | 130 |
| 3. | Diode Bridge BD1 | 92,6 | 86,8 | 87,2 | 83,8 | 83,4 | 130 |
| 4. | PFC Choke L1 (Winding) | 123,6 | 115,9 | 116,5 | 110,6 | 110,7 | 155 |
| 5. | PFC Transistor Q1 | 109,2 | 104,4 | 105,1 | 102,2 | 102,6 | 130 |
| 6. | PFC Diode D1 | 106,0 | 101,5 | 102,1 | 99,4 | 99,9 | 130 |
| 7. | Bulk C1 | 83,7 | 82,2 | 82,9 | 81,2 | 81,3 | 105 |
| 8. | Switching Transistor Q3 | 107,5 | 103,0 | 103,6 | 101,0 | 101,7 | 130 |
| 9. | Power Transformer T1 (Core) | 95,5 | 94,4 | 95,3 | 93,4 | 93,9 | 120 |
| 10. | Power Transformer T1 (Winding) | 107,4 | 106,2 | 106,2 | 104,8 | 105,0 | 120 |
| 11. | Rectifier Diode D100 | 121,6 | 121,0 | 121,2 | 120,0 | 121,1 | 130 |
| 12. | Rectifier Diode D101 | 117,2 | 116,8 | 116,9 | 115,0 | 116,2 | 130 |
| 13. | Output Choke L100 (winding) | 119,8 | 118,7 | 119,0 | 117,8 | 117,8 | 130 |
| 14. | Output Bulk C105 | 90,0 | 89,6 | 90,0 | 89,0 | 89,1 | 105 |
| 15. | Thermistor RTH2 | 114,9 | 114,6 | 114,8 | 113,6 | 113,8 | 125 |
| Output load: | | 12,5A @12V | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 100% output load with air convention cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|--------------------------------------|-----------|-------|-------|-------|-------|-------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~): | 90 | 90 | 100 | 100 | 200 | — |
| | Frequency (Hz): | 50 | 60 | 50 | 60 | 50 | — |
| | Ambient T _{min} (°C): | 25,8 | 26,0 | 25,5 | 25,9 | 25,2 | — |
| | Ambient T _{max} (°C): | 40,0 | 40,0 | 40,0 | 40,0 | 40,0 | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24055-X.X-C(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 84,0 | 83,9 | 80,7 | 81,1 | 71,8 | 130 |
| 2. | Input Choke LF2 (Winding) | 88,4 | 88,3 | 85,3 | 85,8 | 75,6 | 130 |
| 3. | Diode Bridge BD1 | 114,8 | 114,7 | 111,6 | 111,8 | 97,1 | 130 |
| 4. | PFC Choke L1 (Winding) | 139,0 | 139,0 | 137,9 | 138,3 | 128,6 | 155 |
| 5. | PFC Transistor Q1 | 129,8 | 129,7 | 128,0 | 128,4 | 117,9 | 130 |
| 6. | PFC Diode D1 | 126,0 | 125,9 | 124,5 | 124,7 | 115,4 | 130 |
| 7. | Bulk C1 | 102,1 | 101,9 | 100,9 | 100,9 | 95,6 | 105 |
| 8. | Switching Transistor Q3 | 121,8 | 121,7 | 120,3 | 120,6 | 112,0 | 130 |
| 9. | Power Transformer T1 (Core) | 109,0 | 108,9 | 107,7 | 108,1 | 104,2 | 120 |
| 10. | Power Transformer T1 (Winding) | 111,4 | 111,2 | 110,1 | 110,5 | 106,3 | 120 |
| 11. | Rectifier Diode D100 | 94,4 | 94,2 | 93,7 | 93,9 | 92,2 | 130 |
| 12. | Rectifier Diode D101 | 92,0 | 91,6 | 91,3 | 91,1 | 89,9 | 130 |
| 13. | Output Choke L100 (winding) | 107,3 | 107,0 | 106,7 | 106,7 | 105,0 | 130 |
| 14. | Output Bulk C105 | 80,9 | 80,4 | 80,3 | 79,9 | 79,7 | 105 |
| 15. | Thermistor RTH2 | 89,2 | 88,9 | 88,5 | 88,4 | 87,1 | 125 |
| Output load: | | 1,4A @55V | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 100% output load with air convention cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|---------------------------------------|-----------|-------|-------|-------|-------|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~) : | 200 | 240 | 240 | 264 | 264 | — |
| | Frequency (Hz) : | 60 | 50 | 60 | 50 | 60 | — |
| | Ambient T _{min} (°C) : | 25,4 | 25,0 | 25,0 | 26,0 | 26,0 | — |
| | Ambient T _{max} (°C) : | 40,0 | 40,0 | 40,0 | 40,0 | 40,0 | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24055-X.X-C(W)-S or -HI0XX or -H0XXX or –HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 71,8 | 69,7 | 69,7 | 67,8 | 68,2 | 130 |
| 2. | Input Choke LF2 (Winding) | 75,6 | 72,7 | 72,9 | 70,4 | 70,8 | 130 |
| 3. | Diode Bridge BD1 | 97,2 | 91,9 | 92,1 | 88,4 | 88,7 | 130 |
| 4. | PFC Choke L1 (Winding) | 128,7 | 119,7 | 119,8 | 114,0 | 114,6 | 155 |
| 5. | PFC Transistor Q1 | 117,9 | 112,7 | 112,7 | 109,5 | 109,9 | 130 |
| 6. | PFC Diode D1 | 115,3 | 110,5 | 110,7 | 107,2 | 107,6 | 130 |
| 7. | Bulk C1 | 95,2 | 93,1 | 93,3 | 91,0 | 91,3 | 105 |
| 8. | Switching Transistor Q3 | 112,2 | 107,8 | 108,0 | 104,9 | 105,3 | 130 |
| 9. | Power Transformer T1 (Core) | 103,6 | 102,6 | 102,6 | 100,5 | 101,2 | 120 |
| 10. | Power Transformer T1 (Winding) | 106,4 | 104,6 | 104,7 | 102,9 | 103,1 | 120 |
| 11. | Rectifier Diode D100 | 92,5 | 91,1 | 91,3 | 90,4 | 90,2 | 130 |
| 12. | Rectifier Diode D101 | 90,1 | 89,1 | 89,2 | 88,2 | 88,2 | 130 |
| 13. | Output Choke L100 (winding) | 105,1 | 104,0 | 104,2 | 103,2 | 103,3 | 130 |
| 14. | Output Bulk C105 | 79,7 | 78,7 | 79,0 | 78,3 | 78,4 | 105 |
| 15. | Thermistor RTH2 | 87,2 | 86,0 | 86,5 | 85,5 | 85,7 | 125 |
| Output load: | | 1,4A @55V | | | | | -- |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 100% output load with air convention cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|--------------------------------------|------------|-------|-------|-------|-------|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~): | 90 | 90 | 100 | 100 | 200 | — |
| | Frequency (Hz): | 50 | 60 | 50 | 60 | 50 | — |
| | Ambient T _{min} (°C): | 25,8 | 26,0 | 25,5 | 25,9 | 25,2 | — |
| | Ambient T _{max} (°C): | 40,0 | 40,0 | 40,0 | 40,0 | 40,0 | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24055-X.X-F(W)-S or -HI0XX or -H0XXX or –HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 94,3 | 94,4 | 86,3 | 86,5 | 66,0 | 130 |
| 2. | Input Choke LF2 (Winding) | 94,0 | 93,8 | 87,9 | 87,8 | 71,2 | 130 |
| 3. | Diode Bridge BD1 | 117,8 | 117,7 | 112,1 | 112,2 | 94,1 | 130 |
| 4. | PFC Choke L1 (Winding) | 136,2 | 136,1 | 133,4 | 133,7 | 125,3 | 155 |
| 5. | PFC Transistor Q1 | 122,9 | 122,9 | 120,2 | 120,2 | 111,6 | 130 |
| 6. | PFC Diode D1 | 121,4 | 121,1 | 119,0 | 119,0 | 109,8 | 130 |
| 7. | Bulk C1 | 88,4 | 88,5 | 87,1 | 87,3 | 82,9 | 105 |
| 8. | Switching Transistor Q3 | 121,4 | 121,4 | 119,3 | 119,4 | 111,0 | 130 |
| 9. | Power Transformer T1 (Core) | 104,3 | 104,3 | 102,5 | 102,5 | 99,5 | 120 |
| 10. | Power Transformer T1 (Winding) | 104,0 | 104,1 | 102,7 | 102,7 | 100,9 | 120 |
| 11. | Rectifier Diode D100 | 99,6 | 99,5 | 99,1 | 98,9 | 98,7 | 130 |
| 12. | Rectifier Diode D101 | 97,1 | 97,1 | 96,5 | 96,3 | 96,4 | 130 |
| 13. | Output Choke L100 (winding) | 108,4 | 108,1 | 107,8 | 107,6 | 107,8 | 130 |
| 14. | Output Bulk C105 | 73,9 | 74,1 | 73,9 | 73,7 | 74,0 | 105 |
| 15. | Thermistor RTH2 | 93,7 | 93,8 | 93,6 | 93,4 | 93,0 | 125 |
| Output load: | | 2,72A @55V | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 100% output load with air convention cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|---------------------------------------|------------|-------|-------|-------|-------|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~) : | 200 | 240 | 240 | 264 | 264 | — |
| | Frequency (Hz) : | 60 | 50 | 60 | 50 | 60 | — |
| | Ambient T _{min} (°C) : | 25,4 | 25,0 | 25,0 | 26,0 | 26,0 | — |
| | Ambient T _{max} (°C) : | 40,0 | 40,0 | 40,0 | 40,0 | 40,0 | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24055-X.X-F(W)-S or -HI0XX or -H0XXX or –HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 66,0 | 63,4 | 63,8 | 61,3 | 62,2 | 130 |
| 2. | Input Choke LF2 (Winding) | 71,3 | 68,4 | 68,8 | 65,7 | 66,3 | 130 |
| 3. | Diode Bridge BD1 | 94,2 | 88,8 | 89,2 | 85,1 | 85,7 | 130 |
| 4. | PFC Choke L1 (Winding) | 125,2 | 119,2 | 119,6 | 113,9 | 115,8 | 155 |
| 5. | PFC Transistor Q1 | 111,8 | 107,7 | 108,1 | 105,6 | 106,7 | 130 |
| 6. | PFC Diode D1 | 110,0 | 106,2 | 106,3 | 103,9 | 104,1 | 130 |
| 7. | Bulk C1 | 82,8 | 80,8 | 80,8 | 80,4 | 79,1 | 105 |
| 8. | Switching Transistor Q3 | 111,2 | 107,1 | 107,3 | 105,8 | 106,0 | 130 |
| 9. | Power Transformer T1 (Core) | 99,6 | 97,6 | 98,1 | 96,8 | 96,9 | 120 |
| 10. | Power Transformer T1 (Winding) | 100,8 | 99,6 | 100,1 | 98,7 | 99,2 | 120 |
| 11. | Rectifier Diode D100 | 98,5 | 97,6 | 98,1 | 98,0 | 98,8 | 130 |
| 12. | Rectifier Diode D101 | 96,6 | 95,3 | 95,2 | 95,7 | 96,0 | 130 |
| 13. | Output Choke L100 (winding) | 107,9 | 106,8 | 106,9 | 106,7 | 106,6 | 130 |
| 14. | Output Bulk C105 | 74,0 | 73,1 | 73,6 | 74,0 | 74,2 | 105 |
| 15. | Thermistor RTH2 | 93,6 | 92,2 | 92,8 | 92,6 | 92,4 | 125 |
| Output load: | | 2,72A @55V | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 100% output load with air convention cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|--------------------------------------|------------|-------|-------|-------|-------|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~): | 90 | 90 | 100 | 100 | 200 | — |
| | Frequency (Hz): | 50 | 60 | 50 | 60 | 50 | — |
| | Ambient T _{min} (°C): | 52,7 | 52,7 | 52,7 | 52,7 | 52,7 | — |
| | Ambient T _{max} (°C): | 55,0 | 55,0 | 55,0 | 55,0 | 55,0 | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24012-C(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 84,0 | 84,2 | 83,3 | 83,5 | 79,2 | 130 |
| 2. | Input Choke LF2 (Winding) | 85,9 | 86,1 | 85,1 | 85,2 | 80,3 | 130 |
| 3. | Diode Bridge BD1 | 100,1 | 100,3 | 98,9 | 98,9 | 90,4 | 130 |
| 4. | PFC Choke L1 (Winding) | 115,3 | 115,4 | 114,9 | 114,9 | 108,5 | 155 |
| 5. | PFC Transistor Q1 | 120,3 | 120,4 | 119,9 | 120,2 | 111,4 | 130 |
| 6. | PFC Diode D1 | 111,5 | 111,6 | 111,1 | 111,1 | 104,2 | 130 |
| 7. | Bulk C1 | 97,0 | 97,1 | 96,9 | 97,0 | 96,1 | 105 |
| 8. | Switching Transistor Q3 | 113,5 | 113,6 | 113,3 | 113,4 | 107,1 | 130 |
| 9. | Power Transformer T1 (Core) | 99,6 | 99,6 | 99,3 | 99,6 | 98,2 | 120 |
| 10. | Power Transformer T1 (Winding) | 101,6 | 101,5 | 101,5 | 101,5 | 99,8 | 120 |
| 11. | Rectifier Diode D100 | 96,0 | 96,0 | 96,0 | 95,9 | 95,8 | 130 |
| 12. | Rectifier Diode D101 | 92,4 | 92,5 | 92,1 | 92,3 | 91,6 | 130 |
| 13. | Output Choke L100 (winding) | 99,1 | 99,0 | 99,0 | 99,0 | 98,5 | 130 |
| 14. | Output Bulk C105 | 83,6 | 83,6 | 83,4 | 83,5 | 82,6 | 105 |
| 15. | Thermistor RTH2 | 92,1 | 92,1 | 92,1 | 92,0 | 91,6 | 125 |
| Output load: | | 3,35A @12V | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 50% output load with air convention cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|---------------------------------------|------------|-------|-------|-------|-------|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~) : | 200 | 240 | 240 | 264 | 264 | — |
| | Frequency (Hz) : | 60 | 50 | 60 | 50 | 60 | — |
| | Ambient T _{min} (°C) : | 52,7 | 52,7 | 52,7 | 53,5 | 52,8 | — |
| | Ambient T _{max} (°C) : | 55,0 | 55,0 | 55,0 | 55,0 | 55,0 | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24012-C(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 79,3 | 78,8 | 78,7 | 77,6 | 76,2 | 130 |
| 2. | Input Choke LF2 (Winding) | 80,5 | 79,8 | 79,9 | 78,3 | 79,3 | 130 |
| 3. | Diode Bridge BD1 | 90,4 | 89,5 | 89,5 | 87,2 | 87,4 | 130 |
| 4. | PFC Choke L1 (Winding) | 108,7 | 107,5 | 107,4 | 103,4 | 103,5 | 155 |
| 5. | PFC Transistor Q1 | 111,8 | 109,3 | 109,4 | 107,5 | 107,7 | 130 |
| 6. | PFC Diode D1 | 104,3 | 103,4 | 103,6 | 101,2 | 101,1 | 130 |
| 7. | Bulk C1 | 96,3 | 93,1 | 93,2 | 91,4 | 91,4 | 105 |
| 8. | Switching Transistor Q3 | 107,3 | 106,1 | 106,3 | 104,5 | 104,5 | 130 |
| 9. | Power Transformer T1 (Core) | 98,5 | 97,1 | 97,3 | 95,7 | 95,8 | 120 |
| 10. | Power Transformer T1 (Winding) | 99,8 | 99,0 | 99,2 | 97,8 | 98,2 | 120 |
| 11. | Rectifier Diode D100 | 95,9 | 94,5 | 94,7 | 93,5 | 93,7 | 130 |
| 12. | Rectifier Diode D101 | 91,8 | 91,0 | 91,0 | 90,4 | 90,5 | 130 |
| 13. | Output Choke L100 (winding) | 98,6 | 97,8 | 97,9 | 96,4 | 96,2 | 130 |
| 14. | Output Bulk C105 | 82,7 | 82,5 | 82,5 | 81,7 | 81,1 | 105 |
| 15. | Thermistor RTH2 | 91,8 | 90,9 | 90,8 | 90,4 | 90,3 | 125 |
| Output load: | | 3,35A @12V | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 50% output load with air convention cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|--------------------------------------|------------|-------|-------|-------|-------|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~): | 90 | 90 | 100 | 100 | 200 | — |
| | Frequency (Hz): | 50 | 60 | 50 | 60 | 50 | — |
| | Ambient T _{min} (°C): | 53,5 | 53,5 | 53,5 | 53,5 | 53,5 | — |
| | Ambient T _{max} (°C): | 55,0 | 55,0 | 55,0 | 55,0 | 55,0 | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24012-F(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 78,5 | 78,6 | 77,0 | 77,3 | 70,3 | 130 |
| 2. | Input Choke LF2 (Winding) | 76,6 | 76,9 | 74,9 | 75,0 | 68,0 | 130 |
| 3. | Diode Bridge BD1 | 96,9 | 97,2 | 95,4 | 95,5 | 85,0 | 130 |
| 4. | PFC Choke L1 (Winding) | 121,3 | 121,3 | 121,7 | 121,7 | 116,0 | 155 |
| 5. | PFC Transistor Q1 | 106,2 | 106,0 | 105,8 | 105,8 | 99,3 | 130 |
| 6. | PFC Diode D1 | 106,6 | 106,8 | 106,4 | 106,4 | 99,6 | 130 |
| 7. | Bulk C1 | 84,8 | 84,1 | 84,3 | 84,3 | 81,7 | 105 |
| 8. | Switching Transistor Q3 | 106,9 | 107,1 | 106,6 | 106,8 | 100,0 | 130 |
| 9. | Power Transformer T1 (Core) | 99,2 | 93,2 | 92,8 | 92,9 | 90,1 | 120 |
| 10. | Power Transformer T1 (Winding) | 99,3 | 99,4 | 99,1 | 99,2 | 96,0 | 120 |
| 11. | Rectifier Diode D100 | 100,7 | 100,9 | 100,9 | 101,0 | 99,6 | 130 |
| 12. | Rectifier Diode D101 | 98,1 | 98,1 | 98,2 | 98,2 | 97,3 | 130 |
| 13. | Output Choke L100 (winding) | 102,1 | 102,2 | 102,2 | 102,2 | 100,9 | 130 |
| 14. | Output Bulk C105 | 86,4 | 86,3 | 86,4 | 86,5 | 85,8 | 105 |
| 15. | Thermistor RTH2 | 97,9 | 98,0 | 97,9 | 98,1 | 96,7 | 125 |
| Output load: | | 6,25A @12V | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 50% output load with air convection cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|---------------------------------------|------------|-------|-------|-------|-------|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~) : | 200 | 240 | 240 | 264 | 264 | — |
| | Frequency (Hz) : | 60 | 50 | 60 | 50 | 60 | — |
| | Ambient T _{min} (°C) : | 53,5 | 53,5 | 53,5 | 54,0 | 53,5 | — |
| | Ambient T _{max} (°C) : | 55,0 | 55,0 | 55,0 | 55,0 | 55,0 | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24012-F(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 70,3 | 68,1 | 68,3 | 66,0 | 66,3 | 130 |
| 2. | Input Choke LF2 (Winding) | 68,1 | 66,5 | 66,6 | 65,1 | 65,5 | 130 |
| 3. | Diode Bridge BD1 | 85,3 | 81,2 | 81,2 | 77,4 | 77,5 | 130 |
| 4. | PFC Choke L1 (Winding) | 116,1 | 107,1 | 107,3 | 101,1 | 101,5 | 155 |
| 5. | PFC Transistor Q1 | 99,5 | 95,5 | 95,7 | 92,5 | 92,8 | 130 |
| 6. | PFC Diode D1 | 99,8 | 95,2 | 95,2 | 92,0 | 92,2 | 130 |
| 7. | Bulk C1 | 81,7 | 79,8 | 79,9 | 78,8 | 78,7 | 105 |
| 8. | Switching Transistor Q3 | 100,2 | 95,7 | 95,8 | 93,2 | 93,4 | 130 |
| 9. | Power Transformer T1 (Core) | 90,1 | 88,5 | 88,6 | 87,6 | 87,7 | 120 |
| 10. | Power Transformer T1 (Winding) | 96,1 | 94,0 | 94,0 | 92,7 | 92,9 | 120 |
| 11. | Rectifier Diode D100 | 99,6 | 98,6 | 98,7 | 96,8 | 97,1 | 130 |
| 12. | Rectifier Diode D101 | 97,3 | 96,0 | 96,1 | 94,3 | 94,5 | 130 |
| 13. | Output Choke L100 (winding) | 101,0 | 100,0 | 100,0 | 98,1 | 98,3 | 130 |
| 14. | Output Bulk C105 | 85,9 | 85,2 | 85,5 | 83,2 | 83,4 | 105 |
| 15. | Thermistor RTH2 | 96,7 | 95,7 | 95,8 | 94,1 | 94,5 | 125 |
| Output load: | | 6,25A @12V | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 50% output load with air convention cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|--------------------------------------|------------|-------|-------|-------|-------|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~): | 90 | 100 | 100 | 200 | 200 | — |
| | Frequency (Hz): | 50 | 50 | 60 | 50 | 60 | — |
| | Ambient T _{min} (°C): | 52,7 | 52,7 | 52,7 | 52,7 | 52,6 | — |
| | Ambient T _{max} (°C): | 55,0 | 55,0 | 55,0 | 55,0 | 55,0 | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24055-X.X-C(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 84,5 | 83,2 | 83,9 | 78,2 | 78,2 | 130 |
| 2. | Input Choke LF2 (Winding) | 88,4 | 87,5 | 87,8 | 81,2 | 81,3 | 130 |
| 3. | Diode Bridge BD1 | 108,6 | 107,3 | 107,7 | 95,4 | 95,6 | 130 |
| 4. | PFC Choke L1 (Winding) | 130,6 | 131,2 | 131,6 | 115,6 | 115,6 | 155 |
| 5. | PFC Transistor Q1 | 121,5 | 119,6 | 120,9 | 105,5 | 105,5 | 130 |
| 6. | PFC Diode D1 | 117,8 | 116,4 | 117,8 | 104,0 | 104,0 | 130 |
| 7. | Bulk C1 | 96,7 | 96,7 | 96,9 | 91,3 | 91,3 | 105 |
| 8. | Switching Transistor Q3 | 120,5 | 115,7 | 120,2 | 103,5 | 103,5 | 130 |
| 9. | Power Transformer T1 (Core) | 98,5 | 98,3 | 98,8 | 95,0 | 95,0 | 120 |
| 10. | Power Transformer T1 (Winding) | 100,6 | 100,4 | 100,9 | 96,9 | 96,9 | 120 |
| 11. | Rectifier Diode D100 | 86,7 | 87,8 | 88,1 | 86,6 | 86,6 | 130 |
| 12. | Rectifier Diode D101 | 85,0 | 86,1 | 86,3 | 85,1 | 85,2 | 130 |
| 13. | Output Choke L100 (winding) | 100,2 | 101,8 | 102,2 | 100,7 | 100,8 | 130 |
| 14. | Output Bulk C105 | 82,5 | 83,2 | 83,5 | 82,7 | 82,7 | 105 |
| 15. | Thermistor RTH2 | 83,8 | 84,3 | 84,9 | 83,3 | 83,3 | 125 |
| Output load: | | 0,7A@55Vdc | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 50% output load with air convention cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|---------------------------------------|------------|-------|-------|-------|--|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~) : | 240 | 240 | 264 | 264 | | — |
| | Frequency (Hz) : | 50 | 60 | 50 | 60 | | — |
| | Ambient T _{min} (°C) : | 52,7 | 52,8 | 52,8 | 52,8 | | — |
| | Ambient T _{max} (°C) : | 55,0 | 55,0 | 55,0 | 55,0 | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24055-X.X-C(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 78,9 | 78,9 | 77,9 | 78,0 | | 130 |
| 2. | Input Choke LF2 (Winding) | 81,9 | 81,8 | 80,6 | 80,7 | | 130 |
| 3. | Diode Bridge BD1 | 96,1 | 96,3 | 93,9 | 93,9 | | 130 |
| 4. | PFC Choke L1 (Winding) | 118,1 | 118,1 | 113,6 | 113,7 | | 155 |
| 5. | PFC Transistor Q1 | 110,1 | 110,1 | 107,7 | 107,9 | | 130 |
| 6. | PFC Diode D1 | 108,0 | 108,0 | 105,7 | 105,9 | | 130 |
| 7. | Bulk C1 | 93,2 | 93,2 | 92,1 | 92,2 | | 105 |
| 8. | Switching Transistor Q3 | 107,2 | 107,2 | 105,0 | 105,0 | | 130 |
| 9. | Power Transformer T1 (Core) | 96,5 | 96,5 | 95,4 | 95,5 | | 120 |
| 10. | Power Transformer T1 (Winding) | 98,4 | 98,5 | 97,3 | 97,5 | | 120 |
| 11. | Rectifier Diode D100 | 87,2 | 87,3 | 86,9 | 87,0 | | 130 |
| 12. | Rectifier Diode D101 | 85,6 | 85,7 | 85,3 | 85,5 | | 130 |
| 13. | Output Choke L100 (winding) | 101,3 | 101,4 | 101,0 | 101,0 | | 130 |
| 14. | Output Bulk C105 | 83,0 | 82,9 | 83,0 | 82,9 | | 105 |
| 15. | Thermistor RTH2 | 83,9 | 83,6 | 83,6 | 83,7 | | 125 |
| Output load: | | 0,7A@55Vdc | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 50% output load with air convention cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|--------------------------------------|-------------|-------|-------|-------|-------|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~): | 90 | 90 | 100 | 100 | 200 | — |
| | Frequency (Hz): | 50 | 60 | 50 | 60 | 50 | — |
| | Ambient T _{min} (°C): | 52,8 | 53,0 | 53,0 | 52,9 | 53,0 | — |
| | Ambient T _{max} (°C): | 55,0 | 55,0 | 55,0 | 55,0 | 55,0 | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24055-X.X-F(W)-S or -HI0XX or -H0XXX or –HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 79,7 | 79,6 | 77,2 | 77,4 | 71,0 | 130 |
| 2. | Input Choke LF2 (Winding) | 85,7 | 85,8 | 83,4 | 83,7 | 77,2 | 130 |
| 3. | Diode Bridge BD1 | 105,3 | 105,3 | 103,5 | 103,6 | 94,0 | 130 |
| 4. | PFC Choke L1 (Winding) | 124,2 | 124,0 | 123,9 | 124,1 | 118,9 | 155 |
| 5. | PFC Transistor Q1 | 112,4 | 112,4 | 111,2 | 111,6 | 105,2 | 130 |
| 6. | PFC Diode D1 | 110,8 | 110,8 | 109,6 | 109,8 | 104,0 | 130 |
| 7. | Bulk C1 | 85,4 | 85,3 | 84,7 | 84,8 | 81,6 | 105 |
| 8. | Switching Transistor Q3 | 113,4 | 113,2 | 112,4 | 112,5 | 106,3 | 130 |
| 9. | Power Transformer T1 (Core) | 97,2 | 97,2 | 96,3 | 96,5 | 93,6 | 120 |
| 10. | Power Transformer T1 (Winding) | 97,2 | 97,1 | 96,4 | 96,4 | 94,6 | 120 |
| 11. | Rectifier Diode D100 | 90,5 | 90,3 | 90,2 | 90,5 | 89,7 | 130 |
| 12. | Rectifier Diode D101 | 88,6 | 88,4 | 88,2 | 88,3 | 87,9 | 130 |
| 13. | Output Choke L100 (winding) | 104,1 | 104,0 | 104,0 | 104,1 | 103,6 | 130 |
| 14. | Output Bulk C105 | 79,1 | 79,0 | 79,0 | 79,1 | 78,9 | 105 |
| 15. | Thermistor RTH2 | 86,7 | 86,6 | 86,4 | 86,6 | 86,1 | 125 |
| Output load: | | 1,36A@55Vdc | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 50% output load with air convention cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|---------------------------------------|-------------|-------|-------|-------|-------|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~) : | 200 | 240 | 240 | 264 | 264 | — |
| | Frequency (Hz) : | 60 | 50 | 60 | 50 | 60 | — |
| | Ambient T _{min} (°C) : | 52,9 | 52,9 | 53,0 | 52,8 | 52,9 | — |
| | Ambient T _{max} (°C) : | 55,0 | 55,0 | 55,0 | 55,0 | 55,0 | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24055-X.X-F(W)-S or -HI0XX or -H0XXX or –HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 71,1 | 69,3 | 69,3 | 67,6 | 68,1 | 130 |
| 2. | Input Choke LF2 (Winding) | 77,5 | 74,4 | 74,7 | 72,2 | 73,0 | 130 |
| 3. | Diode Bridge BD1 | 94,2 | 89,4 | 89,4 | 86,0 | 86,6 | 130 |
| 4. | PFC Choke L1 (Winding) | 119,3 | 111,2 | 111,0 | 106,5 | 107,1 | 155 |
| 5. | PFC Transistor Q1 | 105,4 | 101,5 | 101,8 | 99,8 | 100,0 | 130 |
| 6. | PFC Diode D1 | 104,2 | 100,4 | 100,2 | 98,3 | 99,1 | 130 |
| 7. | Bulk C1 | 82,1 | 80,2 | 80,5 | 79,9 | 80,0 | 105 |
| 8. | Switching Transistor Q3 | 106,5 | 102,7 | 102,7 | 100,9 | 101,3 | 130 |
| 9. | Power Transformer T1 (Core) | 93,7 | 92,1 | 92,0 | 91,2 | 92,1 | 120 |
| 10. | Power Transformer T1 (Winding) | 94,9 | 93,3 | 93,1 | 92,2 | 92,6 | 120 |
| 11. | Rectifier Diode D100 | 89,9 | 89,3 | 89,1 | 89,0 | 89,0 | 130 |
| 12. | Rectifier Diode D101 | 87,9 | 87,5 | 87,7 | 87,2 | 87,4 | 130 |
| 13. | Output Choke L100 (winding) | 103,7 | 103,4 | 103,6 | 103,1 | 103,4 | 130 |
| 14. | Output Bulk C105 | 78,9 | 78,8 | 78,8 | 78,6 | 78,6 | 105 |
| 15. | Thermistor RTH2 | 86,3 | 85,7 | 85,6 | 85,2 | 85,5 | 125 |
| Output load: | | 1,36A@55Vdc | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 50% output load with air convention cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|--------------------------------------|-------------|-------|-------|-------|-------|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~): | 90 | 90 | 100 | 200 | 200 | — |
| | Frequency (Hz): | 50 | 60 | 60 | 50 | 60 | — |
| | Ambient T _{min} (°C): | 27,8 | 27,7 | 28,3 | 27,8 | 28,1 | — |
| | Ambient T _{max} (°C): | 40,0 | 40,0 | 40,0 | 40,0 | 40,0 | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24012-CA(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 106,8 | 107,8 | 94,9 | 61,2 | 61,3 | 130 |
| 2. | Input Choke LF2 (Winding) | 91,1 | 91,9 | 83,1 | 57,7 | 56,5 | 130 |
| 3. | Diode Bridge BD1 | 88,6 | 87,7 | 83,3 | 61,9 | 61,5 | 130 |
| 4. | PFC Choke L1 (Winding) | 73,3 | 73,0 | 71,5 | 63,7 | 64,1 | 155 |
| 5. | PFC Transistor Q1 | 81,4 | 81,6 | 78,7 | 68,4 | 68,4 | 130 |
| 6. | PFC Diode D1 | 58,8 | 58,5 | 57,9 | 54,3 | 55,1 | 130 |
| 7. | Bulk C1 | 56,8 | 56,9 | 56,3 | 53,5 | 54,7 | 105 |
| 8. | Switching Transistor Q3 | 70,9 | 71,5 | 69,9 | 64,5 | 64,5 | 130 |
| 9. | Power Transformer T1 (Core) | 80,5 | 81,3 | 80,5 | 78,6 | 78,0 | 120 |
| 10. | Power Transformer T1 (Winding) | 85,0 | 85,8 | 85,0 | 83,1 | 82,4 | 120 |
| 11. | Rectifier Diode D100 | 82,3 | 83,3 | 82,2 | 80,9 | 80,2 | 130 |
| 12. | Rectifier Diode D101 | 101,7 | 102,5 | 101,8 | 100,4 | 101,0 | 130 |
| 13. | Output Choke L100 (winding) | 90,1 | 89,4 | 90,3 | 89,0 | 89,1 | 130 |
| 14. | Output Bulk C105 | 74,8 | 74,7 | 74,8 | 73,6 | 73,5 | 105 |
| 15. | Thermistor RTH2 | 95,6 | 95,8 | 95,5 | 94,6 | 95,6 | 125 |
| Output load: | | 16,67A @12V | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 100% output load with 20 CFM airflow cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|-------------------------------------|-------------|-------|--|--|--|-------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~) | 264 | 264 | | | | — |
| | Frequency (Hz) | 50 | 60 | | | | — |
| | Ambient T _{min} (°C) | 26,8 | 27,2 | | | | — |
| | Ambient T _{max} (°C) | 40,0 | 40,0 | | | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24012-CA(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 55,5 | 55,2 | | | | 130 |
| 2. | Input Choke LF2 (Winding) | 52,9 | 51,0 | | | | 130 |
| 3. | Diode Bridge BD1 | 56,4 | 57,6 | | | | 130 |
| 4. | PFC Choke L1 (Winding) | 57,8 | 57,8 | | | | 155 |
| 5. | PFC Transistor Q1 | 65,0 | 65,8 | | | | 130 |
| 6. | PFC Diode D1 | 52,6 | 51,3 | | | | 130 |
| 7. | Bulk C1 | 52,5 | 50,9 | | | | 105 |
| 8. | Switching Transistor Q3 | 62,4 | 61,6 | | | | 130 |
| 9. | Power Transformer T1 (Core) | 77,8 | 78,4 | | | | 120 |
| 10. | Power Transformer T1 (Winding) | 82,3 | 83,1 | | | | 120 |
| 11. | Rectifier Diode D100 | 80,6 | 81,9 | | | | 130 |
| 12. | Rectifier Diode D101 | 100,1 | 101,4 | | | | 130 |
| 13. | Output Choke L100 (winding) | 88,6 | 87,6 | | | | 130 |
| 14. | Output Bulk C105 | 73,4 | 71,0 | | | | 105 |
| 15. | Thermistor RTH2 | 94,6 | 96,1 | | | | 125 |
| Output load: | | 16,67A @12V | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 100% output load with 20 CFM airflow cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|--------------------------------------|------------|-------|-------|-------|--|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~): | 90 | 90 | 200 | 200 | | — |
| | Frequency (Hz): | 50 | 60 | 50 | 60 | | — |
| | Ambient T _{min} (°C): | 24,7 | 24,5 | 24,8 | 24,8 | | — |
| | Ambient T _{max} (°C): | 40,0 | 40,0 | 40,0 | 40,0 | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24012-FA(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 107,9 | 108,5 | 62,9 | 62,8 | | 130 |
| 2. | Input Choke LF2 (Winding) | 112,8 | 113,4 | 59,3 | 59,2 | | 130 |
| 3. | Diode Bridge BD1 | 128,9 | 129,0 | 85,7 | 85,3 | | 130 |
| 4. | PFC Choke L1 (Winding) | 120,5 | 120,6 | 96,7 | 96,5 | | 155 |
| 5. | PFC Transistor Q1 | 86,6 | 86,7 | 74,5 | 75,0 | | 130 |
| 6. | PFC Diode D1 | 91,1 | 91,2 | 77,1 | 77,2 | | 130 |
| 7. | Bulk C1 | 78,6 | 78,6 | 74,5 | 74,6 | | 105 |
| 8. | Switching Transistor Q3 | 81,3 | 81,4 | 69,5 | 69,5 | | 130 |
| 9. | Power Transformer T1 (Core) | 52,6 | 52,7 | 51,5 | 51,5 | | 120 |
| 10. | Power Transformer T1 (Winding) | 65,5 | 65,6 | 64,2 | 64,0 | | 120 |
| 11. | Rectifier Diode D100 | 100,3 | 101,0 | 100,1 | 101,1 | | 130 |
| 12. | Rectifier Diode D101 | 95,4 | 95,7 | 95,2 | 96,2 | | 130 |
| 13. | Output Choke L100 (winding) | 123,7 | 123,8 | 121,9 | 123,2 | | 130 |
| 14. | Output Bulk C105 | 90,2 | 90,3 | 89,9 | 90,1 | | 105 |
| 15. | Thermistor RTH2 | 107,9 | 108,5 | 85,8 | 86,0 | | 125 |
| Output load: | | 20,0A @12V | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 100% output load with 20 CFM airflow cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|---------------------------------------|------------|-------|--|--|--|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~) : | 264 | 264 | | | | — |
| | Frequency (Hz) : | 50 | 60 | | | | — |
| | Ambient T _{min} (°C) : | 24,6 | 24,6 | | | | — |
| | Ambient T _{max} (°C) : | 40,0 | 40,0 | | | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24012-FA(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 57,4 | 57,3 | | | | 130 |
| 2. | Input Choke LF2 (Winding) | 54,0 | 54,2 | | | | 130 |
| 3. | Diode Bridge BD1 | 75,8 | 75,7 | | | | 130 |
| 4. | PFC Choke L1 (Winding) | 86,5 | 86,5 | | | | 155 |
| 5. | PFC Transistor Q1 | 71,8 | 72,0 | | | | 130 |
| 6. | PFC Diode D1 | 73,6 | 73,6 | | | | 130 |
| 7. | Bulk C1 | 72,8 | 72,8 | | | | 105 |
| 8. | Switching Transistor Q3 | 66,8 | 66,7 | | | | 130 |
| 9. | Power Transformer T1 (Core) | 51,3 | 51,2 | | | | 120 |
| 10. | Power Transformer T1 (Winding) | 63,6 | 63,3 | | | | 120 |
| 11. | Rectifier Diode D100 | 98,6 | 98,1 | | | | 130 |
| 12. | Rectifier Diode D101 | 94,0 | 94,1 | | | | 130 |
| 13. | Output Choke L100 (winding) | 119,9 | 120,2 | | | | 130 |
| 14. | Output Bulk C105 | 88,7 | 88,6 | | | | 105 |
| 15. | Thermistor RTH2 | 85,6 | 85,3 | | | | 125 |
| Output load: | | 20,0A @12V | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 100% output load with 20 CFM airflow cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|--------------------------------------|-------------|-------|------|------|------|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~): | 90 | 90 | 100 | 200 | 200 | — |
| | Frequency (Hz): | 50 | 60 | 60 | 50 | 60 | — |
| | Ambient T _{min} (°C): | 27,7 | 27,5 | 27,5 | 27,8 | 27,4 | — |
| | Ambient T _{max} (°C): | 40,0 | 40,0 | 40,0 | 40,0 | 40,0 | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24055-X.X-CA(W)-S or -HI0XX or -H0XXX or –HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 106,1 | 106,5 | 80,7 | 64,5 | 64,8 | 130 |
| 2. | Input Choke LF2 (Winding) | 92,9 | 93,6 | 74,1 | 60,7 | 60,8 | 130 |
| 3. | Diode Bridge BD1 | 79,0 | 79,8 | 69,2 | 59,5 | 59,8 | 130 |
| 4. | PFC Choke L1 (Winding) | 86,1 | 86,7 | 81,4 | 76,1 | 76,7 | 155 |
| 5. | PFC Transistor Q1 | 68,5 | 68,6 | 64,7 | 61,2 | 60,8 | 130 |
| 6. | PFC Diode D1 | 50,9 | 50,9 | 49,5 | 48,1 | 48,2 | 130 |
| 7. | Bulk C1 | 48,9 | 48,9 | 47,9 | 46,6 | 47,9 | 105 |
| 8. | Switching Transistor Q3 | 73,9 | 73,8 | 70,2 | 66,7 | 67,8 | 130 |
| 9. | Power Transformer T1 (Core) | 77,8 | 77,5 | 76,5 | 75,0 | 76,2 | 120 |
| 10. | Power Transformer T1 (Winding) | 81,9 | 82,2 | 80,5 | 79,1 | 80,1 | 120 |
| 11. | Rectifier Diode D100 | 80,9 | 80,8 | 80,2 | 79,1 | 80,3 | 130 |
| 12. | Rectifier Diode D101 | 84,5 | 85,0 | 83,8 | 82,5 | 83,2 | 130 |
| 13. | Output Choke L100 (winding) | 77,4 | 78,0 | 76,8 | 75,8 | 76,5 | 130 |
| 14. | Output Bulk C105 | 69,3 | 69,9 | 68,7 | 67,6 | 67,8 | 105 |
| 15. | Thermistor RTH2 | 78,1 | 78,5 | 77,5 | 76,2 | 76,8 | 125 |
| Output load: | | 3,64A@55Vdc | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 100% output load with 20 CFM airflow cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|---------------------------------------|-------------|------|--|--|--|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~) : | 264 | 264 | | | | — |
| | Frequency (Hz) : | 50 | 60 | | | | — |
| | Ambient T _{min} (°C) : | 26,7 | 27,1 | | | | — |
| | Ambient T _{max} (°C) : | 40,0 | 40,0 | | | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24055-X.X-CA(W)-S or -HI0XX or -H0XXX or –HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 60,7 | 59,9 | | | | 130 |
| 2. | Input Choke LF2 (Winding) | 56,9 | 55,7 | | | | 130 |
| 3. | Diode Bridge BD1 | 55,5 | 55,8 | | | | 130 |
| 4. | PFC Choke L1 (Winding) | 69,2 | 68,4 | | | | 155 |
| 5. | PFC Transistor Q1 | 59,0 | 56,8 | | | | 130 |
| 6. | PFC Diode D1 | 47,4 | 47,5 | | | | 130 |
| 7. | Bulk C1 | 46,3 | 46,9 | | | | 105 |
| 8. | Switching Transistor Q3 | 64,5 | 65,1 | | | | 130 |
| 9. | Power Transformer T1 (Core) | 74,7 | 74,2 | | | | 120 |
| 10. | Power Transformer T1 (Winding) | 78,5 | 78,6 | | | | 120 |
| 11. | Rectifier Diode D100 | 78,7 | 80,4 | | | | 130 |
| 12. | Rectifier Diode D101 | 82,3 | 83,9 | | | | 130 |
| 13. | Output Choke L100 (winding) | 75,5 | 75,2 | | | | 130 |
| 14. | Output Bulk C105 | 67,2 | 66,6 | | | | 105 |
| 15. | Thermistor RTH2 | 76,1 | 77,0 | | | | 125 |
| Output load: | | 3,64A@55Vdc | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 100% output load with 20 CFM airflow cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|--------------------------------------|-------------|-------|------|------|--|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~): | 90 | 90 | 200 | 200 | | — |
| | Frequency (Hz): | 50 | 60 | 50 | 60 | | — |
| | Ambient T _{min} (°C): | 23,7 | 23,7 | 23,6 | 23,7 | | — |
| | Ambient T _{max} (°C): | 40,0 | 40,0 | 40,0 | 40,0 | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24055-X.X-FA(W)-S or -HI0XX or -H0XXX or –HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 80,5 | 80,9 | 50,3 | 50,7 | | 130 |
| 2. | Input Choke LF2 (Winding) | 78,8 | 79,0 | 53,9 | 54,3 | | 130 |
| 3. | Diode Bridge BD1 | 97,1 | 97,4 | 69,7 | 69,7 | | 130 |
| 4. | PFC Choke L1 (Winding) | 100,7 | 100,8 | 84,6 | 84,6 | | 155 |
| 5. | PFC Transistor Q1 | 74,5 | 74,8 | 66,1 | 66,0 | | 130 |
| 6. | PFC Diode D1 | 79,2 | 79,2 | 69,7 | 70,0 | | 130 |
| 7. | Bulk C1 | 67,7 | 67,9 | 63,0 | 62,9 | | 105 |
| 8. | Switching Transistor Q3 | 65,8 | 66,0 | 59,8 | 59,8 | | 130 |
| 9. | Power Transformer T1 (Core) | 63,5 | 63,6 | 61,0 | 61,4 | | 120 |
| 10. | Power Transformer T1 (Winding) | 65,3 | 65,3 | 64,3 | 64,9 | | 120 |
| 11. | Rectifier Diode D100 | 75,1 | 75,4 | 74,5 | 74,5 | | 130 |
| 12. | Rectifier Diode D101 | 80,2 | 80,2 | 79,4 | 79,3 | | 130 |
| 13. | Output Choke L100 (winding) | 99,0 | 99,2 | 97,4 | 97,3 | | 130 |
| 14. | Output Bulk C105 | 65,3 | 65,3 | 64,9 | 65,0 | | 105 |
| 15. | Thermistor RTH2 | 80,5 | 80,9 | 67,1 | 67,2 | | 125 |
| Output load: | | 4,36A@55Vdc | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 100% output load with 20 CFM airflow cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|---------------------------------------|-------------|------|--|--|--|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~) : | 264 | 264 | | | | — |
| | Frequency (Hz) : | 50 | 60 | | | | — |
| | Ambient T _{min} (°C) : | 24,0 | 24,0 | | | | — |
| | Ambient T _{max} (°C) : | 40,0 | 40,0 | | | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24055-X.X-FA(W)-S or -HI0XX or -H0XXX or –HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 47,7 | 47,7 | | | | 130 |
| 2. | Input Choke LF2 (Winding) | 51,0 | 51,0 | | | | 130 |
| 3. | Diode Bridge BD1 | 63,9 | 64,1 | | | | 130 |
| 4. | PFC Choke L1 (Winding) | 77,3 | 77,5 | | | | 155 |
| 5. | PFC Transistor Q1 | 64,3 | 64,3 | | | | 130 |
| 6. | PFC Diode D1 | 67,3 | 67,5 | | | | 130 |
| 7. | Bulk C1 | 61,7 | 61,8 | | | | 105 |
| 8. | Switching Transistor Q3 | 58,6 | 58,9 | | | | 130 |
| 9. | Power Transformer T1 (Core) | 60,6 | 60,6 | | | | 120 |
| 10. | Power Transformer T1 (Winding) | 63,9 | 63,9 | | | | 120 |
| 11. | Rectifier Diode D100 | 74,1 | 74,2 | | | | 130 |
| 12. | Rectifier Diode D101 | 79,4 | 79,4 | | | | 130 |
| 13. | Output Choke L100 (winding) | 97,3 | 97,3 | | | | 130 |
| 14. | Output Bulk C105 | 65,0 | 65,2 | | | | 105 |
| 15. | Thermistor RTH2 | 67,0 | 66,8 | | | | 125 |
| Output load: | | 4,36A@55Vdc | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 100% output load with 20 CFM airflow cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|--------------------------------------|------------|-------|-------|-------|--|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~): | 90 | 90 | 200 | 200 | | — |
| | Frequency (Hz): | 50 | 60 | 50 | 60 | | — |
| | Ambient T _{min} (°C): | 59,8 | 59,8 | 59,9 | 59,9 | | — |
| | Ambient T _{max} (°C): | 70,0 | 70,0 | 70,0 | 70,0 | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24012-CA(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 103,9 | 104,2 | 89,8 | 89,8 | | 130 |
| 2. | Input Choke LF2 (Winding) | 106,1 | 106,2 | 92,3 | 92,4 | | 130 |
| 3. | Diode Bridge BD1 | 119,3 | 119,6 | 103,9 | 103,9 | | 130 |
| 4. | PFC Choke L1 (Winding) | 117,6 | 117,6 | 112,8 | 112,8 | | 155 |
| 5. | PFC Transistor Q1 | 112,6 | 112,8 | 104,2 | 104,4 | | 130 |
| 6. | PFC Diode D1 | 107,2 | 107,2 | 101,3 | 101,4 | | 130 |
| 7. | Bulk C1 | 102,3 | 102,5 | 98,1 | 98,1 | | 105 |
| 8. | Switching Transistor Q3 | 99,2 | 99,3 | 95,7 | 95,7 | | 130 |
| 9. | Power Transformer T1 (Core) | 86,4 | 86,4 | 86,1 | 86,3 | | 120 |
| 10. | Power Transformer T1 (Winding) | 91,2 | 91,2 | 90,9 | 91,1 | | 120 |
| 11. | Rectifier Diode D100 | 104,6 | 104,7 | 103,8 | 104,0 | | 130 |
| 12. | Rectifier Diode D101 | 103,2 | 103,3 | 102,8 | 102,9 | | 130 |
| 13. | Output Choke L100 (winding) | 117,6 | 118,0 | 116,4 | 116,7 | | 130 |
| 14. | Output Bulk C105 | 101,2 | 101,4 | 100,7 | 101,0 | | 105 |
| 15. | Thermistor RTH2 | 98,4 | 98,6 | 98,3 | 98,3 | | 125 |
| Output load: | | 8,34A @12V | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 50% output load with 20 CFM airflow cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|---------------------------------------|------------|-------|--|--|--|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~) : | 264 | 264 | | | | — |
| | Frequency (Hz) : | 50 | 60 | | | | — |
| | Ambient T _{min} (°C) : | 59,8 | 59,8 | | | | — |
| | Ambient T _{max} (°C) : | 70,0 | 70,0 | | | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24012-CA(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 86,8 | 86,8 | | | | 130 |
| 2. | Input Choke LF2 (Winding) | 88,6 | 88,7 | | | | 130 |
| 3. | Diode Bridge BD1 | 98,0 | 98,2 | | | | 130 |
| 4. | PFC Choke L1 (Winding) | 104,3 | 104,5 | | | | 155 |
| 5. | PFC Transistor Q1 | 99,5 | 100,0 | | | | 130 |
| 6. | PFC Diode D1 | 97,5 | 97,7 | | | | 130 |
| 7. | Bulk C1 | 96,0 | 96,2 | | | | 105 |
| 8. | Switching Transistor Q3 | 93,1 | 93,2 | | | | 130 |
| 9. | Power Transformer T1 (Core) | 85,7 | 85,7 | | | | 120 |
| 10. | Power Transformer T1 (Winding) | 90,4 | 90,6 | | | | 120 |
| 11. | Rectifier Diode D100 | 103,7 | 103,7 | | | | 130 |
| 12. | Rectifier Diode D101 | 103,1 | 103,2 | | | | 130 |
| 13. | Output Choke L100 (winding) | 116,3 | 117,0 | | | | 130 |
| 14. | Output Bulk C105 | 100,5 | 100,8 | | | | 105 |
| 15. | Thermistor RTH2 | 98,7 | 98,9 | | | | 125 |
| Output load: | | 8,34A @12V | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 50% output load with 20 CFM airflow cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|--------------------------------------|------------|-------|-------|-------|--|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~): | 90 | 90 | 200 | 200 | | — |
| | Frequency (Hz): | 50 | 60 | 50 | 60 | | — |
| | Ambient T _{min} (°C): | 60,0 | 60,0 | 60,0 | 60,0 | | — |
| | Ambient T _{max} (°C): | 70,0 | 70,0 | 70,0 | 70,0 | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24012-FA(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 95,0 | 95,1 | 82,0 | 82,0 | | 130 |
| 2. | Input Choke LF2 (Winding) | 95,9 | 95,9 | 81,0 | 81,1 | | 130 |
| 3. | Diode Bridge BD1 | 108,4 | 108,5 | 93,0 | 93,0 | | 130 |
| 4. | PFC Choke L1 (Winding) | 114,4 | 114,4 | 111,6 | 111,7 | | 155 |
| 5. | PFC Transistor Q1 | 95,7 | 95,8 | 91,8 | 92,0 | | 130 |
| 6. | PFC Diode D1 | 96,9 | 96,9 | 92,7 | 92,7 | | 130 |
| 7. | Bulk C1 | 82,6 | 82,6 | 81,0 | 81,0 | | 105 |
| 8. | Switching Transistor Q3 | 94,4 | 94,5 | 91,0 | 91,3 | | 130 |
| 9. | Power Transformer T1 (Core) | 78,6 | 78,6 | 78,2 | 78,2 | | 120 |
| 10. | Power Transformer T1 (Winding) | 84,3 | 84,4 | 83,8 | 83,9 | | 120 |
| 11. | Rectifier Diode D100 | 95,0 | 95,0 | 94,7 | 94,8 | | 130 |
| 12. | Rectifier Diode D101 | 95,4 | 95,4 | 95,0 | 95,0 | | 130 |
| 13. | Output Choke L100 (winding) | 104,8 | 104,8 | 104,1 | 104,2 | | 130 |
| 14. | Output Bulk C105 | 92,2 | 92,2 | 92,0 | 92,0 | | 105 |
| 15. | Thermistor RTH2 | 89,9 | 89,9 | 89,7 | 89,8 | | 125 |
| Output load: | | 10,0A @12V | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 50% output load with 20 CFM airflow cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|---------------------------------------|------------|-------|--|--|--|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~) : | 264 | 264 | | | | — |
| | Frequency (Hz) : | 50 | 60 | | | | — |
| | Ambient T _{min} (°C) : | 60,0 | 60,0 | | | | — |
| | Ambient T _{max} (°C) : | 70,0 | 70,0 | | | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24012-FA(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 79,1 | 79,1 | | | | 130 |
| 2. | Input Choke LF2 (Winding) | 78,6 | 78,6 | | | | 130 |
| 3. | Diode Bridge BD1 | 87,5 | 87,5 | | | | 130 |
| 4. | PFC Choke L1 (Winding) | 101,8 | 101,9 | | | | 155 |
| 5. | PFC Transistor Q1 | 89,0 | 89,0 | | | | 130 |
| 6. | PFC Diode D1 | 89,3 | 89,4 | | | | 130 |
| 7. | Bulk C1 | 80,0 | 80,0 | | | | 105 |
| 8. | Switching Transistor Q3 | 88,1 | 88,3 | | | | 130 |
| 9. | Power Transformer T1 (Core) | 78,0 | 78,1 | | | | 120 |
| 10. | Power Transformer T1 (Winding) | 83,3 | 83,4 | | | | 120 |
| 11. | Rectifier Diode D100 | 94,1 | 94,3 | | | | 130 |
| 12. | Rectifier Diode D101 | 94,7 | 94,9 | | | | 130 |
| 13. | Output Choke L100 (winding) | 103,3 | 103,5 | | | | 130 |
| 14. | Output Bulk C105 | 91,4 | 91,4 | | | | 105 |
| 15. | Thermistor RTH2 | 89,4 | 89,5 | | | | 125 |
| Output load: | | 10,0A @12V | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 50% output load with 20 CFM airflow cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|--------------------------------------|-------------|-------|-------|-------|--|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~): | 90 | 90 | 200 | 200 | | — |
| | Frequency (Hz): | 50 | 60 | 50 | 60 | | — |
| | Ambient T _{min} (°C): | 60,1 | 60,2 | 60,2 | 60,2 | | — |
| | Ambient T _{max} (°C): | 70,0 | 70,0 | 70,0 | 70,0 | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24055-X.X-CA(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 102,1 | 102,3 | 89,9 | 90,1 | | 130 |
| 2. | Input Choke LF2 (Winding) | 105,7 | 105,9 | 93,2 | 93,5 | | 130 |
| 3. | Diode Bridge BD1 | 119,4 | 119,4 | 103,8 | 104,4 | | 130 |
| 4. | PFC Choke L1 (Winding) | 128,5 | 128,7 | 122,7 | 123,2 | | 155 |
| 5. | PFC Transistor Q1 | 111,1 | 111,2 | 104,9 | 105,2 | | 130 |
| 6. | PFC Diode D1 | 105,8 | 105,9 | 100,7 | 100,9 | | 130 |
| 7. | Bulk C1 | 97,2 | 97,2 | 93,8 | 93,9 | | 105 |
| 8. | Switching Transistor Q3 | 101,5 | 101,7 | 97,4 | 97,7 | | 130 |
| 9. | Power Transformer T1 (Core) | 89,0 | 89,0 | 88,0 | 88,1 | | 120 |
| 10. | Power Transformer T1 (Winding) | 96,1 | 96,0 | 94,7 | 94,7 | | 120 |
| 11. | Rectifier Diode D100 | 100,9 | 100,9 | 99,8 | 100,0 | | 130 |
| 12. | Rectifier Diode D101 | 102,7 | 102,6 | 101,6 | 101,8 | | 130 |
| 13. | Output Choke L100 (winding) | 121,8 | 121,9 | 120,2 | 120,3 | | 130 |
| 14. | Output Bulk C105 | 104,9 | 104,8 | 103,8 | 103,8 | | 105 |
| 15. | Thermistor RTH2 | 96,6 | 96,6 | 95,7 | 95,6 | | 125 |
| Output load: | | 1,82A@55Vdc | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 50% output load with 20 CFM airflow cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|---------------------------------------|-------------|-------|--|--|--|-------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~) : | 264 | 264 | | | | — |
| | Frequency (Hz) : | 50 | 60 | | | | — |
| | Ambient T _{min} (°C) : | 60,1 | 60,1 | | | | — |
| | Ambient T _{max} (°C) : | 70,0 | 70,0 | | | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24055-X.X-CA(W)-S or -HI0XX or -H0XXX or –HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 77,2 | 77,3 | | | | 130 |
| 2. | Input Choke LF2 (Winding) | 79,4 | 49,7 | | | | 130 |
| 3. | Diode Bridge BD1 | 87,4 | 87,8 | | | | 130 |
| 4. | PFC Choke L1 (Winding) | 101,4 | 101,7 | | | | 155 |
| 5. | PFC Transistor Q1 | 90,4 | 90,7 | | | | 130 |
| 6. | PFC Diode D1 | 86,9 | 87,2 | | | | 130 |
| 7. | Bulk C1 | 82,0 | 82,2 | | | | 105 |
| 8. | Switching Transistor Q3 | 84,4 | 84,6 | | | | 130 |
| 9. | Power Transformer T1 (Core) | 77,6 | 77,8 | | | | 120 |
| 10. | Power Transformer T1 (Winding) | 84,1 | 84,3 | | | | 120 |
| 11. | Rectifier Diode D100 | 89,4 | 89,6 | | | | 130 |
| 12. | Rectifier Diode D101 | 91,4 | 91,4 | | | | 130 |
| 13. | Output Choke L100 (winding) | 109,5 | 109,5 | | | | 130 |
| 14. | Output Bulk C105 | 93,5 | 93,5 | | | | 105 |
| 15. | Thermistor RTH2 | 85,4 | 85,4 | | | | 125 |
| Output load: | | 1,82A@55Vdc | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 50% output load with 20 CFM airflow cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|--------------------------------------|-------------|-------|-------|-------|--|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~): | 90 | 90 | 200 | 200 | | — |
| | Frequency (Hz): | 50 | 60 | 50 | 60 | | — |
| | Ambient T _{min} (°C): | 60,0 | 60,0 | 60,3 | 60,3 | | — |
| | Ambient T _{max} (°C): | 70,0 | 70,0 | 70,0 | 70,0 | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24055-X.X-FA(W)-S or -HI0XX or -H0XXX or –HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 89,6 | 89,9 | 77,8 | 89,6 | | 130 |
| 2. | Input Choke LF2 (Winding) | 88,7 | 89,0 | 80,8 | 88,7 | | 130 |
| 3. | Diode Bridge BD1 | 104,2 | 104,8 | 95,8 | 104,2 | | 130 |
| 4. | PFC Choke L1 (Winding) | 109,7 | 110,1 | 110,9 | 109,7 | | 155 |
| 5. | PFC Transistor Q1 | 94,7 | 95,0 | 91,5 | 94,7 | | 130 |
| 6. | PFC Diode D1 | 96,7 | 97,0 | 93,6 | 96,7 | | 130 |
| 7. | Bulk C1 | 83,9 | 84,5 | 81,1 | 83,9 | | 105 |
| 8. | Switching Transistor Q3 | 95,5 | 95,8 | 92,7 | 95,5 | | 130 |
| 9. | Power Transformer T1 (Core) | 84,2 | 84,6 | 82,7 | 84,2 | | 120 |
| 10. | Power Transformer T1 (Winding) | 85,1 | 85,6 | 84,2 | 85,1 | | 120 |
| 11. | Rectifier Diode D100 | 87,2 | 87,6 | 87,0 | 87,2 | | 130 |
| 12. | Rectifier Diode D101 | 90,2 | 90,6 | 90,2 | 90,2 | | 130 |
| 13. | Output Choke L100 (winding) | 106,0 | 106,3 | 105,9 | 106,0 | | 130 |
| 14. | Output Bulk C105 | 86,5 | 86,8 | 87,1 | 86,5 | | 105 |
| 15. | Thermistor RTH2 | 83,9 | 84,2 | 83,4 | 83,9 | | 125 |
| Output load: | | 2,18A@55Vdc | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 50% output load with 20 CFM airflow cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|---------------------------------------|-------------|-------|--|--|--|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V~) : | 264 | 264 | | | | — |
| | Frequency (Hz) : | 50 | 60 | | | | — |
| | Ambient T _{min} (°C) : | 60,2 | 60,2 | | | | — |
| | Ambient T _{max} (°C) : | 70,0 | 70,0 | | | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24055-X.X-FA(W)-S or -HI0XX or -H0XXX or –HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 76,0 | 76,3 | | | | 130 |
| 2. | Input Choke LF2 (Winding) | 78,0 | 78,6 | | | | 130 |
| 3. | Diode Bridge BD1 | 89,6 | 89,7 | | | | 130 |
| 4. | PFC Choke L1 (Winding) | 101,1 | 101,2 | | | | 155 |
| 5. | PFC Transistor Q1 | 88,5 | 88,7 | | | | 130 |
| 6. | PFC Diode D1 | 90,3 | 90,3 | | | | 130 |
| 7. | Bulk C1 | 80,0 | 80,0 | | | | 105 |
| 8. | Switching Transistor Q3 | 89,8 | 90,3 | | | | 130 |
| 9. | Power Transformer T1 (Core) | 81,6 | 81,8 | | | | 120 |
| 10. | Power Transformer T1 (Winding) | 83,6 | 83,6 | | | | 120 |
| 11. | Rectifier Diode D100 | 86,8 | 86,9 | | | | 130 |
| 12. | Rectifier Diode D101 | 90,0 | 90,0 | | | | 130 |
| 13. | Output Choke L100 (winding) | 105,6 | 105,5 | | | | 130 |
| 14. | Output Bulk C105 | 86,9 | 87,4 | | | | 105 |
| 15. | Thermistor RTH2 | 83,2 | 83,3 | | | | 125 |
| Output load: | | 2,18A@55Vdc | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 50% output load with 20 CFM airflow cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|--|----------|-------|-------|--|--|-------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V $\overline{=}$) | 130 | 200 | 320 | | | — |
| | Ambient T _{min} (°C) | 25,7 | 25,0 | 25,0 | | | — |
| | Ambient T _{max} (°C) | 40,0 | 40,0 | 40,0 | | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24012-C(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 77,3 | 73,3 | 69,3 | | | 130 |
| 2. | Input Choke LF2 (Winding) | 81,0 | 76,6 | 70,4 | | | 130 |
| 3. | Diode Bridge BD1 | 100,7 | 93,5 | 82,4 | | | 130 |
| 4. | PFC Choke L1 (Winding) | 118,9 | 119,2 | 101,7 | | | 155 |
| 5. | PFC Transistor Q1 | 120,1 | 117,6 | 111,0 | | | 130 |
| 6. | PFC Diode D1 | 110,1 | 108,6 | 101,9 | | | 130 |
| 7. | Bulk C1 | 95,6 | 94,3 | 90,5 | | | 105 |
| 8. | Switching Transistor Q3 | 109,7 | 108,2 | 102,5 | | | 130 |
| 9. | Power Transformer T1 (Core) | 98,3 | 97,8 | 95,8 | | | 120 |
| 10. | Power Transformer T1 (Winding) | 101,7 | 101,1 | 98,8 | | | 120 |
| 11. | Rectifier Diode D100 | 100,1 | 99,8 | 98,5 | | | 130 |
| 12. | Rectifier Diode D101 | 95,1 | 95,1 | 93,7 | | | 130 |
| 13. | Output Choke L100 (winding) | 99,4 | 99,2 | 97,9 | | | 130 |
| 14. | Output Bulk C105 | 75,7 | 75,7 | 74,4 | | | 105 |
| 15. | Thermistor RTH2 | 95,1 | 94,9 | 93,9 | | | 125 |
| Output load: | | 6,7A@12V | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 100% output load with air convention cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| 4.5 | TABLE: Thermal requirements | | | | | | P |
|--|--|-----------|-------|-------|--|--|-------------------------------------|
| | Supply voltage (V $\overline{=}$) | 130 | 200 | 320 | | | — |
| | Ambient T _{min} (°C) | 25,7 | 25,0 | 25,0 | | | — |
| | Ambient T _{max} (°C) | 40,0 | 40,0 | 40,0 | | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24012-F(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 82,5 | 74,2 | 66,3 | | | 130 |
| 2. | Input Choke LF2 (Winding) | 80,1 | 70,4 | 64,0 | | | 130 |
| 3. | Diode Bridge BD1 | 108,5 | 98,9 | 84,9 | | | 130 |
| 4. | PFC Choke L1 (Winding) | 135,5 | 134,1 | 112,3 | | | 155 |
| 5. | PFC Transistor Q1 | 114,7 | 111,7 | 104,8 | | | 130 |
| 6. | PFC Diode D1 | 113,1 | 110,0 | 101,7 | | | 130 |
| 7. | Bulk C1 | 86,1 | 84,6 | 82,0 | | | 105 |
| 8. | Switching Transistor Q3 | 115,7 | 112,5 | 104,5 | | | 130 |
| 9. | Power Transformer T1 (Core) | 99,1 | 97,9 | 95,2 | | | 120 |
| 10. | Power Transformer T1 (Winding) | 111,0 | 110,0 | 107,2 | | | 120 |
| 11. | Rectifier Diode D100 | 124,1 | 123,6 | 122,2 | | | 130 |
| 12. | Rectifier Diode D101 | 120,1 | 119,8 | 117,7 | | | 130 |
| 13. | Output Choke L100 (winding) | 122,1 | 121,7 | 120,0 | | | 130 |
| 14. | Output Bulk C105 | 94,5 | 94,5 | 93,2 | | | 105 |
| 15. | Thermistor RTH2 | 117,5 | 117,0 | 115,9 | | | 125 |
| Output load: | | 12,5A@12V | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 100% output load with air convention cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|--|----------|-------|-------|--|--|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V $\overline{=}$) | 130 | 200 | 320 | | | — |
| | Ambient T _{min} (°C) | 25,5 | 25,0 | 25,0 | | | — |
| | Ambient T _{max} (°C) | 40,0 | 40,0 | 40,0 | | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24055-X.X-C(W)-S or -HI0XX or -H0XXX or –HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 79,8 | 76,2 | 71,5 | | | 130 |
| 2. | Input Choke LF2 (Winding) | 85,1 | 81,3 | 74,4 | | | 130 |
| 3. | Diode Bridge BD1 | 111,7 | 106,2 | 93,0 | | | 130 |
| 4. | PFC Choke L1 (Winding) | 145,3 | 145,7 | 123,1 | | | 155 |
| 5. | PFC Transistor Q1 | 129,9 | 127,8 | 118,9 | | | 130 |
| 6. | PFC Diode D1 | 125,8 | 123,4 | 114,6 | | | 130 |
| 7. | Bulk C1 | 101,7 | 99,9 | 95,2 | | | 105 |
| 8. | Switching Transistor Q3 | 122,8 | 120,7 | 112,9 | | | 130 |
| 9. | Power Transformer T1 (Core) | 108,3 | 106,8 | 103,9 | | | 120 |
| 10. | Power Transformer T1 (Winding) | 112,1 | 110,6 | 107,3 | | | 120 |
| 11. | Rectifier Diode D100 | 95,9 | 95,3 | 93,5 | | | 130 |
| 12. | Rectifier Diode D101 | 93,1 | 92,8 | 90,5 | | | 130 |
| 13. | Output Choke L100 (winding) | 108,4 | 107,8 | 105,8 | | | 130 |
| 14. | Output Bulk C105 | 81,2 | 80,5 | 79,5 | | | 105 |
| 15. | Thermistor RTH2 | 90,6 | 90,1 | 88,7 | | | 125 |
| Output load: | | 1,4A@55V | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 100% output load with air convention cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|--|-----------|-------|-------|--|--|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V $\overline{=}$) | 130 | 200 | 320 | | | — |
| | Ambient T _{min} (°C) | 25,7 | 25,0 | 25,0 | | | — |
| | Ambient T _{max} (°C) | 40,0 | 40,0 | 40,0 | | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24055-X.X-F(W)-S or -HI0XX or -H0XXX or –HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 78,8 | 69,6 | 63,4 | | | 130 |
| 2. | Input Choke LF2 (Winding) | 83,7 | 75,5 | 67,5 | | | 130 |
| 3. | Diode Bridge BD1 | 109,4 | 100,8 | 86,8 | | | 130 |
| 4. | PFC Choke L1 (Winding) | 133,7 | 131,8 | 112,9 | | | 155 |
| 5. | PFC Transistor Q1 | 118,4 | 115,3 | 108,3 | | | 130 |
| 6. | PFC Diode D1 | 117,0 | 113,4 | 105,6 | | | 130 |
| 7. | Bulk C1 | 86,5 | 85,1 | 81,6 | | | 105 |
| 8. | Switching Transistor Q3 | 118,5 | 115,7 | 108,7 | | | 130 |
| 9. | Power Transformer T1 (Core) | 101,9 | 100,8 | 98,0 | | | 120 |
| 10. | Power Transformer T1 (Winding) | 102,5 | 101,6 | 99,6 | | | 120 |
| 11. | Rectifier Diode D100 | 99,9 | 100,0 | 98,9 | | | 130 |
| 12. | Rectifier Diode D101 | 96,9 | 97,2 | 96,1 | | | 130 |
| 13. | Output Choke L100 (winding) | 108,4 | 108,4 | 107,2 | | | 130 |
| 14. | Output Bulk C105 | 74,9 | 75,6 | 74,8 | | | 105 |
| 15. | Thermistor RTH2 | 94,5 | 94,8 | 93,7 | | | 125 |
| Output load: | | 2,72A@55V | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 100% output load with air convention cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|--|-----------|-------|------|--|--|-------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V $\overline{=}$) | 130 | 200 | 320 | | | — |
| | Ambient T _{min} (°C) | 47,8 | 47,9 | 49,7 | | | — |
| | Ambient T _{max} (°C) | 50,0 | 50,0 | 50,0 | | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24012-C(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 75,7 | 71,9 | 71,1 | | | 130 |
| 2. | Input Choke LF2 (Winding) | 77,7 | 73,1 | 70,4 | | | 130 |
| 3. | Diode Bridge BD1 | 91,8 | 84,0 | 78,1 | | | 130 |
| 4. | PFC Choke L1 (Winding) | 113,6 | 104,5 | 93,3 | | | 155 |
| 5. | PFC Transistor Q1 | 114,2 | 99,3 | 98,5 | | | 130 |
| 6. | PFC Diode D1 | 105,3 | 95,1 | 93,0 | | | 130 |
| 7. | Bulk C1 | 89,9 | 85,2 | 84,1 | | | 105 |
| 8. | Switching Transistor Q3 | 107,6 | 98,4 | 96,8 | | | 130 |
| 9. | Power Transformer T1 (Core) | 93,2 | 90,0 | 89,3 | | | 120 |
| 10. | Power Transformer T1 (Winding) | 95,1 | 91,9 | 91,1 | | | 120 |
| 11. | Rectifier Diode D100 | 89,6 | 88,0 | 87,1 | | | 130 |
| 12. | Rectifier Diode D101 | 86,0 | 84,5 | 84,3 | | | 130 |
| 13. | Output Choke L100 (winding) | 92,2 | 90,7 | 90,3 | | | 130 |
| 14. | Output Bulk C105 | 86,2 | 86,1 | 76,1 | | | 105 |
| 15. | Thermistor RTH2 | 85,9 | 84,7 | 84,0 | | | 125 |
| Output load: | | 3,35A@12V | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 50% output load with air convention cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|--|-----------|-------|-------|--|--|-------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V $\overline{=}$) | 130 | 200 | 320 | | | — |
| | Ambient T _{min} (°C) | 47,8 | 47,9 | 49,7 | | | — |
| | Ambient T _{max} (°C) | 50,0 | 50,0 | 50,0 | | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24012-F(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 69,2 | 68,0 | 62,9 | | | 130 |
| 2. | Input Choke LF2 (Winding) | 66,2 | 64,1 | 61,6 | | | 130 |
| 3. | Diode Bridge BD1 | 90,0 | 86,2 | 76,1 | | | 130 |
| 4. | PFC Choke L1 (Winding) | 124,7 | 124,5 | 104,3 | | | 155 |
| 5. | PFC Transistor Q1 | 101,0 | 100,3 | 94,6 | | | 130 |
| 6. | PFC Diode D1 | 102,0 | 100,8 | 94,4 | | | 130 |
| 7. | Bulk C1 | 79,9 | 79,9 | 77,6 | | | 105 |
| 8. | Switching Transistor Q3 | 102,5 | 101,2 | 95,6 | | | 130 |
| 9. | Power Transformer T1 (Core) | 87,7 | 87,8 | 85,8 | | | 120 |
| 10. | Power Transformer T1 (Winding) | 94,1 | 93,7 | 91,3 | | | 120 |
| 11. | Rectifier Diode D100 | 95,6 | 95,0 | 94,2 | | | 130 |
| 12. | Rectifier Diode D101 | 93,0 | 92,2 | 91,1 | | | 130 |
| 13. | Output Choke L100 (winding) | 96,8 | 96,0 | 95,3 | | | 130 |
| 14. | Output Bulk C105 | 80,8 | 80,3 | 80,0 | | | 105 |
| 15. | Thermistor RTH2 | 92,5 | 91,9 | 91,3 | | | 125 |
| Output load: | | 6,25A@12V | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 50% output load with air convention cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|--|----------|-------|-------|--|--|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V $\overline{=}$) | 130 | 200 | 320 | | | — |
| | Ambient T _{min} (°C) | 47,8 | 47,9 | 49,7 | | | — |
| | Ambient T _{max} (°C) | 50,0 | 50,0 | 50,0 | | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24055-X.X-C(W)-S or -HI0XX or -H0XXX or –HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 76,9 | 74,4 | 72,5 | | | 130 |
| 2. | Input Choke LF2 (Winding) | 81,3 | 77,5 | 73,7 | | | 130 |
| 3. | Diode Bridge BD1 | 101,5 | 93,7 | 85,2 | | | 130 |
| 4. | PFC Choke L1 (Winding) | 131,6 | 119,4 | 104,0 | | | 155 |
| 5. | PFC Transistor Q1 | 114,5 | 106,6 | 100,7 | | | 130 |
| 6. | PFC Diode D1 | 111,5 | 104,2 | 98,5 | | | 130 |
| 7. | Bulk C1 | 90,9 | 88,3 | 85,8 | | | 105 |
| 8. | Switching Transistor Q3 | 110,3 | 104,2 | 98,8 | | | 130 |
| 9. | Power Transformer T1 (Core) | 93,2 | 91,9 | 89,9 | | | 120 |
| 10. | Power Transformer T1 (Winding) | 95,0 | 93,4 | 91,7 | | | 120 |
| 11. | Rectifier Diode D100 | 82,3 | 82,4 | 81,7 | | | 130 |
| 12. | Rectifier Diode D101 | 80,6 | 80,5 | 80,1 | | | 130 |
| 13. | Output Choke L100 (winding) | 96,2 | 96,2 | 95,5 | | | 130 |
| 14. | Output Bulk C105 | 78,1 | 78,2 | 77,5 | | | 105 |
| 15. | Thermistor RTH2 | 78,8 | 78,9 | 78,3 | | | 125 |
| Output load: | | 0,7A@55V | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 50% output load with air convention cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|-------------------------------------|-----------|-------|-------|--|--|-------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V \equiv) | 130 | 200 | 320 | | | — |
| | Ambient T _{min} (°C) | 48,2 | 47,9 | 49,7 | | | — |
| | Ambient T _{max} (°C) | 50,0 | 50,0 | 50,0 | | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24055-X.X-F(W)-S or -HI0XX or -H0XXX or –HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 83,4 | 69,3 | 66,8 | | | 130 |
| 2. | Input Choke LF2 (Winding) | 87,4 | 76,5 | 71,2 | | | 130 |
| 3. | Diode Bridge BD1 | 109,7 | 97,1 | 86,1 | | | 130 |
| 4. | PFC Choke L1 (Winding) | 130,4 | 129,0 | 108,9 | | | 155 |
| 5. | PFC Transistor Q1 | 108,3 | 106,4 | 101,3 | | | 130 |
| 6. | PFC Diode D1 | 107,2 | 105,0 | 99,3 | | | 130 |
| 7. | Bulk C1 | 84,0 | 78,3 | 76,6 | | | 105 |
| 8. | Switching Transistor Q3 | 109,0 | 108,7 | 103,7 | | | 130 |
| 9. | Power Transformer T1 (Core) | 95,3 | 93,0 | 90,3 | | | 120 |
| 10. | Power Transformer T1 (Winding) | 97,4 | 92,8 | 91,3 | | | 120 |
| 11. | Rectifier Diode D100 | 86,7 | 85,4 | 84,7 | | | 130 |
| 12. | Rectifier Diode D101 | 85,3 | 83,1 | 82,9 | | | 130 |
| 13. | Output Choke L100 (winding) | 104,8 | 98,3 | 97,7 | | | 130 |
| 14. | Output Bulk C105 | 86,5 | 73,7 | 73,6 | | | 105 |
| 15. | Thermistor RTH2 | 83,8 | 81,5 | 80,9 | | | 125 |
| Output load: | | 1,36A@55V | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 50% output load with air convention cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|---|--------------|-------|------|--|--|-------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V \Rightarrow) | 130 | 200 | 320 | | | — |
| | Ambient T _{min} (°C) | 31,5 | 30,0 | 26,7 | | | — |
| | Ambient T _{max} (°C) | 40,0 | 40,0 | 40,0 | | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24012-CA(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 70,6 | 57,2 | 54,3 | | | 130 |
| 2. | Input Choke LF2 (Winding) | 58,8 | 51,4 | 52,1 | | | 130 |
| 3. | Diode Bridge BD1 | 64,3 | 56,8 | 55,4 | | | 130 |
| 4. | PFC Choke L1 (Winding) | 71,1 | 69,1 | 57,1 | | | 155 |
| 5. | PFC Transistor Q1 | 73,4 | 68,1 | 65,4 | | | 130 |
| 6. | PFC Diode D1 | 58,4 | 56,2 | 52,8 | | | 130 |
| 7. | Bulk C1 | 58,8 | 57,0 | 49,9 | | | 105 |
| 8. | Switching Transistor Q3 | 72,1 | 69,0 | 63,1 | | | 130 |
| 9. | Power Transformer T1 (Core) | 86,8 | 83,0 | 75,8 | | | 120 |
| 10. | Power Transformer T1 (Winding) | 91,9 | 87,8 | 79,9 | | | 120 |
| 11. | Rectifier Diode D100 | 106,3 | 103,6 | 72,4 | | | 130 |
| 12. | Rectifier Diode D101 | 115,7 | 111,9 | 95,1 | | | 130 |
| 13. | Output Choke L100 (winding) | 107,7 | 104,2 | 81,4 | | | 130 |
| 14. | Output Bulk C105 | 87,1 | 85,0 | 68,7 | | | 105 |
| 15. | Thermistor RTH2 | 109,9 | 106,4 | 90,7 | | | 125 |
| Output load: | | 16,67A@12Vdc | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 100% output load with 20 CFM airflow cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|--|------------|-------|-------|--|--|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V $\overline{=}$) | 130 | 200 | 320 | | | — |
| | Ambient T _{min} (°C) | 23,7 | 23,4 | 24,0 | | | — |
| | Ambient T _{max} (°C) | 40,0 | 40,0 | 40,0 | | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24012-FA(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 84,0 | 67,6 | 56,7 | | | 130 |
| 2. | Input Choke LF2 (Winding) | 81,5 | 62,6 | 53,5 | | | 130 |
| 3. | Diode Bridge BD1 | 110,5 | 92,2 | 74,2 | | | 130 |
| 4. | PFC Choke L1 (Winding) | 110,9 | 104,6 | 83,8 | | | 155 |
| 5. | PFC Transistor Q1 | 81,7 | 77,6 | 72,7 | | | 130 |
| 6. | PFC Diode D1 | 84,4 | 79,6 | 73,6 | | | 130 |
| 7. | Bulk C1 | 78,7 | 76,8 | 73,4 | | | 105 |
| 8. | Switching Transistor Q3 | 76,7 | 72,7 | 67,8 | | | 130 |
| 9. | Power Transformer T1 (Core) | 53,4 | 53,2 | 52,6 | | | 120 |
| 10. | Power Transformer T1 (Winding) | 67,1 | 66,4 | 65,6 | | | 120 |
| 11. | Rectifier Diode D100 | 103,3 | 102,3 | 101,5 | | | 130 |
| 12. | Rectifier Diode D101 | 97,7 | 96,9 | 96,6 | | | 130 |
| 13. | Output Choke L100 (winding) | 129,2 | 125,1 | 126,0 | | | 130 |
| 14. | Output Bulk C105 | 93,6 | 92,4 | 92,0 | | | 105 |
| 15. | Thermistor RTH2 | 88,5 | 88,0 | 87,4 | | | 125 |
| Output load: | | 20,0@12Vdc | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 100% output load with 20 CFM airflow cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|---|-------------|-------|-------|--|--|-------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V \Rightarrow) | 130 | 200 | 320 | | | — |
| | Ambient T _{min} (°C) | 24,0 | 24,6 | 24,3 | | | — |
| | Ambient T _{max} (°C) | 40,0 | 40,0 | 40,0 | | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24055-X.X-CA(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 90,2 | 74,6 | 64,8 | | | 130 |
| 2. | Input Choke LF2 (Winding) | 94,6 | 79,4 | 67,6 | | | 130 |
| 3. | Diode Bridge BD1 | 119,3 | 106,0 | 85,8 | | | 130 |
| 4. | PFC Choke L1 (Winding) | 128,2 | 120,8 | 97,0 | | | 155 |
| 5. | PFC Transistor Q1 | 99,7 | 93,9 | 84,7 | | | 130 |
| 6. | PFC Diode D1 | 95,8 | 90,4 | 81,7 | | | 130 |
| 7. | Bulk C1 | 83,0 | 79,7 | 74,8 | | | 105 |
| 8. | Switching Transistor Q3 | 83,0 | 79,2 | 73,0 | | | 130 |
| 9. | Power Transformer T1 (Core) | 71,3 | 70,5 | 68,2 | | | 120 |
| 10. | Power Transformer T1 (Winding) | 79,4 | 78,2 | 75,3 | | | 120 |
| 11. | Rectifier Diode D100 | 89,6 | 88,4 | 85,6 | | | 130 |
| 12. | Rectifier Diode D101 | 94,4 | 93,1 | 90,5 | | | 130 |
| 13. | Output Choke L100 (winding) | 109,1 | 106,9 | 103,6 | | | 130 |
| 14. | Output Bulk C105 | 82,7 | 80,6 | 79,4 | | | 105 |
| 15. | Thermistor RTH2 | 82,0 | 80,9 | 78,8 | | | 125 |
| Output load: | | 3,64A@55Vdc | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 100% output load with 20 CFM airflow cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|-------------------------------------|-------------|------|------|--|--|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V \equiv) | 130 | 200 | 320 | | | — |
| | Ambient T _{min} (°C) | 23,7 | 23,7 | 23,7 | | | — |
| | Ambient T _{max} (°C) | 40,0 | 40,0 | 40,0 | | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24055-X.X-FA(W)-S or -HI0XX or -H0XXX or –HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 66,9 | 54,9 | 48,7 | | | 130 |
| 2. | Input Choke LF2 (Winding) | 74,3 | 61,8 | 53,2 | | | 130 |
| 3. | Diode Bridge BD1 | 101,1 | 85,7 | 69,9 | | | 130 |
| 4. | PFC Choke L1 (Winding) | 102,3 | 97,7 | 79,0 | | | 155 |
| 5. | PFC Transistor Q1 | 71,8 | 68,5 | 64,9 | | | 130 |
| 6. | PFC Diode D1 | 76,9 | 72,9 | 68,2 | | | 130 |
| 7. | Bulk C1 | 64,1 | 61,8 | 59,3 | | | 105 |
| 8. | Switching Transistor Q3 | 69,1 | 66,3 | 62,5 | | | 130 |
| 9. | Power Transformer T1 (Core) | 60,8 | 59,6 | 58,1 | | | 120 |
| 10. | Power Transformer T1 (Winding) | 64,0 | 63,3 | 62,6 | | | 120 |
| 11. | Rectifier Diode D100 | 70,1 | 69,7 | 69,7 | | | 130 |
| 12. | Rectifier Diode D101 | 74,6 | 75,2 | 75,0 | | | 130 |
| 13. | Output Choke L100 (winding) | 92,1 | 91,6 | 91,3 | | | 130 |
| 14. | Output Bulk C105 | 61,8 | 61,6 | 60,9 | | | 105 |
| 15. | Thermistor RTH2 | 63,7 | 63,5 | 63,2 | | | 125 |
| Output load: | | 4,36A@55Vdc | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 100% output load with 20 CFM airflow cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|---|-------------|-------|-------|--|--|-------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V \Rightarrow) | 130 | 200 | 320 | | | — |
| | Ambient T _{min} (°C) | 44,4 | 44,6 | 44,6 | | | — |
| | Ambient T _{max} (°C) | 55,0 | 55,0 | 55,0 | | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24012-CA(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 76,6 | 72,2 | 68,6 | | | 130 |
| 2. | Input Choke LF2 (Winding) | 80,6 | 75,8 | 70,4 | | | 130 |
| 3. | Diode Bridge BD1 | 94,3 | 87,2 | 77,9 | | | 130 |
| 4. | PFC Choke L1 (Winding) | 99,2 | 98,4 | 85,3 | | | 155 |
| 5. | PFC Transistor Q1 | 89,5 | 87,2 | 84,0 | | | 130 |
| 6. | PFC Diode D1 | 85,6 | 84,0 | 80,2 | | | 130 |
| 7. | Bulk C1 | 83,5 | 81,9 | 79,5 | | | 105 |
| 8. | Switching Transistor Q3 | 80,2 | 79,1 | 76,7 | | | 130 |
| 9. | Power Transformer T1 (Core) | 70,4 | 70,1 | 69,8 | | | 120 |
| 10. | Power Transformer T1 (Winding) | 75,4 | 75,0 | 74,6 | | | 120 |
| 11. | Rectifier Diode D100 | 88,7 | 88,0 | 87,2 | | | 130 |
| 12. | Rectifier Diode D101 | 88,5 | 87,9 | 87,4 | | | 130 |
| 13. | Output Choke L100 (winding) | 102,0 | 101,1 | 100,1 | | | 130 |
| 14. | Output Bulk C105 | 87,5 | 86,8 | 86,2 | | | 105 |
| 15. | Thermistor RTH2 | 83,3 | 82,9 | 82,4 | | | 125 |
| Output load: | | 8,34A@12Vdc | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 50% output load with 20 CFM airflow cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|---|------------|-------|------|--|--|-------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V \Rightarrow) | 130 | 200 | 320 | | | — |
| | Ambient T _{min} (°C) | 45,8 | 45,8 | 46,0 | | | — |
| | Ambient T _{max} (°C) | 55,0 | 55,0 | 55,0 | | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24012-FA(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 68,6 | 65,1 | 61,7 | | | 130 |
| 2. | Input Choke LF2 (Winding) | 63,7 | 61,0 | 59,2 | | | 130 |
| 3. | Diode Bridge BD1 | 86,1 | 80,2 | 71,4 | | | 130 |
| 4. | PFC Choke L1 (Winding) | 99,1 | 100,6 | 84,7 | | | 155 |
| 5. | PFC Transistor Q1 | 74,9 | 73,9 | 71,6 | | | 130 |
| 6. | PFC Diode D1 | 76,3 | 75,2 | 72,1 | | | 130 |
| 7. | Bulk C1 | 68,4 | 67,9 | 67,0 | | | 105 |
| 8. | Switching Transistor Q3 | 72,0 | 71,3 | 68,8 | | | 130 |
| 9. | Power Transformer T1 (Core) | 60,6 | 60,5 | 60,2 | | | 120 |
| 10. | Power Transformer T1 (Winding) | 67,0 | 66,9 | 66,4 | | | 120 |
| 11. | Rectifier Diode D100 | 79,4 | 79,1 | 79,6 | | | 130 |
| 12. | Rectifier Diode D101 | 78,3 | 77,9 | 78,4 | | | 130 |
| 13. | Output Choke L100 (winding) | 86,6 | 86,4 | 87,2 | | | 130 |
| 14. | Output Bulk C105 | 74,0 | 73,8 | 74,5 | | | 105 |
| 15. | Thermistor RTH2 | 74,1 | 73,7 | 74,0 | | | 125 |
| Output load: | | 10,0@12Vdc | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 50% output load with 20 CFM airflow cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|---|-------------|-------|-------|--|--|-------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V \Rightarrow) | 130 | 200 | 320 | | | — |
| | Ambient T _{min} (°C) | 46,0 | 46,0 | 46,0 | | | — |
| | Ambient T _{max} (°C) | 55,0 | 55,0 | 55,0 | | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24055-X.X-CA(W)-S or -HI0XX or -H0XXX or –HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 83,4 | 78,9 | 74,4 | | | 130 |
| 2. | Input Choke LF2 (Winding) | 87,4 | 82,6 | 75,9 | | | 130 |
| 3. | Diode Bridge BD1 | 109,7 | 102,4 | 89,1 | | | 130 |
| 4. | PFC Choke L1 (Winding) | 123,0 | 123,9 | 103,5 | | | 155 |
| 5. | PFC Transistor Q1 | 98,8 | 97,4 | 91,1 | | | 130 |
| 6. | PFC Diode D1 | 94,3 | 93,0 | 87,4 | | | 130 |
| 7. | Bulk C1 | 84,0 | 82,9 | 80,2 | | | 105 |
| 8. | Switching Transistor Q3 | 88,1 | 87,2 | 82,8 | | | 130 |
| 9. | Power Transformer T1 (Core) | 77,6 | 77,4 | 76,3 | | | 120 |
| 10. | Power Transformer T1 (Winding) | 81,3 | 81,0 | 79,8 | | | 120 |
| 11. | Rectifier Diode D100 | 83,4 | 83,3 | 82,7 | | | 130 |
| 12. | Rectifier Diode D101 | 85,3 | 85,3 | 84,9 | | | 130 |
| 13. | Output Choke L100 (winding) | 104,8 | 104,3 | 103,4 | | | 130 |
| 14. | Output Bulk C105 | 86,5 | 86,3 | 85,9 | | | 105 |
| 15. | Thermistor RTH2 | 78,7 | 78,6 | 78,1 | | | 125 |
| Output load: | | 1,82A@55Vdc | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 50% output load with 20 CFM airflow cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | | | | |
|--|--|-------------|-------|------|--|--|-------------------------------------|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V $\overline{=}$) | 130 | 200 | 320 | | | — |
| | Ambient T _{min} (°C) | 45,0 | 45,3 | 45,0 | | | — |
| | Ambient T _{max} (°C) | 55,0 | 55,0 | 55,0 | | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed T _{max} (°C) |
| GT(M)91110P24055-X.X-FA(W)-S or -HI0XX or -H0XXX or –HIXXX | | | | | | | |
| 1. | Input Choke LF1 (Winding) | 64,6 | 61,8 | 60,1 | | | 130 |
| 2. | Input Choke LF2 (Winding) | 70,0 | 66,6 | 63,0 | | | 130 |
| 3. | Diode Bridge BD1 | 87,3 | 81,8 | 73,1 | | | 130 |
| 4. | PFC Choke L1 (Winding) | 99,9 | 101,5 | 86,1 | | | 155 |
| 5. | PFC Transistor Q1 | 76,6 | 75,5 | 73,1 | | | 130 |
| 6. | PFC Diode D1 | 79,0 | 77,7 | 74,6 | | | 130 |
| 7. | Bulk C1 | 70,3 | 69,1 | 67,8 | | | 105 |
| 8. | Switching Transistor Q3 | 74,2 | 73,5 | 71,3 | | | 130 |
| 9. | Power Transformer T1 (Core) | 67,9 | 67,4 | 66,6 | | | 120 |
| 10. | Power Transformer T1 (Winding) | 69,0 | 68,7 | 68,3 | | | 120 |
| 11. | Rectifier Diode D100 | 71,1 | 70,7 | 70,7 | | | 130 |
| 12. | Rectifier Diode D101 | 72,7 | 72,4 | 72,3 | | | 130 |
| 13. | Output Choke L100 (winding) | 91,1 | 90,8 | 90,6 | | | 130 |
| 14. | Output Bulk C105 | 69,8 | 69,5 | 69,5 | | | 105 |
| 15. | Thermistor RTH2 | 67,8 | 67,5 | 67,4 | | | 125 |
| Output load: | | 2,18A@55Vdc | | | | | |
| Supplementary information: The above temperatures are measured at T _{min} . The values measured are subtracted with T _{min} and T _{max} (°C) added. Therefore above measured temperatures are the absolute temperatures in °C at maximum ambient. | | | | | | | |
| Tests were performed with 50% output load with 20 CFM airflow cooling. | | | | | | | |
| The printed circuit board is rated 130°C. | | | | | | | |
| Temperature rise measured on the power transformer T1 windings was measured directly on the transformer windings by thermocouple; therefore reduction of the temperature limit for 10°C not required (temperature limit of T1: 120°C – Class B transformer) | | | | | | | |

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

| | | | | |
|--|--|-----------------------|--------------------------|-----|
| 4.5.5 | TABLE: Ball pressure test of thermoplastic parts | | | N/A |
| | Allowed impression diameter (mm) | ≤ 2 mm | | — |
| Part | | Test temperature (°C) | Impression diameter (mm) | |
| | | | | |
| Supplementary information: Manufacturer is using approved materials with adequate temperature characteristics. No additional test was considered required. | | | | |

| | | | | | | |
|---|----------------------------------|--------------------------|------------------|----------------|--------------------|----------|
| 4.7 | TABLE: Resistance to fire | | | | | P |
| | Part | Manufacturer of material | Type of material | Thickness (mm) | Flammability class | Evidence |
| | | | | | | |
| Supplementary information: Refer to list of safety critical components. | | | | | | |

| | | | | |
|--|----------------------------------|---------------|--|---------------------|
| 5.1 | TABLE: touch current measurement | | | P |
| Measured between: | | Measured (mA) | Limit (mA) | Comments/conditions |
| GT(M)91110P24055-X.X-FA(W)-S or -HI0XX or -H0XXX or -HIXXX | | | | |
| Main to PE | 0,082 | 3,5 | Rated load. Switch “e” open. | |
| Main to PE | 0,080 | 3,5 | Rated load. Switch “e” open, “p1” reverse on. | |
| Main to PE | 0,083 | 3,5 | Without load. Switch “e” open. | |
| Main to PE | 0,080 | 3,5 | Without load. Switch “e” open, “p1” reverse on. | |
| Main to Output (+55V) | 0,249 | 0,25 | Rated load. Switch “e” closed. | |
| Main to Output (-55V) | 0,250 | 0,25 | Rated load. Switch “e” closed, “p2” reverse on. | |
| Main to Output (+55V) | 0,236 | 0,25 | Rated load. Switch “e” closed, “p1” reverse on. | |
| Main to Output (-55V) | 0,244 | 0,25 | Rated load. Switch “e” closed, “p1” reverse on, “p2” reverse on. | |
| Main to Output (+55V) | 0,244 | 0,25 | Without load. Switch “e” closed. | |
| Main to Output (-55V) | 0,244 | 0,25 | Without load. Switch “e” closed, “p2” reverse on. | |
| Main to Output (+55V) | 0,239 | 0,25 | Without load. Switch “e” closed, “p1” reverse on. | |

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|---|--------------------|------|--|
| Clause | Requirement + Test | | Result - Remark |
| Main to Output (-55V) | 0,239 | 0,25 | Without load. Switch "e" closed, "p1" reverse on, "p2" reverse on. |
| GT(M)91110P24012-FA(W)-S or -HI0XX or -H0XXX or -HIXXX | | | |
| Main to PE | 0,099 | 3,5 | Rated load. Switch "e" open. |
| Main to PE | 0,096 | 3,5 | Rated load. Switch "e" open, "p1" reverse on. |
| Main to PE | 0,098 | 3,5 | Without load. Switch "e" open. |
| Main to PE | 0,095 | 3,5 | Without load. Switch "e" open, "p1" reverse on. |
| Main to Output (+12V) | 0,214 | 0,25 | Rated load. Switch "e" closed. |
| Main to Output (-12V) | 0,213 | 0,25 | Rated load. Switch "e" closed, "p2" reverse on. |
| Main to Output (+12V) | 0,205 | 0,25 | Rated load. Switch "e" closed, "p1" reverse on. |
| Main to Output (-12V) | 0,204 | 0,25 | Rated load. Switch "e" closed, "p1" reverse on, "p2" reverse on. |
| Main to Output (+12V) | 0,214 | 0,25 | Without load. Switch "e" closed. |
| Main to Output (-12V) | 0,217 | 0,25 | Without load. Switch "e" closed, "p2" reverse on. |
| Main to Output (+12V) | 0,215 | 0,25 | Without load. Switch "e" closed, "p1" reverse on. |
| Main to Output (-12V) | 0,216 | 0,25 | Without load. Switch "e" closed, "p1" reverse on, "p2" reverse on. |
| supplementary information: | | | |
| Input condition: 264V~ and 60Hz; Test conducted using resistive load; Test was performed with D1 measurement circuit. | | | |

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

| | | | | |
|---|--|--|---------------------|---------------------------|
| 5.2 | TABLE: Electric strength tests, impulse tests and voltage surge tests | | | P |
| Test voltage applied between: | | Voltage shape (AC, DC, impulse, surge) | Test voltage (V) | Breakdo wn Yes / No |
| Functional: | | | | |
| Input to input (fuse open) | | DC | 2120 | No |
| | | | | |
| Basic/supplementary: | | | | |
| Input to PE | | DC | 2594* | No |
| | | | | |
| Reinforced: | | | | |
| Input to output (SELV) | | DC | 4243 | No |
| | | | | |
| Reinforced: | | | | |
| Input to metal bottom plate (Capacitors CY1, CY2, CY3, CY4, CY5, CY6, CY7 and connecting wire marked with "B" removed from the equipment). Relevant for PSU without PE. | | DC | 4243 | No |
| Input to metal bottom plate (Capacitors CY1, CY2, CY3, CY4, CY5, CY6, CY7 and connecting wire marked with "B" removed from the equipment). Relevant for PSU without PE. | | AC | 3000 | No |
| | | | | |
| Supplementary information: * Based on Vpk measurement of T1. | | | | |

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

| 5.3 | TABLE: Fault condition tests | | | | | P |
|--|---|--------------------|-------------|----------|----------------------------|---|
| | Ambient temperature (°C) | | | | 23±3 (or otherwise stated) | — |
| | Power source for EUT: Manufacturer, model/type, output rating | | | | Variable transformer. | — |
| Component No. | Fault | Supply voltage (V) | Test time | Fuse # | Fuse current (A) | Observation |
| SELV reliability testing | | | | | | |
| Diode D100 (No load) | Short | 264Vac | <1s (10min) | F1 F2 | Max. 0,5 | Output switched off immediately. No defect, no hazard. |
| Diode D100 (Rated load) | Short | 264Vac | <1s (10min) | F1 F2 | Max. 0,5 | Output switched off immediately. No defect, no hazard. |
| Choke L100 (No load) | Short | 264Vac | 10min | F1 F2 | 0,1 | Output switched on/off. No defect, no hazard. |
| Choke L100 (Rated load) | Short | 264Vac | 10min | F1 F2 | Max. 0,5 | Output switched on/off. No defect, no hazard. |
| Optocoupler U3 Pin 1 to Pin 2 (No load) | Short | 264Vac | <1s (10min) | F1 F2 | 0,1 | Output switched off immediately. No defect, no hazard. |
| Optocoupler U3 Pin 1 to Pin 2 (Rated load) | Short | 264Vac | <1s (10min) | F1 F2 | 1,2 | Output voltage increased from 54,4 Vdc to 59,2 Vdc. No defect, no hazard |
| Optocoupler U3 Pin 3 to Pin 4 (No load) | Short | 264Vac | <1s (10min) | F1 F2 | 0,1 | Output switched off immediately. No defect, no hazard. |
| Optocoupler U3 Pin 3 to Pin 4 (Rated load) | Short | 264Vac | <1s (10min) | F1 F2 | 0,1 | Output switched off immediately. No defect, no hazard. |
| Optocoupler U4 Pin 1 to Pin 2 (No load) | Short | 264Vac | 10min | F1 F2 | 0,1 | No effect on function. |
| Optocoupler U4 Pin 1 to Pin 2 (Rated load) | Short | 264Vac | 10min | F1 F2 | 1,0 | No effect on function. |
| Optocoupler U4 Pin 3 to Pin 4 (No load) | Short | 264Vac | <1s (10min) | F1 F2 | 0,1 | Output switched off immediately. No defect, no hazard. |

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|--|-------------------------------|--------|-------------|----------|-----------------|---|
| Clause | Requirement + Test | | | | Result - Remark | Verdict |
| Optocoupler U4 Pin 3 to Pin 4 (Rated load) | Short | 264Vac | <1s (10min) | F1 F2 | 0,1 | Output switched off immediately. No defect, no hazard. |
| Optocoupler U5 Pin 1 to Pin 2 (No load) | Short | 264Vac | 10min | F1 F2 | 0,1 | Output switched on/off. No defect, no hazard. |
| Optocoupler U5 Pin 1 to Pin 2 (Rated load) | Short | 264Vac | 10min | F1 F2 | Max. 0,5 | Output switched on/off. No defect, no hazard |
| Optocoupler U5 Pin 3 to Pin 4 (No load) | Short | 264Vac | 10min | F1 F2 | 0,1 | No effect on function. |
| Optocoupler U5 Pin 3 to Pin 4 (Rated load) | Short | 264Vac | 10min | F1 F2 | 1,1 | No effect on function. |
| Voltage regulation (No load) | Disabled (IC U101 Pin 4 open) | 264Vac | <1s (10min) | F1 F2 | 0,1 | Output voltage decreased from 56,0 Vdc to 48,0 Vdc. No defect, no hazard |
| Voltage regulation (Rated load) | Disabled (IC U101 Pin 4 open) | 264Vac | 10min | F1 F2 | Max. 0,5 | Output switched on/off. No defect, no hazard. |
| Method c) functional insulation (clause 5.3.4) | | | | | | |
| Varistor MOV2 | Short | 264Vac | <1s | F1 F2 | >20,0 | Fuse F1 and external circuit breaker opened immediately. No hazard. |
| Diode bridge BD1 plus to minus | Short | 264Vac | <1s | F1 F2 | >20,0 | Fuse F1 and external circuit breaker opened immediately. No hazard. |
| Plus output to earth | Short | 264Vac | 10min | F1 F2 | 1,1 | No effect on function. |
| Minus output to earth | Short | 264Vac | 10min | F1 F2 | 1,1 | No effect on function. |
| Plus output to minus output | Short | 264Vac | 10min | F1 F2 | Max. 0,5 | Output switched on/off. No defect, no hazard. |
| Additional component faults | | | | | | |
| PFC regulation | Disabled (Resistor R7 open) | 264Vac | <1s | F1 F2 | >20,0 | Fuse F1, F2 and external circuit breaker opened immediately. No hazard. |
| PFC transistor Q1 D to S | Short | 264Vac | <1s | F1 F2 | >20,0 | Fuse F1, F2 and external circuit breaker opened immediately. No hazard. |

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|---|--------------------|--------|----------------|----------|-----------------|---|
| Clause | Requirement + Test | | | | Result - Remark | |
| PFC transistor Q1 D to G | Short | 264Vac | <1s | F1 F2 | >20,0 | Fuse F1, F2 and external circuit breaker opened immediately. No hazard. |
| Switching transistor Q3 D to S | Short | 264Vac | <1s | F1 F2 | >20,0 | External circuit breaker opened immediately. No hazard. |
| Switching transistor Q3 D to G | Short | 264Vac | <1s | F1 F2 | >20,0 | External circuit breaker opened immediately. No hazard. |
| Transformer T2 Pin 3 to 4 | Short | 264Vac | <1s | F1 F2 | >20,0 | External circuit breaker opened immediately. No hazard. |
| Transformer T2 Pin 1 to 6 | Short | 264Vac | <1s | F1 F2 | >20,0 | External circuit breaker opened immediately. No hazard. |
| Transformer T2 Pin 2 to 5 | Short | 264Vac | <1s | F1 F2 | >20,0 | External circuit breaker opened immediately. No hazard. |
| Transformer T1 Pin 1 to 2 | Short | 264Vac | 60min | F1 F2 | Max. 0,5 | Output switched on/off. No defect, no hazard. No excessive temperature rise. |
| Transformer T1 Pin 4 to 5 | Short | 264Vac | <1s (60min) | F1 F2 | Max. 0,5 | Output switched off immediately. No defect, no hazard. No excessive temperature rise. |
| Annex C Transformer overload / short (clause 5.3.3) | | | | | | |
| Transformer T1 Pin FL1 to Pin FL2 | Short | 264Vac | 60min | F1 F2 | Max. 0,5 | Output switched on/off. No defect, no hazard. No excessive temperature rise. |
| Transformer T1 Pin FL2 to D100 Cathode | Overload | 264Vac | 60min | F1 F2 | 1,5 | Additional load at T1: 11,67Vdc @ 20,1. The measured temperature on T1 was 101,9°C at an ambient of 24,2°C. Calculated temperature at maximum ambient specified is 147,7°C. Limit in accordance to Annex C is 175°C – 10°C= 165°C. 10°C were subtracted because of the measurement with the thermo probes. No defect. No hazard. |
| Misuse | | | | | | |
| Output | Short | 264Vac | 60min | F1 F2 | Max. 0,5 | Output switched on/off. No defect, no hazard. No excessive temperature rise. |

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|--|--------------------|--------|-------|----------|-----------------|---|
| Clause | Requirement + Test | | | | Result - Remark | Verdict |
| Output | Overload | 264Vac | 60min | F1 F2 | 1,2 | Additional load at T1: 12,24Vdc @ 27,2A. The measured temperature on T1 was 98,7°C at an ambient of 25,2°C. Calculated temperature at maximum ambient specified is 143,5°C. Limit in accordance to Annex C is 175°C – 10°C= 165°C. 10°C were subtracted because of the measurement with the thermo probes. No defect. No hazard. |
| Fan | Blocked | 264Vac | 30min | F1 F2 | >20,0 | After 20 min external circuit breaker opened. No hazard. No excessive temperature rise |
| Air holes | Closed | 264Vac | 30min | F1 F2 | >20,0 | After 20 min external circuit breaker opened. No hazard. No excessive temperature rise |
| <p>Supplementary information:</p> <p>There was no flame, extensive smoke or melted metal.</p> <p>When components were failing, the test was repeated two times.</p> <p>Test time: The time until the effect occurred was recorded. The value in bracket records the time, the failure was not removed.</p> | | | | | | |

| 5.3 | TABLE: Fault condition tests | | | | | |
|--------------------------|---|--------------------|-------------|----------|----------------------------|---|
| | Ambient temperature (°C) | | | | 23±3 (or otherwise stated) | — |
| | Power source for EUT: Manufacturer, model/type, output rating | | | | Variable transformer | — |
| Component No. | Fault | Supply voltage (V) | Test time | Fuse # | Fuse current (A) | Observation |
| SELV reliability testing | | | | | | |
| Diode D100 (No load) | Short | 320Vdc | <1s (10min) | F1 F2 | Max. 0,4 | Output switched off immediately. No defect, no hazard. |
| Diode D100 (Rated load) | Short | 320Vdc | <1s (10min) | F1 F2 | Max. 0,4 | Output switched off immediately. No defect, no hazard. |
| Choke L100 (No load) | Short | 320Vdc | 10min | F1 F2 | 0,1 | Output switched on/off. No defect, no hazard. |
| Choke L100 (Rated load) | Short | 320Vdc | 10min | F1 F2 | Max. 0,4 | Output switched on/off. No defect, no hazard. |

| IEC 60950-1 | | | | | | |
|--|-------------------------------|--------|-------------|----------|-----------------|--|
| Clause | Requirement + Test | | | | Result - Remark | Verdict |
| Optocoupler U3 Pin 1 to Pin 2 (No load) | Short | 320Vdc | <1s (10min) | F1 F2 | 0,1 | Output switched off immediately. No defect, no hazard. |
| Optocoupler U3 Pin 1 to Pin 2 (Rated load) | Short | 320Vdc | <1s (10min) | F1 F2 | 1,0 | Output voltage increased from 54,4 Vdc to 59,2 Vdc. No defect, no hazard. |
| Optocoupler U3 Pin 3 to Pin 4 (No load) | Short | 320Vdc | <1s (10min) | F1 F2 | 0,1 | Output switched off immediately. No defect, no hazard. |
| Optocoupler U3 Pin 3 to Pin 4 (Rated load) | Short | 320Vdc | <1s (10min) | F1 F2 | 0,1 | Output switched off immediately. No defect, no hazard. |
| Optocoupler U4 Pin 1 to Pin 2 (No load) | Short | 320Vdc | 10min | F1 F2 | 0,1 | No effect on function. |
| Optocoupler U4 Pin 1 to Pin 2 (Rated load) | Short | 320Vdc | 10min | F1 F2 | 0,8 | No effect on function. |
| Optocoupler U4 Pin 3 to Pin 4 (No load) | Short | 320Vdc | <1s (10min) | F1 F2 | 0,1 | Output switched off immediately. No defect, no hazard. |
| Optocoupler U4 Pin 3 to Pin 4 (Rated load) | Short | 320Vdc | <1s (10min) | F1 F2 | 0,1 | Output switched off immediately. No defect, no hazard. |
| Optocoupler U5 Pin 1 to Pin 2 (No load) | Short | 320Vdc | 10min | F1 F2 | 0,1 | Output switched on/off. No defect, no hazard. |
| Optocoupler U5 Pin 1 to Pin 2 (Rated load) | Short | 320Vdc | 10min | F1 F2 | Max. 0,4 | Output switched on/off. No defect, no hazard |
| Optocoupler U5 Pin 3 to Pin 4 (No load) | Short | 320Vdc | 10min | F1 F2 | 0,1 | No effect on function. |
| Optocoupler U5 Pin 3 to Pin 4 (Rated load) | Short | 320Vdc | 10min | F1 F2 | 0,8 | No effect on function. |
| Voltage regulation (No load) | Disabled (IC U101 Pin 4 open) | 320Vdc | <1s (10min) | F1 F2 | 0,1 | Output voltage decreased from 56,0 Vdc to 48,0 Vdc. No defect, no hazard |

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|--|-------------------------------|--------|-------|----------|-----------------|---|
| Clause | Requirement + Test | | | | Result - Remark | |
| Voltage regulation (Rated load) | Disabled (IC U101 Pin 4 open) | 320Vdc | 10min | F1 F2 | Max. 0,4 | Output switched on/off. No defect, no hazard. |
| Method c) functional insulation (clause 5.3.4) | | | | | | |
| Varistor MOV2 | Short | 320Vdc | <1s | F1 F2 | >6,0 | External DC fuse 3A opened immediately. No hazard. |
| Diode bridge BD1 plus to minus | Short | 320Vdc | <1s | F1 F2 | >6,0 | External DC fuse 3A opened immediately. No hazard. |
| Plus output to earth | Short | 320Vdc | 10min | F1 F2 | 0,8 | No effect on function. |
| Minus output to earth | Short | 320Vdc | 10min | F1 F2 | 0,8 | No effect on function. |
| Plus output to minus output | Short | 320Vdc | 10min | F1 F2 | Max. 0,4 | Output switched on/off. No defect, no hazard. |
| Additional component faults | | | | | | |
| PFC regulation | Disabled (Resistor R7 open) | 320Vdc | <1s | F1 F2 | >6,0 | External DC fuse 3A opened immediately. No hazard. |
| PFC transistor Q1 D to S | Short | 320Vdc | <1s | F1 F2 | >6,0 | External DC fuse 3A opened immediately. No hazard. |
| PFC transistor Q1 D to G | Short | 320Vdc | <1s | F1 F2 | >6,0 | External DC fuse 3A opened immediately. No hazard. |
| Switching transistor Q3 D to S | Short | 320Vdc | <1s | F1 F2 | >6,0 | External DC fuse 3A opened immediately. No hazard. |
| Switching transistor Q3 D to G | Short | 320Vdc | <1s | F1 F2 | >6,0 | External DC fuse 3A opened immediately. No hazard. |
| Transformer T2 Pin 3 to 4 | Short | 320Vdc | <1s | F1 F2 | >6,0 | External DC fuse 3A opened immediately. No hazard. |
| Transformer T2 Pin 1 to 6 | Short | 320Vdc | <1s | F1 F2 | >6,0 | External DC fuse 3A opened immediately. No hazard. |
| Transformer T2 Pin 2 to 5 | Short | 320Vdc | <1s | F1 F2 | >6,0 | External DC fuse 3A opened immediately. No hazard. |

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|---|--------------------|--------|----------------|----------|-----------------|--|
| Clause | Requirement + Test | | | | Result - Remark | |
| Transformer T1 Pin 1 to 2 | Short | 320Vdc | 60min | F1 F2 | Max. 0,4 | Output switched on/off. No defect, no hazard. No excessive temperature rise. |
| Transformer T1 Pin 4 to 5 | Short | 320Vdc | <1s (60min) | F1 F2 | Max. 0,4 | Output switched off immediately. No defect, no hazard. No excessive temperature rise. |
| Annex C Transformer overload / short (clause 5.3.3) | | | | | | |
| Transformer T1 Pin FL1 to Pin FL2 | Short | 320Vdc | 60min | F1 F2 | Max. 0,4 | Output switched on/off. No defect, no hazard. No excessive temperature rise. |
| Transformer T1 Pin FL2 to D100 Cathode | Overload | 320Vdc | 60min | F1 F2 | 1,2 | Additional load at T1: 11,67Vdc @ 20,1. The measured temperature on T1 was 101,9°C at an ambient of 24,2°C. Calculated temperature at maximum ambient specified is 147,7°C. Limit in accordance to Annex C is 175°C – 10°C= 165°C. 10°C were subtracted because of the measurement with the thermo probes. No defect. No hazard. |
| Misuse | | | | | | |
| Output | Short | 320Vdc | 60min | F1 F2 | Max. 0,4 | Output switched on/off. No defect, no hazard. No excessive temperature rise. |
| Output | Overload | 320Vdc | 60min | F1 F2 | 1,0 | Additional load at T1: 12,24Vdc @ 27,2A. The measured temperature on T1 was 98,7°C at an ambient of 25,2°C. Calculated temperature at maximum ambient specified is 143,5°C. Limit in accordance to Annex C is 175°C – 10°C= 165°C. 10°C were subtracted because of the measurement with the thermo probes. No defect. No hazard. |
| Fan | Blocked | 320Vdc | 30min | F1 F2 | >6,0 | After 20 min external DC fuse 3A opened immediately. No hazard. No excessive temperature rise. |
| Air holes | Closed | 320Vdc | 30min | F1 F2 | >6,0 | After 20 min external DC fuse 3A opened immediately. No hazard. No excessive temperature rise. |

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

| |
|--|
| <p>Supplementary information:</p> <p>There was no flame, extensive smoke or melted metal.</p> <p>When components were failing, the test was repeated two times.</p> <p>Test time: The time until the effect occurred was recorded. The value in bracket records the time, the failure was not removed.</p> |
|--|

| C.2 | TABLE: transformers | | | | | | P |
|--|---------------------|--|---|---|---|---|---|
| Loc. | Tested insulation | Working voltage peak / V (2.10.2) | Working voltage rms / V (2.10.2) | Required electric strength (5.2) | Required clearance / mm (2.10.3) | Required creepage distance / mm (2.10.4) | Required distance thr. insul. (2.10.5) |
| T1 | Reinforced | 544 | 325 | 4243Vdc | 4,4 | 6,5 | * |
| Loc. | Tested insulation | | | Test voltage/ V | Measured clearance / mm | Measured creepage dist./ mm | Measured distance thr. insul. / mm; number of layers |
| T1 | Reinforced | | | 4243Vdc | 10,7 | 10,7 | * |
| supplementary information: | | | | | | | |
| * Approved triple insulated wire used. | | | | | | | |

| | | |
|---|---------------------|---|
| C.2 | TABLE: transformers | P |
| See Enclosure No. 3 for transformer specifications. | | |

Enclosure No. 1

National differences to IEC60950-1:2005/Am 1/Am 2

(41 pages including this cover page)

| IEC 60950-1 | | | | | | | | | | | | | |
|--|---|---------------------------------------|--|--|--|--|-------------------|--|--------------------------------|--------|----------|-------------------|-----|
| Clause | Difference – Test | Result – Remark | Verdict | | | | | | | | | | |
| AUSTRALIA-Differences to IEC 60950-1:2005 AS/NZS 60950.1-2011 (2011-05-06) | | | | | | | | | | | | | |
| Appendix ZZ (normative) Variations to IEC 60950-1:2005 (2nd Ed.) for application in Australia and New Zealand | | | | | | | | | | | | | |
| ZZ.1 Introduction This Appendix sets out variations and additional requirements to cover issues which have not been addressed by the International Standard. These variations indicate national variations for purposes of the IECEE CB System and will be published in the IECEE CB Bulletin. | | | | | | | | | | | | | |
| ZZ.2 Variations The following variations apply to the source text: | | | | | | | | | | | | | |
| 1.2 | Insert the following between 'person, service' and 'range, rated frequency': POTENTIAL IGNITION SOURCE 1.2.12 | Considered. | P | | | | | | | | | | |
| 1.2.12.20 1 | Insert a new Clause 1.2.12.201 after Clause 1.2.12.15 as follows: 1.2.12.201 POTENTIAL IGNITION SOURCE Possible fault which can start a fire if the open-circuit voltage measured across an interruption or faulty contact exceeds a value of 50 V (peak) a.c. or d.c. and the product of the peak value of this voltage and the measured r.m.s. current under normal operating conditions exceeds 15 VA. Such a faulty contact or interruption in an electrical connection includes those which may occur in CONDUCTIVE PATTERNS on PRINTED BOARDS. NOTE 201: An electronic protection circuit may be used to prevent such a fault from becoming a POTENTIAL IGNITION SOURCE. NOTE 202: This definition is from AS/NZS 60065:2003. | | N/A | | | | | | | | | | |
| 1.5.1 | 1. Add the following to the end of the first paragraph: 'or the relevant Australian/New Zealand Standard.' 2. In NOTE 1, add the following after the word 'standard': 'or an Australian/New Zealand Standard' | | N/A | | | | | | | | | | |
| 1.5.2 | Add the following to the end of the first and third dash items: 'or the relevant Australian/New Zealand Standard' | | N/A | | | | | | | | | | |
| 3.2.5.1 | Modify Table 3B as follows: 1. Delete the first four rows and replace with the following: <table><tr><td rowspan="3">RATED CURRENT OF EQUIPMENT (A)</td><td colspan="2">Minimum conductor sizes</td></tr><tr><td>Nominal cross-sectional area mm²</td><td>AWG or Kcmil (cross-sectional area in mm²)</td></tr><tr><td colspan="2">See note 2</td></tr><tr><td>Over 0.2 up to and including 3</td><td>0,5 a)</td><td>18 [0,8]</td></tr></table> | RATED CURRENT OF EQUIPMENT (A) | Minimum conductor sizes | | Nominal cross-sectional area mm² | AWG or Kcmil (cross-sectional area in mm²) | See note 2 | | Over 0.2 up to and including 3 | 0,5 a) | 18 [0,8] | No cord provided. | N/A |
| RATED CURRENT OF EQUIPMENT (A) | Minimum conductor sizes | | | | | | | | | | | | |
| | Nominal cross-sectional area mm² | | AWG or Kcmil (cross-sectional area in mm²) | | | | | | | | | | |
| | See note 2 | | | | | | | | | | | | |
| Over 0.2 up to and including 3 | 0,5 a) | 18 [0,8] | | | | | | | | | | | |

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| Clause | Difference – Test | Result – Remark | Verdict |
| | Over 3 up to and including 7,5 0,75 16 [1,3] Over 7,5 up to and including 10 (0,75) ^{b)} 1,00 16 [1,3] Over 10 up to and including 16 (1,0) ^{c)} 1,5 14 [2] | | |
| | 2. Delete NOTE 1. 3. Delete Footnote ^a and replace with the following: ^a This nominal cross-sectional area is only allowed for Class II appliances if the length of the power supply cord, measured between the point where the cord, or cord guard, enters the appliance, and the entry to the plug does not exceed 2 m (0,5 mm ² three-core supply flexible cords are not permitted; see AS/NZS 3191). | | N/A |
| 4.1.201 | Insert a new Clause 4.1.201 after Clause 4.1 as follows: 4.1.201 Display devices used for television purposes Display devices which may be used for television purposes, with a mass of 7 kg or more, shall comply with the requirements for stability and mechanical hazards, including the additional stability requirements for television receivers, specified in AS/NZS 60065. | | N/A |
| 4.3.6 | Delete the third paragraph and replace with the following: Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flatpin socket-outlet complying with AS/NZS 3112 shall comply with the requirements in AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets. | | N/A |
| 4.3.13.5 | Add the following to the end of the first paragraph: ‘, or AS/NZS 2211.1’. | | N/A |
| 4.7 | Add the following paragraph: ‘For alternate tests refer to Clause 4.7.201.’ | | N/A |

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| Clause | Difference – Test | Result – Remark | Verdict |
| 4.7.201 | <p>Insert a new Clause 4.7.201 after Clause 4.7.3.6 as follows:</p> <p>4.7.201 Resistance to fire – Alternative tests</p> <p>4.7.201.1 General</p> <p>Parts of non-metallic material shall be resistant to ignition and spread of fire.</p> <p>This requirement does not apply to decorative trims, knobs and other parts unlikely to be ignited or to propagate flames from inside the apparatus, or the following:</p> <p>(a) Components that are contained in an enclosure having a flammability category of V-0 according to AS/NZS 60695.11.10 and having openings only for the connecting wires filling the openings completely, and for ventilation not exceeding 1mm in width regardless of length.</p> <p>(b) The following parts which would contribute negligible fuel to a fire:</p> <ul style="list-style-type: none"> - small mechanical parts, the mass of which does not exceed 4g, such as mounting parts, gears, cams, belts and bearings; - small electrical components, such as capacitors with a volume not exceeding 1,750 mm³, integrated circuits, transistors and optocoupler packages, if these components are mounted on material of flammability category V-1, or better, according to AS/NZS 60695.11.10. <p>NOTE: In considering how to minimize propagation of fire and what 'small parts' are, account should be taken of the cumulative effect of small parts adjacent to each other for the possible effect of propagating the fire from one part to another.</p> <p>Compliance shall be checked by the tests of 4.7.201.2, 4.7.201.3, 4.7.201.4 and 4.7.201.5.</p> <p>For the base material of printed boards, compliance shall be checked by the test of 4.7.201.5.</p> <p>The tests shall be carried out on parts of non-metallic material which have been removed from the apparatus. When the glow-wire test is carried out, the parts shall be placed in the same orientation as they would be in normal use.</p> <p>These tests are not carried out on internal wiring.</p> | <p>The flame rating of the components was evaluated to the requirements of IEC. The PCB board is specified min. V-1. Therefore no needle test was considered as required.</p> | N/A |

| IEC 60950-1 | | | | | | | |
|-----------------------------------|---|--|---------------|------------------|--|--|-----|
| Clause | Difference – Test | Result – Remark | Verdict | | | | |
| 4.7.201.2 | <p>Testing of non-metallic materials</p> <p>Parts of non-metallic material shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 550°C.</p> <p>Parts for which the glow-wire test cannot be carried out, such as those made of soft or foamy material, shall meet the requirements specified in ISO 9772 for category FH-3 material. The glow-wire test shall be not carried out on parts of material classified at least FH-3 according to ISO 9772 provided that the sample tested was not thicker than the relevant part.</p> | Approved materials are used. See list of critical components. | N/A | | | | |
| 4.7.201.3 | <p>Testing of insulating materials</p> <p>Parts of insulating material supporting POTENTIAL IGNITION SOURCES shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 750°C.</p> <p>The test shall be also carried out on other parts of insulating material which are within a distance of 3 mm of the connection.</p> <p>NOTE: Contacts in components such as switch contacts are considered to be connections.</p> <p>For parts which withstand the glow-wire test but produce a flame, other parts above the connection within the envelope of a vertical cylinder having a diameter of 20 mm and a height of 50 mm shall be subjected to the needle-flame test. However, parts shielded by a barrier which meets the needle-flame test shall not be tested.</p> <p>The needle-flame test shall be made in accordance with AS/NZS 60695.11.5 with the following modifications:</p> <table><tr><td>Clause of AS/NZS 4695.11.5</td><td>Change</td></tr><tr><td colspan="2">9 Test procedure</td></tr></table> | Clause of AS/NZS 4695.11.5 | Change | 9 Test procedure | | Approved materials are used. See list of critical components. | N/A |
| Clause of AS/NZS 4695.11.5 | Change | | | | | | |
| 9 Test procedure | | | | | | | |

| IEC 60950-1 | | | | |
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| Clause | Difference – Test | | Result – Remark | Verdict |
| | 9.2 Application of needleflame | <p>Replace the first paragraph with: The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of figure 1. If possible the flame shall be applied at least 10 mm from a corner</p> <p>Replace the second paragraph with: The duration of application of the test flame shall be 30 s ± 1 s.</p> | | |
| | 9.3 Number of test specimens | <p>Replace with: The test shall be made on one specimen. If the specimen does not withstand the test, the test may be repeated on two further specimens, both of which shall withstand the test.</p> | | |
| | 11 Evaluation of test results | <p>Replace with: The duration of burning (t_b) shall not exceed 30 s. However, for printed circuit boards, it shall not exceed 15 s.</p> | | |
| | The needle-flame test shall not be carried out on parts of material classified as V-0 or V-1 according to AS/NZS 60695.11.10, provided that the sample tested was not thicker than the relevant part. | | | |

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| Clause | Difference – Test | Result – Remark | Verdict |
| 4.7.201.4 | <p>Testing in the event of non-extinguishing material</p> <p>If parts, other than enclosures, do not withstand the glow wire tests of 4.7.201.3, by failure to extinguish within 30 s after the removal of the glow wire tip, the needle-flame test detailed in 4.7.201.3 shall be made on all parts of non-metallic material which are within a distance of 50 mm or which are likely to be impinged upon by flame during the tests of 4.7.201.3.</p> <p>Parts shielded by a separate barrier which meets the needle-flame test need not be tested.</p> <p>NOTE 1: If the enclosure does not withstand the glow-wire test the equipment is considered to have failed to meet the requirements of Clause 4.7.201 without the need for consequential testing.</p> <p>NOTE 2: If other parts do not withstand the glow-wire test due to ignition of the tissue paper and if this indicates that burning or glowing particles can fall onto an external surface underneath the equipment, the equipment is considered to have failed to meet the requirements of Clause 4.7.201 without the need for consequential testing.</p> <p>NOTE 3: Parts likely to be impinged upon by the flame are considered to be those within the envelope of a vertical cylinder having a radius of 10 mm and a height equal to the height of the flame, positioned above the point of the material supporting, in contact with, or in close proximity to, connections.</p> | <p>Approved materials are used. See list of critical components.</p> | N/A |

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

| IEC 60950-1 | | | |
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| Clause | Difference – Test | Result – Remark | Verdict |
| 6.2.2.1 | <p>For Australia only, delete the first paragraph including the Notes, and replace with the following: In Australia only, the electrical separation is subjected to 10 impulses of alternating polarity, using the impulse test generator reference 1 of Table N.1. The interval between successive impulses is 60 s and the initial voltage, U_c, is: (i) for 6.2.1 a): 7,0 kV for hand-held telephones and for headsets and 2,5 kV for other equipment; and (ii) for 6.2.1 b) and 6.2.1 c): 1,5 kV.</p> <p>NOTE 201: The 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines.</p> <p>NOTE 202: The value of 2.5 kV for 6.2.1 a) was chosen to ensure the adequacy of the insulation concerned and does not necessarily simulate likely overvoltages.</p> | | N/A |
| 6.2.2.2 | <p>For Australia only, delete the second paragraph including the Note, and replace with the following: In Australia only, the a.c. test voltage is: (i) for 6.2.1 a): 3 kV; and (ii) for 6.2.1 b) and 6.2.1 c): 1,5 kV.</p> <p>NOTE 201: Where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used.</p> <p>NOTE 202: The 3 kV and 1.5 kV values have been determined considering the low frequency induced voltages from the power supply distribution system.</p> | | N/A |
| 7.3 | <p>Add the following before the first paragraph: Equipment providing functions that fall only within the scope of AS/NZS 60065 and that incorporate a PSTN interface, are not required to comply with this Clause where the only ports provided on the equipment, in addition to a coaxial cable connection and a PSTN interface, are audio or video ports and analogue or data ports not intended to be used for telecommunications purposes.</p> | | N/A |
| Annex P | <p>Add the following Normative References: AS/NZS 3191, Electric flexible cords AS/NZS 3112, Approval and test specification—Plugs and socket-outlets</p> | <p>Considered. IEC approved material and components are used.</p> | P |
| Index | <p>1. Insert the following between 'asbestos, not to be used as insulation' and 'attitude see orientation': AS/NZS 2211.1.....4.3.13.5 AS/NZS 3112.....4.3.6 AS/NZS 3191.....3.2.5.1 (Table 3B) AS/NZS 60064.....4.1.201 AS/NZS 60695.2.11.....4.7.201.2, 4.7.201.3 AS/NZS 60695.11.10.....4.7.201.1, 4.7.201.5 AS/NZS 60695.11.5.....4.7.201.3 2. Insert the following between 'positive temperature coefficient (PTC) device' and 'powder': potential ignition source1.2.201, 4.7.201.3, 4.7.201.5</p> | | P |

| IEC 60950-1/Am1 | | | |
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| Clause | Difference – Test | Result – Remark | Verdict |
| KOREA - Differences to IEC 60950-1, Second Edition (2005) + A1:2009 (2012-05-31) | | | |
| 1.5.101 | Plugs for the connection of the apparatus to the supply mains shall comply with the Korean requirement (KSC 8305). | Built-in product. | N/A |
| 8: EMC | The apparatus shall comply with the relevant CISPR standards | End product consideration. | N/A |

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| ATTACHMENT TO TEST REPORT IEC 60950-1 with A1: 2009 and A2:2013 | |
| U.S.A. NATIONAL DIFFERENCES | |
| Information technology equipment – Safety – Part 1: General requirements | |
| Differences according to | UL 60950-1-07(Second Edition) + A1: 2011 + A2: 2014 |
| Attachment Form No. | US_ND_IEC60950_1F |
| Attachment Originator | UL |
| Master Attachment | Date 2014-07 |
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| U.S.A. National Differences to IEC 60950-1+ A1+ A2 | | | |
|--|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| Special national conditions | | | |
| 1.1.1 | All equipment is designed as to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and if applicable, the National Electrical Safety Code, IEEE C2 | | N/A |
| | Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75 | | N/A |
| 1.1.2 | Baby monitors are required to additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors | | N/A |
| 1.4.14 | For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A | | N/A |
| 1.5.5 | For lengths exceeding 3,05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the /NEC | | N/A |
| | For lengths 3,05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the NEC are required to have special construction features and identification markings | | N/A |

| U.S.A. National Differences to IEC 60950-1+ A1+ A2 | | | |
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| Clause | Requirement + Test | Result - Remark | Verdict |
| 1.7.1 | Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings | | N/A |
| | A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in Table 2 of CAN/CSA C22.2 No. 235, and | | N/A |
| | - if it is part of a range that extends into the Table 2 "Normal Operating Conditions" | | N/A |
| | Likewise, a voltage rating is not to be lower than the specified "Normal Operating Conditions," unless it is part of a range that extends into the "Normal Operating Conditions" | | N/A |
| 1.7.7 | Wiring terminals intended to supply Class 2 outputs in accordance with NEC or CEC Part 1 or NEC are marked with the voltage rating and "Class 2" or equivalent | Symbol for protective earthing conductor provided near the terminal. | P |
| | - Marking is located adjacent to the terminals | | N/A |
| | - Marking is visible during wiring | | N/A |
| 2.5 | Fuse providing Class 2, Limited Power Source, or TNP current limiting is not operator-accessible unless it is not interchangeable | | N/A |
| 2.6 | Equipment with isolated ground (earthing) receptacles is in compliance with NEC 250.146(D) and CEC 10-112 and 10-906(8) | | N/A |
| 2.7.1 | Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is provided for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable. | | N/A |
| | Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, provided with special transformer overcurrent protection | | N/A |
| 3.2 | Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains is in accordance with the NEC/CEC | Approved connectors are used (see list of safety critical components). | P |
| 3.2.1 | Attachment plugs of power supply cords are rated not less than 125 percent of the rated current of the equipment | | N/A |
| 3.2.1.2 | Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment comply with special earthing, wiring, marking and installation instruction requirements | | N/A |

| U.S.A. National Differences to IEC 60950-1+ A1+ A2 | | | |
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| Clause | Requirement + Test | Result - Remark | Verdict |
| 3.2.3 | Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs | | N/A |
| 3.2.5 | Power supply cords are no longer than 4.5 m in length | | N/A |
| | Minimum cord length is 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement | | N/A |
| | Flexible power supply cords are compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC | | N/A |
| 3.2.9 | Permanently connected equipment has a suitable wiring compartment and wire bending space | | N/A |
| 3.3 | Wiring terminals and associated spacings for field wiring connections comply with CSA C22.2 No. 0 | | N/A |
| 3.3.3 | Wire binding screws are not attached with conductors larger than 10 AWG (5,3 mm ²) | | N/A |
| 3.3.4 | Terminals for permanent wiring, including protective earthing terminals, are suitable for Canadian/US wire gauge sizes, are | | N/A |
| | - rated 125 per cent of the equipment rating, and | | N/A |
| | - are specially marked when specified (1.7.7) | | N/A |
| 3.3.5 | Revise first column of Table 3E to "Smaller of the rated current of the equipment or the protective current rating of the circuit under consideration" | | N/A |
| 3.4.2 | Motor control devices are provided for cord-connected equipment with a motor if the equipment is rated more than 12 A, | | N/A |
| | - or if the motor has a nominal voltage rating greater than 120 V | | N/A |
| | - or is rated more than 1/3 hp (locked rotor current over 43 A) | | N/A |
| 3.4.8 | Vertically-mounted disconnect switches and circuit breakers have the "on" position indicated by the handle in the up position | | N/A |
| 3.4.11 | For computer room applications, equipment with battery systems capable of supplying 750 VA for five minutes have a battery disconnect means that may be connected to the computer room remote power-off circuit | | N/A |
| 4.3.12 | The maximum quantity of flammable liquid stored in equipment complies with NFPA 30 | | N/A |
| 4.3.13.5.1 | Equipment with lasers meets the U.S. Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370). | | N/A |

| U.S.A. National Differences to IEC 60950-1+ A1+ A2 | | | |
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| Clause | Requirement + Test | Result - Remark | Verdict |
| 4.7 | For computer room applications, automated information storage systems with combustible media greater than 0,76 m ³ (27 cu ft) have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge | | N/A |
| 4.7.3.1 | For computer room applications, enclosures with combustible material measuring greater than 0,9m ² (10 sq ft) or a single dimension greater than 1,8 m (6 ft) have a flame spread rating of 50 or less | | N/A |
| | For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less | | N/A |
| 4.7.3.1 | Non-metallic enclosures of equipment for use in spaces used for environmental air (plenums) are required to comply with UL 2043 | | N/A |
| Annex H | Equipment that produces ionizing radiation complies with U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370) | | N/A |
| Other National Differences | | | |
| 1.5.1 | <p>Some components and materials associated with the risk of fire, electric shock, or personal injury have component or material ratings in accordance with the applicable national (Canadian and/or U.S.) component or material standard requirements.</p> <p>These components include:</p> <p>attachment plugs, battery backup systems, battery packs, cathode ray tubes, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), cord sets and power supply cords, direct plug-in equipment, electrochemical capacitor modules (energy storage modules with ultracapacitors), enclosures (outdoor), flexible cords and cables, fuses (branch circuit), fuseholders, ground-fault current interrupters, industrial control equipment, insulating tape, interconnecting cables, lampholders, limit controls, printed wiring, protectors for communications circuits, receptacles, solid state controls, supplementary protectors, switches (including interlock switches), thermal cut-offs, thermostats, (multi-layer) transformer winding wire, surge protective devices, tubing, vehicle battery adapters, wire connectors, and wire and cables</p> | The components fulfil the requirements of the standard and in addition P1 and P2 of UL60950 and CSA 22.2-60950 was applied. | P |
| 1.6.1.2 | A circuit for connection to the DC Mains Supply is classified as a SELV Circuit, TNV-2 Circuit or Hazardous Voltage Circuit depending on the maximum operating voltage of the supply | | N/A |

| U.S.A. National Differences to IEC 60950-1+ A1+ A2 | | | |
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| Clause | Requirement + Test | Result - Remark | Verdict |
| | This maximum operating voltage includes consideration of the battery charging “float voltage” associated with the intended supply system, regardless of the marked power rating of the equipment | | N/A |
| 2.3.1 | For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42,4 V _{peak} or 60 V _{d.c.} , the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions | | N/A |
| 2.3.2.1 | In the event of a single fault between TNV and SELV circuits, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts | | N/A |
| 2.6.2 | Equipment with functional earthing marked with the functional earthing symbol (IEC 60417-6092) | | N/A |
| 2.6.3.4 | Protective bonding conductors of non-standard protective bonding constructions (e.g., printed circuit traces) may be subjected to the additional limited short circuit test conditions specified | | N/A |
| 4.2.8.1 | Enclosures around CRTs with a face diameter of 160 mm or more reduce the risk of injury due to the implosion of the CRT | | N/A |
| 4.3.2 | Equipment with handles complies with special loading tests | | N/A |
| 4.3.8 | Battery packs for both portable and stationary applications comply with special component requirements | | N/A |
| 5.1.8.3 | Equipment intended to receive telecommunication ringing signals comply with a special touch current measurement tests | | N/A |
| 5.3.7 | Internal (e.g., card cage) SELV circuit connectors and printed wiring board connectors that are accessible to the operator and that deliver power are overloaded | | N/A |
| | During abnormal operating testing, if a circuit is interrupted by the opening of a component, the test is repeated twice (three tests total) using new components as necessary | | N/A |
| 6.4 | Equipment intended for connection to telecommunication network outside plant cable is protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC | | N/A |
| Annex EE | Articulated accessibility probe (Fig EE.3) is used for assessing accessibility to document/media shredders instead of the Figure 2A test finger | | N/A |

U.S.A. National Differences to IEC 60950-1+ A1+ A2

| Clause | Requirement + Test | Result - Remark | Verdict |
|-----------|--|-----------------|---------|
| Annex M.2 | Continuous ringing signals up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions | | N/A |
| Annex NAD | Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear comply with special acoustic pressure requirements | | N/A |

CANADA NATIONAL DIFFERENCES to IEC 60950-1, Second Edition (2005) + A1:2009 + A2:2013 (2014-09-13) National standard: CAN/CSA-C22.2 NO. 60950-1A-07

IEC 60950-1, CANADA NATIONAL DIFFERENCES

| Clause | Requirement + Test | Result - Remark | Verdict |
|------------------------------------|--|-----------------|---------|
| Special national conditions | | | |
| 1.1.1 | All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. | | N/A |
| | Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75. | | N/A |
| 1.1.2 | Baby monitors are required to comply with ASTM F2951, Consumer Safety Specification for Baby Monitors | | N/A |
| 1.4.14 | For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A. | | N/A |
| 1.5.5 | For lengths exceeding 3,05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the CEC/NEC. | | N/A |
| | For lengths 3,05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the CEC are required to have special construction features and identification markings. | | N/A |
| 1.7.1 | Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings. | | N/A |

| IEC 60950-1, CANADA NATIONAL DIFFERENCES | | | |
|--|---|--|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in Table 2 of CAN/CSA C22.2 No. 235, and if it is part of a range that extends into the Table 2 "Normal Operating Conditions." Likewise, a voltage rating shall not be lower than the specified "Normal Operating Conditions," unless it is part of a range that extends into the "Normal Operating Conditions." | | N/A |
| 1.7.7 | Wiring terminals intended to supply Class 2 outputs in accordance with CEC Part 1 or NEC shall be marked with the voltage rating and "Class 2" or equivalent. | Symbol for protective earthing conductor provided near the terminal. | P |
| | Marking shall be located adjacent to the terminals and shall be visible during wiring. | | N/A |
| 2.5 | Where a fuse is used to provide Class 2, Limited Power Source, or TNV current limiting, it shall not be operator-accessible unless it is not interchangeable. | | N/A |
| 2.6 | Equipment with isolated ground (earthing) receptacles is required to comply with NEC 250.146(D) and CEC 10-112 and 10-906(8). | | N/A |
| 2.7.1 | Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable. | | N/A |
| | Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection. | | N/A |
| 3.2 | Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains shall be in accordance with the NEC/CEC. | Approved connectors are used (see list of safety critical components). | P |
| 3.2.1 | Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment. | | N/A |
| 3.2.1.2 | Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, is required to comply with special earthing, wiring, marking and installation instruction requirements. | | N/A |
| 3.2.3 | Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs. | | N/A |
| 3.2.5 | Power supply cords are required to be no longer than 4.5 m in length. | | N/A |
| | Minimum cord length is required to be 1,5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement. | | N/A |

IEC 60950-1, CANADA NATIONAL DIFFERENCES

| Clause | Requirement + Test | Result - Remark | Verdict |
|------------|---|-----------------|---------|
| | Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC. | | N/A |
| 3.2.9 | Permanently connected equipment is required to have a suitable wiring compartment and wire bending space. | | N/A |
| 3.3 | Wiring terminals and associated spacings for field wiring connections shall comply with CSA C22.2 No. 0. | | N/A |
| 3.3.3 | Wire binding screws are not permitted to attach conductors larger than 10 AWG (5,3 mm ²). | | N/A |
| 3.3.4 | Terminals for permanent wiring, including protective earthing terminals, are required to be suitable for Canadian/US wire gauge sizes, | | N/A |
| | - rated 125 percent of the equipment rating, and | | N/A |
| | - are specially marked when specified (1.7.7). | | N/A |
| 3.3.5 | First column of Table 3E revised to require "Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT RATING of the circuit under consideration." | | N/A |
| 3.4.2 | Motor control devices are required for cord-connected equipment with a motor if the equipment is rated more than 12 A, | | N/A |
| | or if the motor has a nominal voltage rating greater than 120 V, | | N/A |
| | or is rated more than 1/3 hp (locked rotor current over 43 A). | | N/A |
| 3.4.8 | Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position. | | N/A |
| 3.4.11 | For computer room applications, equipment with battery systems capable of supplying 750 VA for five minutes are required to have a battery disconnect means that may be connected to the computer room remote power-off circuit. | | N/A |
| 4.3.12 | The maximum quantity of flammable liquid stored in equipment is required to comply with NFPA 30. | | N/A |
| 4.3.13.5.1 | Equipment with lasers is required to meet the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations 21 CFR 1040, as applicable. | | N/A |
| 4.7 | For computer room applications, automated information storage systems with combustible media greater than 0,76 m ³ (27 cu ft) are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge. | | N/A |

| IEC 60950-1, CANADA NATIONAL DIFFERENCES | | | |
|---|---|---|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 4.7.3.1 | For computer room applications, enclosures with combustible material measuring greater than 0,9 m ² (10 sq ft) or a single dimension greater than 1,8 m (6 ft) are required to have a flame spread rating of 50 or less. | | N/A |
| | For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less. | | N/A |
| Annex H | Equipment that produces ionizing radiation is required to comply with the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations, 21 CFR 1020, as applicable. | | N/A |
| Other National Differences | | | |
| 1.5.1 | Some components and materials associated with the risk of fire, electric shock, or personal injury are required to have component or material ratings in accordance with the applicable national (Canadian and/or U.S.) component or material standard requirements. These components include: attachment plugs, battery packs (rechargeable type, used with transportable equipment), cathode ray tubes, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), cord sets and power supply cords, direct plug-in equipment, enclosures (outdoor), flexible cords and cables, fuses (branch circuit), fuseholders, ground-fault current interrupters, industrial control equipment, insulating tape, interconnecting cables, lampholders, limit controls, printed wiring, protectors for communications circuits, receptacles, solid state controls, supplementary protectors, switches (including interlock switches), thermal cutoffs, thermostats, (multi-layer) transformer winding wire, transient voltage surge suppressors, tubing, wire connectors, and wire and cables. | The components fulfil the requirements of the standard and in addition P1 and P2 of UL60950 and CSA 22.2-60950 was applied. | P |
| 1.6.1.2 | A circuit for connection to the DC Mains Supply is classified as a SELV Circuit, TNV-2 Circuit or Hazardous Voltage Circuit depending on the maximum operating voltage of the supply. | | N/A |
| | This maximum operating voltage shall include consideration of the battery charging "float voltage" associated with the intended supply system, regardless of the marked power rating of the equipment. | | N/A |
| 2.3.1 | For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 V _{peak} or 60 V _{d.c.} , the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions. | | N/A |

| IEC 60950-1, CANADA NATIONAL DIFFERENCES | | | |
|--|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.3.2.1 | In the event of a single fault between TNV and SELV circuits, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts. | | N/A |
| 2.6.2 | Equipment with functional earthing is required to be marked with the functional earthing symbol (IEC 60417-6092) | | N/A |
| 2.6.3.4 | Protective bonding conductors of non-standard protective bonding constructions (e.g., printed circuit traces) may be subjected to the additional limited short circuit test conditions specified. | | N/A |
| 4.2.8.1 | Enclosures around CRTs with a face diameter of 160 mm or more are required to reduce the risk of injury due to the implosion of the CRT. | | N/A |
| 4.3.2 | Equipment with handles is required to comply with special loading tests. | | N/A |
| 4.3.8 | Battery packs for both portable and stationary applications are required to comply with special component requirements. | | N/A |
| 5.1.8.3 | Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests. | | N/A |
| 5.3.7 | Internal (e.g., card cage) SELV circuit connectors and printed wiring board connectors that are accessible to the operator and that deliver power are to be overloaded. | | N/A |
| | During abnormal operating testing, if a circuit is interrupted by the opening of a component, the test shall be repeated twice (three tests total) using new components as necessary. | | N/A |
| 6.4 | Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC. | | N/A |
| Annex EE | Articulated accessibility probe (Fig EE.3) required for assessing accessibility to document/media shredders instead of the Figure 2A test finger. | | N/A |
| M.2 | Continuous ringing signals up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions. | | N/A |
| Annex NAD | Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements. | | N/A |
| GENERAL | All warnings should be in French language. | | N/A |


| IEC 60950-1/Am1 | | | |
|---|--|-----------------|---------|
| Clause | Difference – Test | Result – Remark | Verdict |
| ISRAEL-Differences to IEC 60950-1:2005 (2011-03-02) | | | |
| ISRAEL STANDARD SI 60950 PART 1 INFORMATION TECHNOLOGY EQUIPMENT - SAFETY: GENERAL REQUIREMENTS TRANSLATION OF ISRAEL NATIONAL DEVIATIONS ONLY | | | |
| 1. | Scope (with national deviations) | | — |
| 1.1.1 | <p>Equipment covered by this Standard</p> <p>This Standard is applicable to mains-powered or battery-powered information technology equipment, including electrical business equipment and associated equipment, with a rated voltage not exceeding 600 V.</p> <p>This Standard is also applicable to the information technology equipment mentioned below:</p> <ul style="list-style-type: none"> - equipment designed for use as telecommunication terminal equipment and telecommunication network infrastructure equipment, independent of the source of power; - equipment designed and intended to be connected directly to, or used as infrastructure equipment in, a cable distribution system, independent of the source of power; - equipment designed to use the general a.c. mains supply as a communication transmission medium (see clause 6, Note 4 and subclause 7.1, Note 4). <p>This Standard is also applicable to components and subassemblies intended for incorporation in information technology equipment. It is not expected that such components and subassemblies comply with every aspect of the Standard, provided that the complete information technology equipment, incorporating such components and subassemblies, does comply.</p> <p>Note 1: Examples of aspects with which uninstalled components and subassemblies may not comply include the marking of the power rating and access to hazardous parts.</p> <p>Note 2: This Standard may be applied to the electronic parts of equipment even if that equipment does not wholly fall within its Scope, such as large-scale air conditioning systems, fire detection systems and fire extinguishing systems. Different requirements may be necessary for some applications.</p> <p>This Standard specifies requirements intended to reduce risks of fire ignition, electric shock or bodily injury for the operator and layman who may come into contact with the equipment and, where specifically stated, for a service person.</p> <p>This Standard is intended to reduce such risks with respect to installed equipment, whether it consists of a system or interconnected units or independent units, subject to installing, operating and maintaining the equipment in the manner prescribed by the manufacturer. Examples of equipment that is in the scope of this Standard are the following:</p> | | — |

IEC 60950-1/Am1

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

| IEC 60950-1/Am1 | | | |
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| Clause | Difference – Test | Result – Remark | Verdict |
| 1.1.2 | <p>Additional requirements</p> <p>Requirements additional to those specified in this Standard may be necessary for:</p> <ul style="list-style-type: none"> - equipment intended for operation in special environments (for example, extremes of temperature; very high concentration of dust, moisture or vibration; flammable gases; and corrosive or explosive atmospheres); - electromedical applications with physical connections to the patient; - equipment intended to be used in vehicles, on board ships or aircraft, in tropical countries, or at altitudes greater than 2,000 m. - equipment intended for use where ingress of water may be possible. For guidance on such requirements and on relevant testing, see Annex T. <p>Note: Attention is drawn to the fact that government authorities of some countries impose additional requirements.</p> | | N/A |
| 1.1.3 | <p>Exclusions</p> <p>This Standard does not apply to:</p> <ul style="list-style-type: none"> - power supply systems which are not an integral part of the equipment, such as motor-generator sets, battery backup systems and transformers; - building installation wiring; - devices requiring no electric power. | | — |
| National deviations to the clauses of the International Standard | | | |
| 1.6 | <p>Power interface</p> <p>The clause is applicable with the following addition:</p> | | N/A |
| 1.6.1 | <p>AC Power distribution systems</p> <p>A note shall be added to the clause as follows:</p> <p>Note: In Israel, this clause is applicable subject to the Electricity Law, 1954, its regulations and revisions.</p> | | N/A |
| 1.7 | <p>Marking and instructions</p> <p>The clause is applicable with the following additions:</p> <ul style="list-style-type: none"> - Subclause 1.7.201 shall be added at the beginning of the clause as follows: | | N/A |
| 1.7.201 | <p>Marking in the Hebrew language</p> <p>The marking in the Hebrew language shall be in</p> | Built-in unit. End product consideration. | N/A |

| IEC 60950-1/Am1 | | | |
|-----------------|---|---|---------|
| Clause | Difference – Test | Result – Remark | Verdict |
| | <p>accordance with the Consumer Protection Order (Marking of goods), 1983.</p> <p>In addition to the marking required by clause 1.7.1, the following details shall be marked in the Hebrew language.</p> <p>The details shall be marked on the apparatus or on its package, or on a label properly attached to the apparatus or on the package, by bonding or sewing, in a manner that the label cannot be easily removed.</p> <ol style="list-style-type: none"> 1. Name of the apparatus and its commercial designation; 2. Manufacturer's name and address. If the apparatus is imported, the importer's name and address; 3. Manufacturer's registered trademark, if any; 4. Name of the model and serial number, if any; 5. Country of manufacture. | | |
| 1.7.2 | Safety instructions and marking | | N/A |
| 1.7.2.1 | <p>General</p> <p>The following shall be added to the clause:</p> <p>All the instructions and warnings related to safety shall also be written in the Hebrew language.</p> <p>- At the end of clause 1, clause 1.201 shall be added as follows:</p> | Built-in unit. End product consideration. | N/A |
| 1.201 | <p>Power Consumption in standby mode</p> <p>The equipment shall comply with the requirements of the Energy Sources Regulations (Maximum electrical power in standby mode for domestic and office electrical appliances), 2011, with a permitted deviation of up to 10%</p> | | N/A |
| 2. | <p>Protection from hazards</p> <p>The clause is applicable with the following additions:</p> | | N/A |
| 2.9.4 | <p>Separation from hazardous voltages</p> <p>The following shall be added at the beginning of the clause:</p> <p>In Israel, according to the Electricity Law, 1954, and the Electricity Regulations (Earthing and means of protection against electricity of voltages up to 1,000V) 1991, seven means of protection against electrocution are permitted, as follows:</p> <ol style="list-style-type: none"> 1. TN-S - Network system earthing; TN-C-S - | | N/A |



| IEC 60950-1/Am1 | | | |
|-----------------|--|-----------------|---------|
| Clause | Difference – Test | Result – Remark | Verdict |
| | <p>Network system earthing;</p> <p>2. TT - Network system earthing;</p> <p>3. IT - Network Insulation Terre;</p> <p>4. Isolated transformer;</p> <p>5. Safety extra low voltage (SELV or ELV);</p> <p>6. Residual current circuit breaker (30 ma = I_Δ);</p> <p>7. Reinforced insulation; Double insulation (class II) .</p> <p>Clause 2.201 shall be added at the end of the clause, as follows:</p> | | |
| 2.201 | <p>Prevention of electromagnetic interference</p> <p>- Prior to carrying out the tests in accordance with the clauses of this Standard, the compliance of the apparatus with the relevant requirements specified in the appropriate part of the Standard series, SI 961, shall be checked.</p> <p>The apparatus shall meet the requirements in the appropriate part of the Standard series, SI 961.</p> <p>- If there are components in the apparatus for the prevention of electromagnetic interference, these components shall not reduce the safety level of the apparatus as required by this Standard.</p> | | N/A |
| 3. | <p>Wiring, connections and supply</p> <p>The clause is applicable with the following additions:</p> | | N/A |
| 3.2 | Connection to a mains supply | | N/A |
| 3.2.1 | Means of connection | | N/A |
| 3.2.1.1 | <p>Connection to an a.c. mains supply</p> <p>After the note, the following note shall be added:</p> <p>Note: In Israel, the feed plug shall comply with the requirements of Israel Standard SI 32 Part 1.1.</p> | | N/A |
| 3.2.1.2 | <p>Connection to a d.c. mains supply</p> <p>At the end of the first paragraph, the following note shall be added:</p> <p>Note: At the time of issue of this Standard, there is no Israel Standard for connection accessories to d.c.</p> | | — |

| IEC 60950-1/Am1 | | | |
|-----------------|--|--|-----------------|
| Clause | Difference – Test | | Result – Remark |
| Annex P | ANNEX P (normative) Normative references The annex is applicable with the following national deviations: - The following Israel Standards have been inserted in place of some of the International Standards specified in this annex of the Standard, as follows: | | N/A |
| | The referenced International Standard | The substituted Israel Standard | |
| | IEC 60065: 2001 | SI 250 ^(A) - Safety requirements for mains operated electronic and related apparatus for household and similar general use | |
| | IEC 60083 | SI 32 Part 1.1 ^(a) – Plugs and socket-outlets for household and similar purposes: Plugs and socket-outlets for single phase up to 16A – General requirements national modifications and | |
| | IEC 60227 (all parts) | SI 473, all parts - Cables, cords and insulated conductors for nominal voltage up to 1000 volt | |
| | IEC 60245 (all parts) | SI 60245 Part 1 – Rubber insulated cables – Rated voltages up to and including 450/750 V | |
| | IEC 60309 (all parts) | SI 1109, all parts - Plugs, socket-outlets and couplers for industrial purposes | |
| | IEC 60317 (all parts) | SI 1067 Part 1 – Enamelled round copper wires with high mechanical properties | |
| | | SI 1067 Part 2 - Self-fluxing enamelled ^(B) round copper wires | |
| | | SI 1067 Part 3 – Enamelled round copper wires with a temperature index of 180°C | |
| | IEC 60320 (all parts) | SI 60320 Part 1 - Appliance couplers for household and similar general purposes: General requirements | |

| IEC 60950-1/Am1 | | | | |
|-----------------|---|---|---|---------|
| Clause | Difference – Test | | Result – Remark | Verdict |
| | | | 60320-1 (2001) | |
| | | SI 60320 Part 2.1 - Appliance couplers for household and similar general purposes: Sewing machine couplers | The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission, IEC 60320-2.1 (2000) | |
| | | SI 60320 Part 2.2 - Appliance couplers for household and similar general purposes: Interconnection couplers for household and similar equipment | The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission, IEC 60320-2.2 (1998) | |
| | | SI 60320 Part 2.3 -Appliance couplers for household and similar general purposes: Interconnection couplers for household and similar equipment Appliance coupler for household and similar general purposes: Appliance coupler with a degree of protection higher than IPX0 | The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission, IEC 60320-2.3 (1998) | |
| | IEC 60364-1:2001 | Electricity Law, 1954, with its Regulations and updates | - | |
| | IEC 60730-1: 1999 Amendment 1 (2003) | SI 60730 Part 1 - Automatic electrical controls for household and similar use: General requirements | The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission, IEC 60730-1 Edition 3.2:2007-03. | |
| | IEC 60825-1 | SI 60825 Part 1 - Safety of laser products: Equipment classification, requirements and user's guide | The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission, IEC 60825-1 2 nd Edition:2007-03 | |
| | IEC 60947-1; 2004 | SI 60947 Part 1 -Low-voltage switchgear and controlgear: General rules | The Israel Standard, excluding national modifications and additions noted, is identical to Standard of the International Electrotechnical Commission, IEC 60947-1Edition 5.0:2007-06. | |
| | IEC 61058-1: 2000 | SI 61058 Part 1 - Switches for appliances: General requirements | The Israel Standard, excluding national modifications and additions noted, is identical to the Standard of the International Electrotechnical Commission, IEC 61058-1 Edition 3.1:2001: | |
| | ISO 3864 (all parts) | SI 3864 Part 1 -Graphical symbols | The Israel Standard, excluding national modifications and additions noted, is identical to the Standard of the International Electrotechnical Commission IEC 3864-1 (First Edition:2002-05-15 | |
| Notes: | | | | |

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| Clause | Difference – Test | Result – Remark | Verdict |
| | <p>(a) The standard is being revised</p> <p>(b) In the International Standard series, there are parts not yet adopted as Israeli Standards. This table notes the relevant Israeli Standards, and in the Comments column, the corresponding parts of the International Standard series.</p> <p>(c) Not relevant to the translation.</p> | | N/A |
| <p>The following shall be added to the annex:</p> <p>Israeli Standards</p> <p>SI 961 (all parts) – Electromagnetic compatibility</p> <p>Israeli Laws, Regulations and documents</p> <p>Electricity Law, 1954, with its Regulations and updates</p> <p>Consumer Protection Order (Marking of goods), 1983, Kovetz HaTakanot 4465 dated 1983-02-24</p> <p>Energy Sources Regulations (Maximum electrical power in standby mode for domestic and office electrical appliances), 2011</p> | | | N/A |

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| Clause | Difference – Test | Result – Remark | Verdict |
| CHINA-Differences to IEC 60950-1:2005 (ed. 2) (2013-09-26) (GB4943.1-2011 Information technology equipment – Safety – Part 1: General requirements) | | | |
| 1.1.2 | Revise the third dashed paragraph as: —equipment intended to be used in vehicles, on board ships or aircraft, at altitudes greater than 5000m; | Considered | P |
| 1.4.5 | At the end of the third dashed paragraph ,added following paragraph: If the equipment is intended for direct connection to an AC mains supply, the tolerances on RATED VOLTAGE shall be taken as +10%,-10% unless a wider tolerance is declared by the manufacturer. Delete the contents which behind the first dash. | Tolerances +10%, -10% considered. | P |
| 1.4.12.1 | Tma in clause 1.4.12.1 amended as: Tma: is the maximum ambient temperature permitted by the manufacturer's specification, or 35 °C, whichever is greater. And note 1: for equipment not to be operated at tropical climatic conditions, Tma: is the maximum ambient temperature permitted by the manufacturer's specification, or 25 °C, whichever is greater. Add note 2: for equipment is to be operated at 2000m-5000m above sea leave, its temperature test conditions and temperature limits are considered. | Manufacturer specifies ambient temperature >35°C | P |
| 1.5.2 | Add a note behind the first dash : A component used shall comply with related requirements corresponding altitude of 5000m. | Unit not specified for altitude more than 2000m | N/A |
| 1.7 | Add one paragraph before the last paragraph: The required marking and instruction should be given in normative Chinese unless otherwise specified. | Chinese label will be verified during national approval. | N/A |
| 1.7.1 | Based on the AC mains supply of China, the RATED VOLTAGE should be 220V (single phase) or 380V (three-phases) for single rated voltage, for RATED VOLTAGE RANGE, it should cover 220V or 380V (three-phases), for multiple RATED VOLTAGES, one of them should be 220V or 380V (three-phases) and set on 220V or 380V(three-phases)when manufactured. And the RATED FREQUENCY or RATED FREQUENCY RANGE should be 50Hz or include 50Hz. | The rated voltage range and frequency range is covering China mains voltage 220V/50Hz. | P |

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| Clause | Difference – Test | Result – Remark | Verdict |
| 1.7.2.1 | <p>Add requirements of warning for equipment intended to be used at altitudes not exceeding 2000m or at non-tropical climate regions:</p> <p>For equipment intended to be used at altitude not exceeding 2000m, a warning label containing the following or a similar appropriate wording or a symbol as in annex DD shall fixed to the equipment at readily visible place.</p> <p>"Only used at altitude not exceeding 2000m."</p>  <p>If only symbol used, the explanation of the symbol shall be contained in the instruction manual.</p> <p>For equipment intended to be used in not-tropical climate regions, a warning label containing the following or a similar appropriate wording or a symbol as in annex DD shall fixed to the equipment at readily visible place.</p> <p>"Only used in not-tropical climate regions."</p>  <p>If only symbol used, the explanation of the symbol shall be contained in the instruction manual.</p> <p>The above statements shall be given in a language acceptable to the regions where the apparatus is intended to be used.</p> | <p>Unit not intended for altitude above 2000m and not specified for tropical conditions. Appropriate labels must be attached to the units shipped to China.</p> | N/A |
| 2.7.1 | <p>Amended as:</p> <p>Protection in PRIMARY CIRCUITS against overcurrent short-circuits and earth faults shall be provided as an integral part of the equipment except special provisions. And the protective device shall meet the requirement of Clause 5.3.</p> <p>Delete note of Clause 2.7.1.</p> | <p>Unit provides appropriate internal protection.</p> | P |

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| Clause | Difference – Test | Result – Remark | Verdict |
| 2.9 | Humidity conditioning This section applies for equipment to be operated at tropical climatic conditions, humidity conditioning dealt with tropical climatic conditions. For equipment not to be operated at tropical climatic conditions, its humidity conditioning complies with rules of CTL 624/07. | Unit not intended for tropical conditions. | N/A |
| 2.9. | First section of Clause 2.9.2 amended as two sections: Where required by 2.9.1, 2.10.8.3, 2.10.10 or 2.10.11, humidity conditioning is conducted for 120 h in a cabinet or room containing air with ambient temperature $40\pm2^{\circ}\text{C}$ and a relative humidity of $(93\pm3)\%$. During this conditioning the component or subassembly is not energized. For equipment not to be operated at tropical climatic conditions, Where required by 2.9.1, 2.10.8.3, 2.10.10 or 2.10.11, humidity conditioning is conducted for 48 h in a cabinet or room containing air with a relative humidity of $(93\pm3)\%$. The temperature of the air, at all places where samples can be located, is maintained within 2°C of any convenient value t between 20°C and 30°C such that condensation does not occur. Due to pretreatment of equipment operated at high altitude area is humidity conditioning withstand hot shock, specific requirements are to be considered. Add note: For equipment to be operated at 2000 m - 5000m above sea level, assessment and requirement of humidity conditioning for Insulation material properties are considered. | | |
| 2.10.3.1 | Change the third paragraph of Clause 2.10.3.1 to be: These requirements apply for equipment to be operated up to 2000 m above sea level. For equipment to be operated at more than 2000 m above sea level and up to 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of GB/T 16935.1. For equipment to be operated at more than 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of GB/T 16935.1. Linear interpolation is permitted between the nearest two points in Table A.2. The calculated minimum CLEARANCE using this multiplication factor shall be rounded up to the next higher 0,1 mm increment. | | N/A |

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| Clause | Difference – Test | Result – Remark | Verdict |
| 2.10.3.4 | <p>Add a new section above Table 2K and in Clause 2.10.3.4: minimum CLEARANCES determined by above rules apply for equipment to be operated up to 2000m above sea level. For equipment to be operated at 2000 m - 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of GB/T 16935.1. For equipment to be operated at more than 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of GB/T 16935.1.</p> <p>Add "(apply for up to 2000m)" in header of Table 2K, 2L and 2M.</p> | | N/A |
| 3.2.1.1 | <p>Add a paragraph before the last paragraph:</p> <p>Plugs connected to AC mains supply shall comply with GB 1002 or GB 1003 or GB/T 11918 as applicable.</p> | | N/A |
| 4.2.8 | <p>Clause 4.2.8 cathode ray tubes quoted Clause 18 of GB8898-2011.</p> <p>Delete note of Clause 4.2.8.</p> | | N/A |
| Annex E | <p>Last section of Annex E amended as:</p> <p>For comparison of winding temperatures determined by the resistance method of this annex with the temperature limits of Table 4B, 35°C shall be added to the calculated temperature rise. And add note: for equipment not to be operated at tropical climatic conditions, 25 °C shall be added to the calculated temperature rise to compare with the temperature of Table 4B.</p> | | N/A |
| Annex G.6 | <p>Change the second section of Clause G.6 to be:</p> <p>For equipment to be operated at 2000 m - 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of GB/T16935.1. For equipment to be operated at more than 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of IEC 60664-1. Linear interpolation is permitted between the nearest two points in Table A.2. The calculated minimum CLEARANCE using this multiplication factor shall be rounded up to the next higher 0,1 mm increment.</p> <p>A component that has been demonstrated to comply with National Industry standards or the relevant national standard shall be subjected to the applicable tests of this standard as part of the equipment.</p> | | N/A |

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| Clause | Difference – Test | Result – Remark | Verdict |
| Annex BB (informative) | Amended as : The differences between Chinese national standards GB 4943.1-2011 and GB 4943-2001. | Considered. | -- |
| Annex DD (normative) | Added annex DD: Instructions of the new safety warning labels. | Must be verified during national approval. | N/A |
| Other amendments | In accordance with the relevant CTL decisions and the amendments of IEC 60950-1, the specific requirements or mistakes in IEC standard are corrected or editorially modified in this part, Including clause 1.7, 2.1.1.7, 2.9.2, Table 2H, Figure 2H, F.8, F.9, M.3 and Annex U. | Considered. | P |
| Quoting standards and reference documents | <p>The principles of quoting and referring to other standards in Annex P and reference documents of IEC 60950-1 are as follows:</p> <p>If the date of the reference document is given, only that edition applies, excluding any subsequent corrigenda and amendments. However, parties to agreements based on this part are encouraged to investigate the possibility of applying the most recent editions of the reference documents. For undated references, the latest edition of the referenced document applies, including any corrigenda and amendments.</p> <p>For the usage of international standards in Chinese national standards and industry standards is various, in the aim of achieving easy operation and based on the requirements of GB/T 1.1 and GB/T 20000.2, when quoting an entire international standard in the normative quoting files and reference documents of Annex P of this part, the principles of quotation are as follows:</p> <ul style="list-style-type: none"> - If there is no national standard or industry standard corresponding to the international standard, then the international standard is quoted; - If there is national standard or industry standard corresponding to the international standard, then either the national or industry standard is quoted; - If the date of the national standard or industry standard is not given, the latest edition of the standard applies; - The national standard or industry standard number, corresponding international standard number and the consistency level code should be identified in parentheses behind the listed national standard or industry standard. <p>When quoting several chapters or clauses of the international standard, the principles of quotation are as follows:</p> <ul style="list-style-type: none"> - If there is no national standard or industry standard corresponding to the international standard, then the international standard is quoted; | Considered. | P |

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| Clause | Difference – Test | Result – Remark | Verdict |
| | <p>- If there is national standard or industry standard corresponding to the international standard, then either the national or industry standard is quoted.</p> <p>Meanwhile, in order to retain the relevant information on international standards, informative annex CC is increased, which gives the table about the comparison of the normative quoting files and reference documents in IEC 60950-1: 2005.</p> | | |

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| Clause | Difference – Test | Result – Remark | Verdict |
| JAPAN- Differences to IEC 60950-1 1st Edition (2001) (National differences to IEC 60950-1:2005) (2010-11-27) | | | |
| 1.2.4.1 | <p>Add the following new notes.</p> <p>Note: Even if the equipment is designed as Class I, the equipment is regarded as Class 0I equipment when 2-pin adaptor with earthing lead wire or cord set having 2-pin plug with earthing lead wire is provided or recommended.</p> | Power supply unit is classified as power supply unit with PE (Class I) and as power supply unit without PE (used within Class II equipment). | N/A |
| 1.2.4.3A | <p>Add the following new clause.</p> <p>1.2.4.3A CLASS 0I EQUIPMENT Equipment having attachment plug without earthing blade, where protection against electric shock is achieved by:</p> <ul style="list-style-type: none"> - using BASIC INSULATION, and - providing externally an earth terminal or a lead wire for earthing in order to connect those conductive parts that might assume a HAZARDOUS VOLTAGES in the event of BASIC INSULATION fault to the PROTECTIVE EARTHING CONDUCTOR in the building wiring. <p>NOTE – Class 0I equipment may have a part constructed with Double Insulation or Reinforced Insulation.</p> | Equipment is rated class I. | N/A |
| 1.3.2 | <p>Add the following notes after first paragraph:</p> <p>Note 1 Transportable or similar equipment that are relocated frequently for intended usage should not be designed as Class I or Class 0I equipment unless it is intended to be installed by service personnel.</p> <p>Note 2 Considering wiring circumstance in Japan, equipment intended to be installed where the provision for earthing connection is unlikely should not be designed as Class I or Class 0I equipment unless it is intended to be installed by service personnel.</p> | | N/A |


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| Clause | Difference – Test | Result – Remark | Verdict |
| 1.5.1 | <p>Replace the first paragraph with the follows: Where safety is involved, components shall comply either with the requirements of this standard, with the safety aspects of the relevant JIS component standard, or IEC component standards in case there is no applicable JIS component standard is available. However, a component that falls within the scope of METI Ministerial ordinance No. 85 is properly used in accordance with its marked ratings, requirements of 1.5.4, 2.8.7 and 3.2.5 apply, and in addition, a cord connector of power supply cord set mating with appliance inlet complying with the standard sheet of IEC 60320-1, shall comply with relevant standard sheet of IEC 60320-1.</p> <p>Replace Note 1 with the following:</p> <p>Note 1 A JIS or an IEC component standard is considered relevant only if the component in question clearly falls within its scope.</p> | IEC/UL approved materials are used. | P |
| 1.5.2 | <p>Replace first sentence in the first dashed paragraph with the following:</p> <ul style="list-style-type: none"> - a component that has been demonstrated to comply with a JIS component standard harmonized with the relevant IEC component standard, or where such JIS component standard is not available, a component that has been demonstrated to comply with the relevant IEC component standard shall be checked for correct application and use in accordance with its rating. <p>Add a note after the first dashed paragraph as follows:</p> <p>Note 1 See 1.7.5A when Type C.14 appliance coupler rated 10 A per IEC 60320-1 is used with an equipment rated not more than 125 V and rated more than 10 A.</p> <p>Replace first sentence in the third dashed paragraph as follows:</p> <ul style="list-style-type: none"> - where no relevant IEC component standard or JIS component standard harmonized with the relevant IEC component standard exists, or where components are used in circuits not in accordance with their specified rating, the components shall be tested under the conditions occurring in the equipment. | IEC/UL approved materials are used within their ratings. | P |

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| Clause | Difference – Test | Result – Remark | Verdict |
| 1.7.1 | Replace fifth dashed paragraph with the following: - manufacturer's or responsible company's name or trade-mark or identification mark; | | P |
| 1.7.5A | Add the following new clause. after 1.7.5 1.7.5A Appliance Coupler If appliance coupler according to IEC60320-1, C.14(rated current: 10A)is used in equipment whose rated voltage is less than 125V and rated current is over 10A, the following instruction or equivalent shall be described in the user instruction. “ Use only designated cord set attached in this equipment” | No IEC60320-1, C.14 appliance coupler used. | N/A |
| 1.7.12 | Replace first sentence with the following: Instructions and equipment marking related to safety shall be in Japanese. | Japanese instructions and equipment marking will be verified during national approval. | N/A |
| 1.7.17A | Add the following new clause. after 1.7.17 1.7.17A Marking for CLASS 0I EQUIPMENT For CLASS 0I EQUIPMENT, the following instruction shall be marked on the visible place of the mains plug or the main body: “Provide an earthing connection” Moreover, for CLASS 0I EQUIPMENT, the following or equivalent instruction shall be indicated on the visible place of the main body or written in the operating instructions: “Provide an earthing connection before the mains plug is connected to the mains. And, when disconnecting the earthing connection, be sure to disconnect after pulling out the mains plug from the mains.” | Not CLASS 0I equipment. | N/A |
| 2.6.3.2 | Add the following after 1st paragraph. This also applies to the conductor of lead wire for protective earthing of CLASS 0I EQUIPMENT. | Not CLASS 0I equipment. | N/A |
| 2.6.4.2 | Replace 1st paragraph with the following. Equipment required to have protective earthing shall have a main protective earthing terminal. For equipment with a DETACHABLE POWER SUPPLY CORD, the earthing terminal in the appliance inlet is regarded as the main protective earthing terminal except for CLASS 0I EQUIPMENT providing separate main protective earthing terminal other than appliance inlet. | Not CLASS 0I equipment. | N/A |
| 2.6.5.4 | Replace 1st sentence with the following. Protective earthing connections of CLASS I EQUIPMENT shall make earlier and break later than the supply connections in each of the following: | No operator removable parts except supply cord. | N/A |

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| Clause | Difference – Test | Result – Remark | Verdict |
| 2.6.5.8A | Add the following new clause. after 2.6.5.8A 2.6.5.8A Earthing of CLASS 0I EQUIPMENT Plugs with a lead wire for earthing shall not be used for equipment having a rated voltage exceeding 150V. For plugs with a lead wire for earthing, the lead wire shall not be earthed by a clip. CLASS 0I EQUIPMENT shall be provided with an earthing terminal or lead wire for earthing in the external location where easily visible. | Not CLASS 0I equipment. | N/A |
| 3.2.3 | Add the following after Table 3A: Table 3A applies when cables complying JIS C 3662 or JIS C 3663 are used. In case of other cables, cable entries shall be so designed that a conduit suitable for the cable used can be fitted. | The equipment is not intended for permanent connection to the mains. | N/A |
| 3.2.5.1 | Add the following to the last of first dashed paragraph. Or mains cords shall be of the sheathed type complying with Appendix 1 of Article 1 of the Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance.. Add the following to the last of second dashed paragraph. Or mains cords shall be of the sheathed type complying with Appendix 1 of Article 1 of the Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance.. Delete 1) in Table 3B. | | N/A |
| 3.3.4 | Add the following note to Table 3D: Note For cables other than those complying with JIS C 3662 or JIS C 3663, terminals shall be suitable for the size of the intended cables. | | N/A |
| 3.3.7 | Add the following after the first sentence: This requirement is not applicable to the external earthing terminal of Class 0I equipment. | Not CLASS 0I equipment. | N/A |
| 4.3.4 | Add the following after the first sentence: This requirement also applies to those connections in Class 0I equipment, where CLEARANCE or CREEPAGE DISTANCES over BASIC INSULATION would be reduced to less than the values specified in 2.10. | No loosening of parts impairing creepage distances or clearances over basic, insulation is likely to occur. | P |
| 5.1.3 | Add a note after the first paragraph as follows: Note – Attention should be drawn to that majority of three-phase power system in Japan is of delta connection, and therefore, in that case, test is conducted using the test circuit from IEC 60990, figure 13. | Single phase equipment. | N/A |

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| 5.1.6 | <p>Replace Table 5A. as follows</p> <table border="1"> <thead> <tr> <th>Type of equipment</th><th>Terminal A of measuring instrument connected to:</th><th>Maximum TOUCH CURRENT mA r.m.s. 1)</th><th>Maximum PROTECTIVE CONDUCTOR CURRENT</th></tr> </thead> <tbody> <tr> <td>ALL equipment</td><td>ALL equipment Accessible parts and circuits not connected to protective earth</td><td>0,25</td><td>-</td></tr> <tr> <td>HAND-HELD</td><td rowspan="4">Equipment main protective earthing terminal (if any) CLASS I EQUIPMENT</td><td>0,75</td><td>-</td></tr> <tr> <td>MOVABLE (other than HAND-HELD, but including TRANSPORTABLE EQUIPMENT)</td><td>3,5</td><td>-</td></tr> <tr> <td>STATIONARY, PLUGGABLE TYPE A</td><td>3,5</td><td>-</td></tr> <tr> <td>ALL other STATIONARY EQUIPMENT</td><td>3,5</td><td>-</td></tr> <tr> <td>- not subject to the conditions of 5.1.7</td><td></td><td></td><td></td></tr> <tr> <td>- subject to the conditions of 5.1.7</td><td></td><td></td><td></td></tr> <tr> <td></td><td></td><td></td><td>5 % of input current</td></tr> <tr> <td>HAND-HELD</td><td>Equipment main protective earthing terminal (if any)</td><td>0,5</td><td>-</td></tr> <tr> <td>Others</td><td>CLASS 0I EQUIPMENT</td><td>1,0</td><td>-</td></tr> </tbody> </table> <p>1) If peak values of TOUCH-CURRENT are measured, the maximum values obtained by multiplying the r.m.s. values by 1,414.</p> | Type of equipment | Terminal A of measuring instrument connected to: | Maximum TOUCH CURRENT mA r.m.s. 1) | Maximum PROTECTIVE CONDUCTOR CURRENT | ALL equipment | ALL equipment Accessible parts and circuits not connected to protective earth | 0,25 | - | HAND-HELD | Equipment main protective earthing terminal (if any) CLASS I EQUIPMENT | 0,75 | - | MOVABLE (other than HAND-HELD, but including TRANSPORTABLE EQUIPMENT) | 3,5 | - | STATIONARY, PLUGGABLE TYPE A | 3,5 | - | ALL other STATIONARY EQUIPMENT | 3,5 | - | - not subject to the conditions of 5.1.7 | | | | - subject to the conditions of 5.1.7 | | | | | | | 5 % of input current | HAND-HELD | Equipment main protective earthing terminal (if any) | 0,5 | - | Others | CLASS 0I EQUIPMENT | 1,0 | - | Considered. | P |
| Type of equipment | Terminal A of measuring instrument connected to: | Maximum TOUCH CURRENT mA r.m.s. 1) | Maximum PROTECTIVE CONDUCTOR CURRENT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ALL equipment | ALL equipment Accessible parts and circuits not connected to protective earth | 0,25 | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HAND-HELD | Equipment main protective earthing terminal (if any) CLASS I EQUIPMENT | 0,75 | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MOVABLE (other than HAND-HELD, but including TRANSPORTABLE EQUIPMENT) | | 3,5 | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STATIONARY, PLUGGABLE TYPE A | | 3,5 | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ALL other STATIONARY EQUIPMENT | | 3,5 | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - not subject to the conditions of 5.1.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - subject to the conditions of 5.1.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | 5 % of input current | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HAND-HELD | Equipment main protective earthing terminal (if any) | 0,5 | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Others | CLASS 0I EQUIPMENT | 1,0 | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7.2 | <p>Add the following after the paragraph:</p> <p>However, the separation requirements and tests of 6.2.1 a), b) and c) do not apply to a CABLE DISTRIBUTION SYSTEM if all of the following apply:</p> <ul style="list-style-type: none"> – the circuit under consideration is a TNV-1 CIRCUIT; and – the common or earthed side of the circuit is connected to the screen of the coaxial cable and to all accessible parts and circuits (SELV, accessible metal parts and LIMITED CURRENT CIRCUITS, if any); and – the screen of the coaxial cable is intended to be connected to earth in the building installation. | | N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W.1 | <p>Replace second and third sentence in the first paragraph with the following:</p> <p>This distinction between earthed and unearthed (floating) circuit is not the same as between CLASS I EQUIPMENT, CLASS 0I EQUIPMENT and CLASS II EQUIPMENT. Floating circuits can exist in CLASS I EQUIPMENT or CLASS 0I EQUIPMENT and earthed circuits in CLASS II EQUIPMENT.</p> | | N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Clause | Difference – Test | Result – Remark | Verdict |
| Annex JA | <p>Add a new annex JA with the following contents.</p> <p style="text-align: center;">Annex JA (normative) Document shredding machines</p> <p>Document shredding machines shall also comply with the requirements of this annex except those of STATIONARY EQUIPMENT used by connecting directly to an AC MAINS SUPPLY of three-phase 200V or more.</p> <p>JA.1 Markings and instructions The symbol  (JIS S 0101:2000, 6.2.4) and the following precautions for use shall be marked on readily visible part adjacent to document feed opening. The marking shall be clearly legible, permanent, and easily discernible; - that use by an infants/children may cause a hazard of injury etc.; - that a hand can be drawn into the mechanical section for shredding when touching the document-slot; - that clothing can be drawn into the mechanical section for shredding when touching the document-slot; - that hairs can be drawn into the mechanical section for shredding when touching the document-slot; - in case of equipment incorporating a commutator motor, that equipment may catch fire or explode by spraying of flammable gas.</p> <p>JA.2 Inadvertent reactivation Any safety interlock that can be operated by means of the test finger, Figure JA.1, is considered to be likely to cause inadvertent reactivation of the hazard.</p> <p>Compliance is checked by inspection and, where necessary, by a test with the test finger, Figure JA.1</p> <p>JA.3 Disconnection from the mains supply Document shredding machines shall incorporate an isolating switch complying with sub-clause 3.4.2 as the device disconnecting the power of hazardous moving parts. For this switch, two-position (single-use) switch or multi-position (multifunction) switch (e.g., slide switch) may be used.</p> | No such equipment. | N/A |

| IEC 60950-1/Am1 | | | |
|-----------------|--|-----------------|---------|
| Clause | Difference – Test | Result – Remark | Verdict |
| | <p>If two-position switch, the positions for “ON” and “OFF” shall be indicated in accordance with sub-clause 1.7.8. If multi-position switch, the position for “OFF” shall be indicated in accordance with sub-clause 1.7.8 and other positions shall be indicated with proper terms or symbols.</p> <p>Compliance is checked by inspection</p> <p>JA.4 Protection against hazardous moving parts Any warning shall not be used instead of the structure for preventing access to hazardous moving parts. Document shredding machines shall comply with the following requirements.</p> <p>Insert the test finger, Figure JA.1, into all openings in MECHANICAL ENCLOSURES without applying appreciable force. It shall not be possible to touch hazardous moving parts with the test finger. This consideration applies to all sides of MECHANICAL ENCLOSURES when the equipment is mounted as intended. Before testing with the test finger, remove the parts detachable without a tool.</p> <p>Insert the wedge-probe, Figure JA.2, into the document-slot. And, against all directions of openings, if straight-cutting type, a force of 45 N shall apply to the probe, and 90 N if cross-cutting type. In this case, the weight of the probe is to be factored into the overall applied force. Before testing with the wedge-probe, remove the parts detachable without a tool. It shall not be possible to touch any hazardous moving parts, including the shredding roller or the mechanical section for shedding, with the probe.</p> | | N/A |

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| Clause | Difference – Test | Result – Remark | Verdict | | | | | | | | |
|----------------------------|--|----------------------------|-------------------------|---|---|----|---|-----|----|--|-----|
| | <div><p>(Details of the tip of wedge)</p><table><tr><th>Distance from the tip (mm)</th><th>Thickness of probe (mm)</th></tr><tr><td>0</td><td>2</td></tr><tr><td>12</td><td>4</td></tr><tr><td>180</td><td>24</td></tr></table><p>Note 1 - The thickness of the probe varies linearly, with slope changes at the respective points shown in the table. Note 2 –The allowable dimensional tolerance of the probe is +/- 0.127 mm.</p><p>Figure JA.2 Wedge-probe</p></div> | Distance from the tip (mm) | Thickness of probe (mm) | 0 | 2 | 12 | 4 | 180 | 24 | | N/A |
| Distance from the tip (mm) | Thickness of probe (mm) | | | | | | | | | | |
| 0 | 2 | | | | | | | | | | |
| 12 | 4 | | | | | | | | | | |
| 180 | 24 | | | | | | | | | | |

Enclosure No. 1a

**European Group Differences and National Differences
according to EN 60950-1:2006 +A1:2010 +A2:2013 +
A11:2009 + A12:2011**

(21 pages including this cover page)

ATTACHMENT TO TEST REPORT IEC 60950-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES

Information technology equipment – Safety –

Part 1: General requirements

Differences according to : EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013

Attachment Form No. : EU_GD_IEC60950_1F

Attachment Originator : SGS Fimko Ltd

Master Attachment : Date 2014-02

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


| IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN) | | | | | | |
|--|--|---|-----------------------|-----------------|--|---------|
| Clause | Requirement + Test | | | Result - Remark | | Verdict |
| | Clauses, subclauses, notes, tables and figures which are additional to those in IEC60950-1 and it's amendmets are prefixed "Z" | | | | | P |
| Contents | Add the following annexes: | | | | | P |
| | Annex ZA (normative) | Normative references to international publications with their corresponding European publications | | | | |
| (A2:2013) | Annex ZB (normative) | Special national conditions | | | | |
| | Annex ZD (informative) | IEC and CENELEC code designations for flexible cords | | | | |
| General | Delete all the "country" notes in the reference document (IEC 60950-1:2005) according to the following list: | | | | | P |
| | 1.4.8 Note 2 | 1.5.1 Note 2 & 3 | 1.5.7.1 Note | | | |
| | 1.5.8 Note 2 | 1.5.9.4 Note | 1.7.2.1 Note 4, 5 & 6 | | | |
| | 2.2.3 Note | 2.2.4 Note | 2.3.2 Note | | | |
| | 2.3.2.1 Note 2 | 2.3.4 Note 2 | 2.6.3.3 Note 2 & 3 | | | |
| | 2.7.1 Note | 2.10.3.2 Note 2 | 2.10.5.13 Note 3 | | | |
| | 3.2.1.1 Note | 3.2.4 Note 3. | 2.5.1 Note 2 | | | |
| | 4.3.6 Note 1 & 2 | 4.7 Note 4 | 4.7.2.2 Note | | | |
| | 4.7.3.1Note 2 | 5.1.7.1 Note 3 & 4 | 5.3.7 Note 1 | | | |
| | 6 Note 2 & 5 | 6.1.2.1 Note 2 | 6.1.2.2 Note | | | |
| | 6.2.2 Note | 6.2.2.1 Note 2 | 6.2.2.2 Note | | | |
| | 7.1 Note 3 | 7.2 Note | 7.3 Note 1 & 2 | | | |
| | G.2.1 Note 2 | Annex H Note 2 | | | | |
| General | Delete all the "country" notes in the reference document (IEC 60950-1:2005/A1:2010) according to the following list: | | | | | P |
| (A1:2010) | 1.5.7.1 Note | 6.1.2.1 Note 2 | | | | |
| | 6.2.2.1 Note 2 | EE.3 Note | | | | |

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

| IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN) | | | |
|--|---|--|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | <p>Zx.1 General</p> <p>This sub-clause specifies requirements for protection against excessive sound pressure from personal music players that are closely coupled to the ear. It also specifies requirements for earphones and headphones intended for use with personal music players.</p> <p>A personal music player is a portable equipment□ for personal use, that:</p> <ul style="list-style-type: none"> – is designed to allow the user to listen to recorded or broadcast sound or video; and – primarily uses headphones or earphones that can be worn in or on or around the ears; and – allows the user to walk around while in use. <p>NOTE 1 Examples are hand-held or body-worn portable CD players, MP3 audio players, mobile phones with MP3 type features, PDA's or similar equipment.</p> <p>A personal music player and earphones or headphones intended to be used with personal music players shall comply with the requirements of this sub-clause.</p> <p>The requirements in this sub-clause are valid for music or video mode only.</p> <p>The requirements do not apply:</p> <ul style="list-style-type: none"> – while the personal music player is connected to an external amplifier; or – while the headphones or earphones are not used. <p>NOTE 2 An external amplifier is an amplifier which is not part of the personal music player or the listening device, but which is intended to play the music as a standalone music player.</p> <p>The requirements do not apply to:</p> <ul style="list-style-type: none"> – hearing aid equipment and professional equipment; <p>NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment.</p> | <p>Switch mode power supply. No provisions for playing music provided.</p> | N/A |
| | <ul style="list-style-type: none"> – analogue personal music players (personal music players without any kind of digital processing of the sound signal) that are brought to the market before the end of 2015. <p>NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies.</p> <p>For equipment which is clearly designed or intended for use by young children, the limits of EN 71-1 apply.</p> | | N/A |

| IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN) | | | |
|--|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | <p>Zx.2 Equipment requirements</p> <p>No safety provision is required for equipment that complies with the following:</p> <ul style="list-style-type: none"> – equipment provided as a package (personal music player with its listening device), where <ul style="list-style-type: none"> the acoustic output $L_{Aeq,T}$ is ≤ 85 dBA measured while playing the fixed “programme simulation noise” as described in EN 50332-1; and – a personal music player provided with an analogue electrical output socket for a listening device, where the electrical output is ≤ 27 mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise” as described in EN 50332-1. <p>NOTE 1 Wherever the term acoustic output is used in this clause, the 30 s A-weighted equivalent sound pressure level $L_{Aeq,T}$ is meant. See also Zx.5 and Annex Zx.</p> <p>All other equipment shall:</p> <ul style="list-style-type: none"> a) protect the user from unintentional acoustic outputs exceeding those mentioned above; and b) have a standard acoustic output level not exceeding those mentioned above, and automatically return to an output level not exceeding those mentioned above when the power is switched off; and | | N/A |

| IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN) | | | |
|--|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | <p>c) provide a means to actively inform the user of the increased sound pressure when the equipment is operated with an acoustic output exceeding those mentioned above. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an acoustic output exceeding those mentioned above. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time; and</p> <p>NOTE 2 Examples of means include visual or audible signals. Action from the user is always required.</p> <p>NOTE 3 The 20 h listening time is the accumulative listening time, independent how often and how long the personal music player has been switched off.</p> <p>d) have a warning as specified in Zx.3; and</p> <p>e) not exceed the following:</p> <p>1) equipment provided as a package (player with its listening device), the acoustic output shall be ≤ 100 dBA measured while playing the fixed "programme simulation noise" described in EN 50332-1; and</p> <p>2) a personal music player provided with an analogue electrical output socket for a listening device, the electrical output shall be ≤ 150 mV measured as described in EN 50332-2, while playing the fixed "programme simulation noise" described in EN 50332-1.</p> <p>For music where the average sound pressure (long term $L_{Aeq,T}$) measured over the duration of the song is lower than the average produced by the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA. In this case T becomes the duration of the song.</p> <p>NOTE 4 Classical music typically has an average sound pressure (long term $L_{Aeq,T}$) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the song and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA.</p> <p>For example, if the player is set with the programme simulation noise to 85 dBA, but the average music level of the song is only 65 dBA, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dBA.</p> | | N/A |

| IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN) | | | |
|--|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | <p>Zx.3 Warning</p> <p>The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following:</p> <ul style="list-style-type: none"> – the symbol of Figure 1 with a minimum height of 5 mm; and – the following wording, or similar: <p>“To prevent possible hearing damage, do not listen at high volume levels for long periods.”</p> <div>  </div> <p>Figure 1 – Warning label (IEC 60417-6044)</p> <p>Alternatively, the entire warning may be given through the equipment display during use, when the user is asked to acknowledge activation of the higher level.</p> | | N/A |
| | Zx.4 Requirements for listening devices (headphones and earphones) | | N/A |
| | <p>Zx.4.1 Wired listening devices with analogue input</p> <p>With 94 dBA sound pressure output $L_{Aeq,T}$, the input voltage of the fixed “programme simulation noise” described in EN 50332-2 shall be ≥ 75 mV.</p> <p>This requirement is applicable in any mode where the headphones can operate (active or passive), including any available setting (for example built-in volume level control).</p> <p>NOTE The values of 94 dBA – 75 mV correspond with 85dBA – 27 mV and 100 dBA – 150 mV.</p> | | N/A |

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

| IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN) | | | | | | | | | |
|--|--|---|--------------------|---|-----|---|-----|--|-----|
| Clause | Requirement + Test | Result - Remark | Verdict | | | | | | |
| 2.7.1 | <p>Replace the subclause as follows:</p> <p>Basic requirements</p> <p>To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):</p> <p>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p> | Unit provides appropriate internal protection. | P | | | | | | |
| | <p>c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p> | Protection does not rely on building installation. Unit provides appropriate internal protection. | N/A | | | | | | |
| 2.7.2 | This subclause has been declared 'void'. | | N/A | | | | | | |
| 3.2.3 | Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses. | | N/A | | | | | | |
| 3.2.5.1 | <p>Replace "60245 IEC 53" by "H05 RR-F";</p> <p>"60227 IEC 52" by "H03 VV-F or H03 VVH2-F";</p> <p>"60227 IEC 53" by "H05 VV-F or H05 VVH2-F2".</p> <p>In Table 3B, replace the first four lines by the following:</p> <table><tr><td>Up to and including 6 </td><td>0,75 ^{a)} </td></tr><tr><td>Over 6 up to and including 10 (0,75) ^{b)}</td><td>1,0 </td></tr><tr><td>Over 10 up to and including 16 (1,0) ^{c)}</td><td>1,5 </td></tr></table> <p>In the conditions applicable to Table 3B delete the words "in some countries" in condition ^{a)}.</p> <p>In NOTE 1, applicable to Table 3B, delete the second sentence.</p> | Up to and including 6 | 0,75 ^{a)} | Over 6 up to and including 10 (0,75) ^{b)} | 1,0 | Over 10 up to and including 16 (1,0) ^{c)} | 1,5 | | N/A |
| Up to and including 6 | 0,75 ^{a)} | | | | | | | | |
| Over 6 up to and including 10 (0,75) ^{b)} | 1,0 | | | | | | | | |
| Over 10 up to and including 16 (1,0) ^{c)} | 1,5 | | | | | | | | |
| 3.2.5.1 (A2:2013) | NOTE Z1 The harmonised code designations corresponding to the IEC cord types are given in Annex ZD | Considered. | P | | | | | | |

| IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN) | | | |
|--|--|---------------------------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 3.3.4 | In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following: Over 10 up to and including 16 1,5 to 2,5 1,5 to 4 Delete the fifth line: conductor sizes for 13 to 16 A | | N/A |
| 4.3.13.6 (A1:2010) | Replace the existing NOTE by the following: NOTE Z1 Attention is drawn to: 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz, and 2006/25/EC: Directive on the minimum health and safety requirements regarding the exposure of workers to risks arising from physical agents (artificial optical radiation). | EUT does not produce radiation. | N/A |
| | Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC. | | N/A |
| Annex H | Replace the last paragraph of this annex by: At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 µSv/h (0,1 mR/h) (see NOTE). Account is taken of the background level. Replace the notes as follows: NOTE These values appear in Directive 96/29/Euratom. Delete NOTE 2. | EUT does not produce radiation. | N/A |
| Bibliography | Additional EN standards. | | — |

| | | |
|-----------|--|---|
| ZA | NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS | — |
|-----------|--|---|

| ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN) | | | |
|--|---|---|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 1.2.4.1 | In Denmark , certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets. | | P |
| 1.2.13.14 (A11:2009) | In Norway and Sweden , for requirements see 1.7.2.1 and 7.3 of this annex. | | N/A |
| 1.5.7.1 (A11:2009) | In Finland , Norway and Sweden , resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2. | No resistors bridging basic insulation. | N/A |

| ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN) | | | |
|--|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 1.5.8 | In Norway , due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V). | | P |
| 1.5.9.4 | In Finland, Norway and Sweden , the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex. | | N/A |

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

| ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN) | | | |
|--|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | <p>NOTE In Norway, due to regulation for installations of cable distribution systems, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway):</p> <p>“Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel- TV nettet.”</p> <p>Translation to Swedish:</p> <p>”Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet.”</p> | | N/A |
| 1.7.2.1 (A2:2013) | <p>In Denmark, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet.</p> <p>The marking text in Denmark shall be as follows: In Denmark: “Apparatets stikprop skal tilsluttes en stikkontakt med jord, som giver forbindelse til stikproppens jord.”</p> | | N/A |
| 1.7.5 1.7.5 (A11:2009) | <p>In Denmark, socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a.</p> <p>For CLASS II EQUIPMENT the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.</p> | | N/A |

| ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN) | | | |
|--|--|--|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 1.7.5 (A2:2013) | <p>In Denmark, socket-outlets for providing power to other equipment shall be in accordance with the DS 60884-2-D1:2011.</p> <p>For class I equipment the following Standard Sheets are applicable: DK 1-3a, DK 1-1c, DK 1-1d, DK 1-5a or DK 1-7a, with the exception for STATIONARY EQUIPMENT where the socket-outlets shall be in accordance with Standard Sheet DK 1-1b, DK 1-1c, DK 1-1d or DK 1-5a.</p> <p>Socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance with DS 60884-2-D1 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with by DS 60884-2-D1 Standard Sheet DKA 1-3a or DKA 1-3b.</p> <p>Justification the Heavy Current Regulations, 6c</p> | No socket outlet provided. | N/A |
| 2.2.4 | In Norway , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex. | | N/A |
| 2.3.2 | In Finland, Norway and Sweden there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex. | | N/A |
| 2.3.4 | In Norway , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex. | No TNV circuit. | N/A |
| 2.6.3.3 | In the United Kingdom , the current rating of the circuit shall be taken as 13 A, not 16 A. | Unit for building-in, not directly connected to the mains. | N/A |
| 2.7.1 | In the United Kingdom , to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met. | Unit provides appropriate internal protection. | N/A |
| 2.10.5.13 | In Finland, Norway and Sweden , there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex. | No TNV circuit. | N/A |
| 3.2.1.1 | <p>In Switzerland, supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets:</p> <p>SEV 6532-2.1991 Plug Type 15 3P+N+PE 250/400 V, 10 A</p> | | N/A |

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

| ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN) | | | |
|--|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 3.2.1.1 (A2:2013) | <p>In Denmark, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2.</p> <p>Justification the Heavy Current Regulations, 6c</p> | | N/A |
| 3.2.1.1 | <p>In Spain, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994.</p> <p>Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994.</p> <p>If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.</p> | | N/A |
| 3.2.1.1 | <p>In the United Kingdom, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations.</p> <p>NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p> | | N/A |

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

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

| ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN) | | | |
|--|--|---|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | <p>It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b).</p> <p>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 60384-14: - the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14. | | N/A |
| 6.1.2.2 | <p>In Finland, Norway and Sweden, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.</p> | | N/A |
| 7.2 | <p>In Finland, Norway and Sweden, for requirements see 6.1.2.1 and 6.1.2.2 of this annex.</p> <p>The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.</p> | Equipment not intended for connection to cable distribution systems | N/A |
| 7.3 (A11:2009) | <p>In Norway and Sweden, for requirements see 1.2.13.14 and 1.7.2.1 of this annex.</p> | | N/A |

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

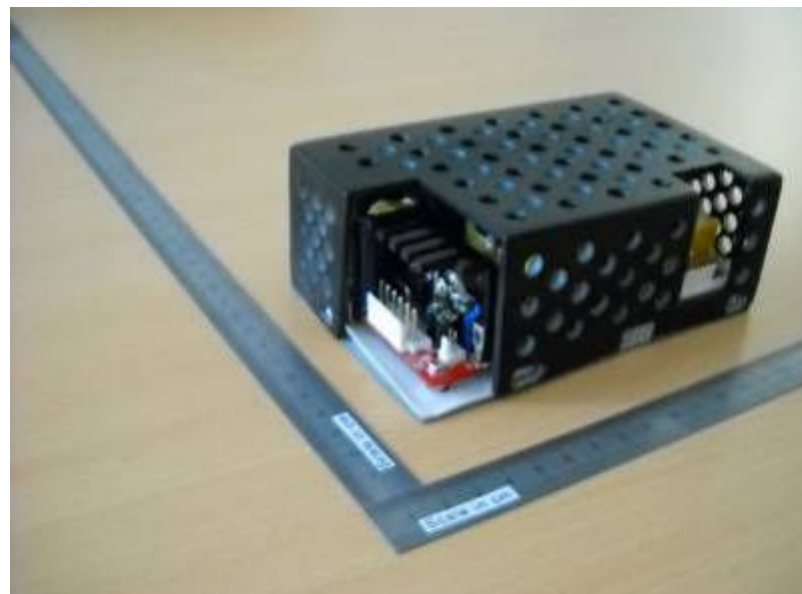
| Clause | Requirement | Verdict |
|--|---|---------|
| Denmark national differences (2013-07-04) National standard: DS/EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013 | | |
| 1.2.4.1 | In Denmark , certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets. | N/A |
| 1.7.5 | In Denmark, socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a. For CLASS II EQUIPMENT the socket outlet shall be in accordance with Standard Sheet DKA 1-4a. | N/A |
| 3.2.1.1 | In Denmark , supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2. | N/A |

| Clause | Requirement | Verdict |
|---|--|---------|
| Sweden national differences (2013-06-25) National standard: SS-EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 | | |
| Various | Please see the EN version of the standard where the Swedish National and Special National Deviations are stated. | P |

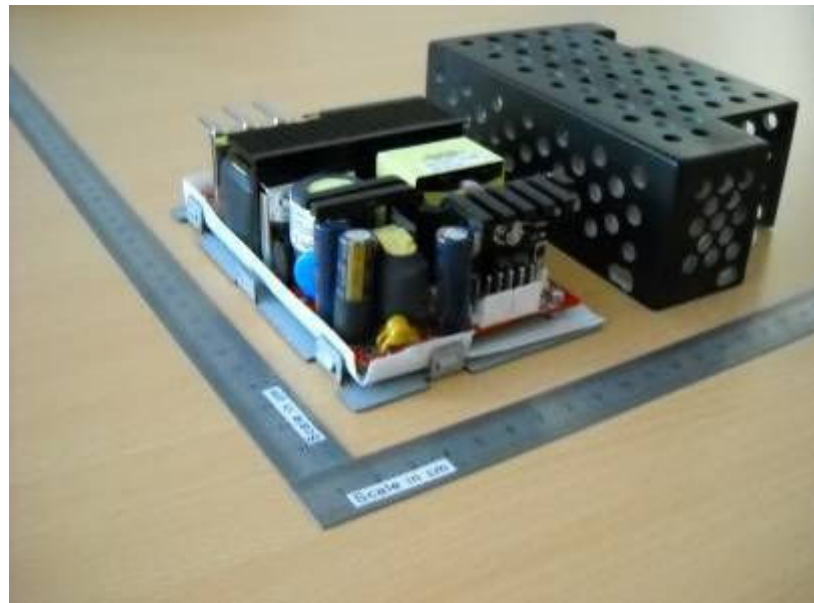
Enclosure No. 2

Pictures of the unit

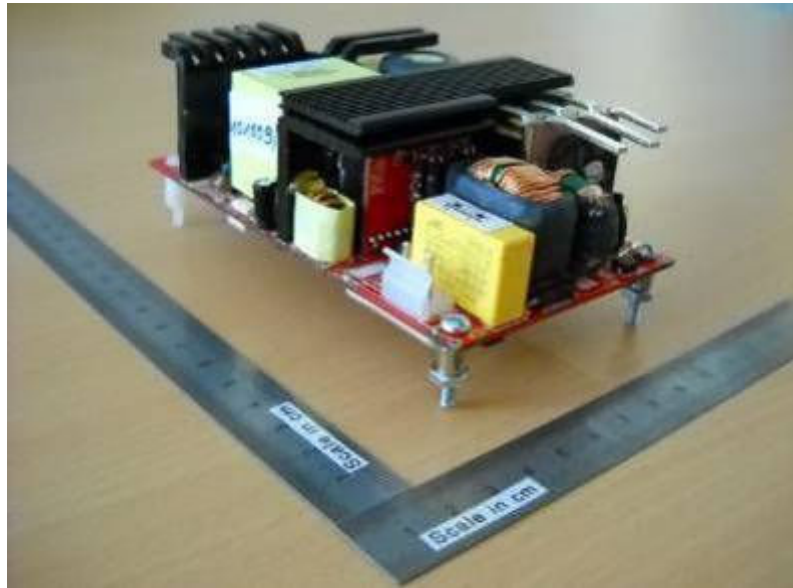
(7 pages including this cover page)





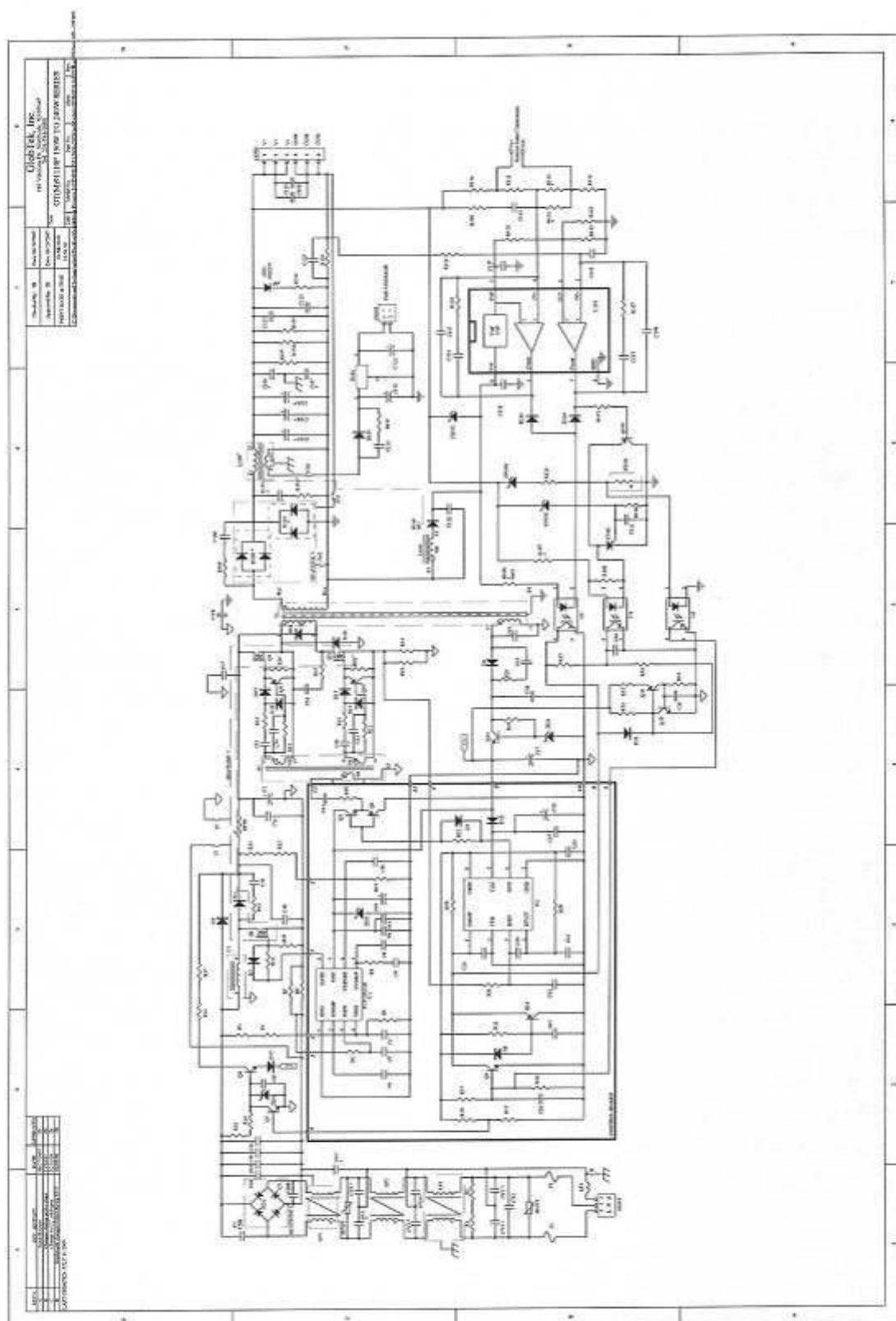


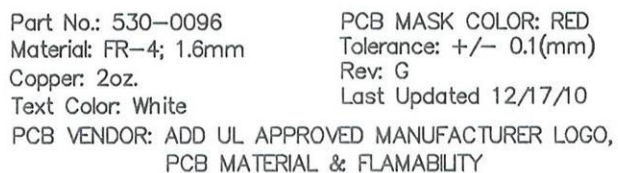




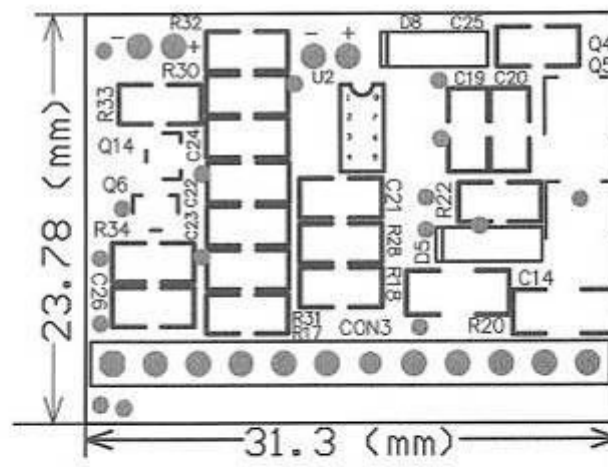


Enclosure No. 3
Documentation
(43 pages including this cover page)





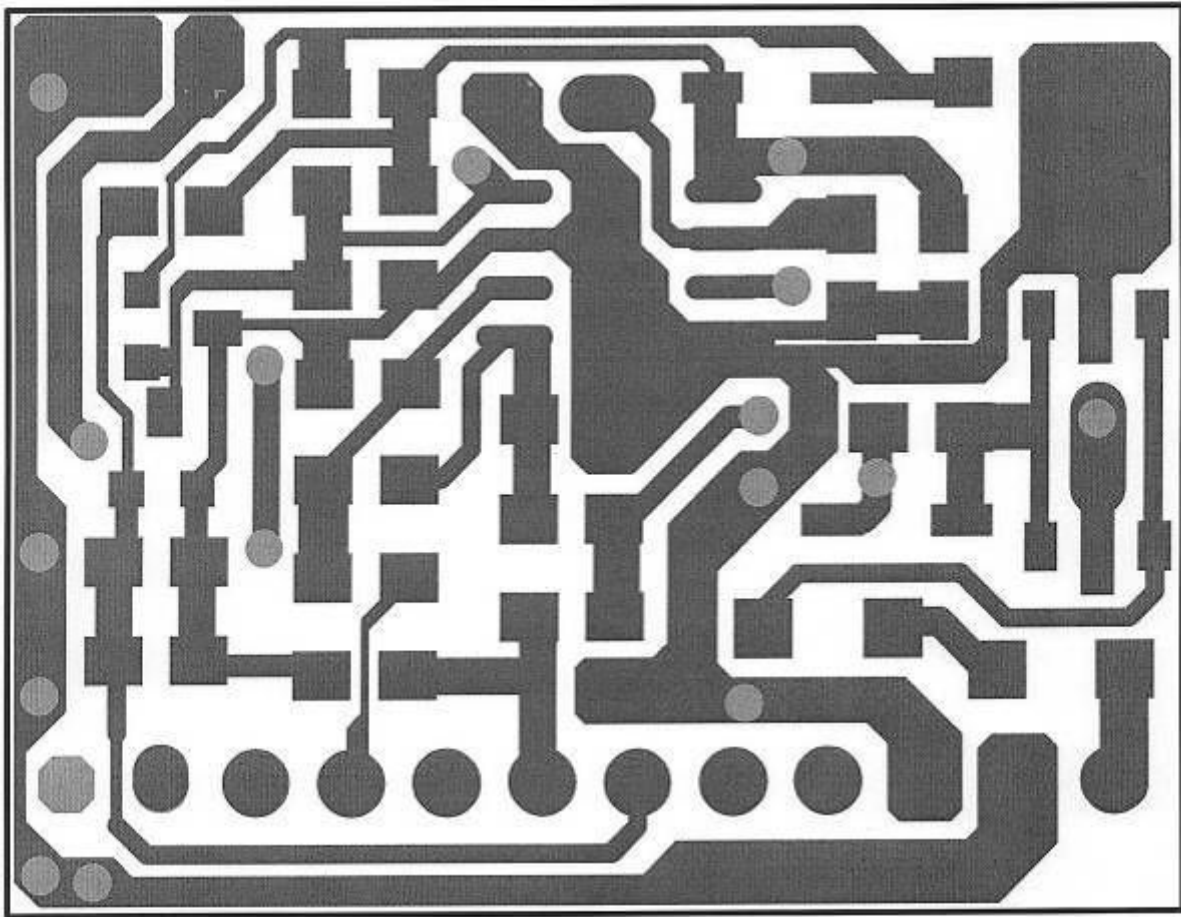
GlobTek Inc.
GTM91110P240XX
Main PCB, Rev G
Bottom Side

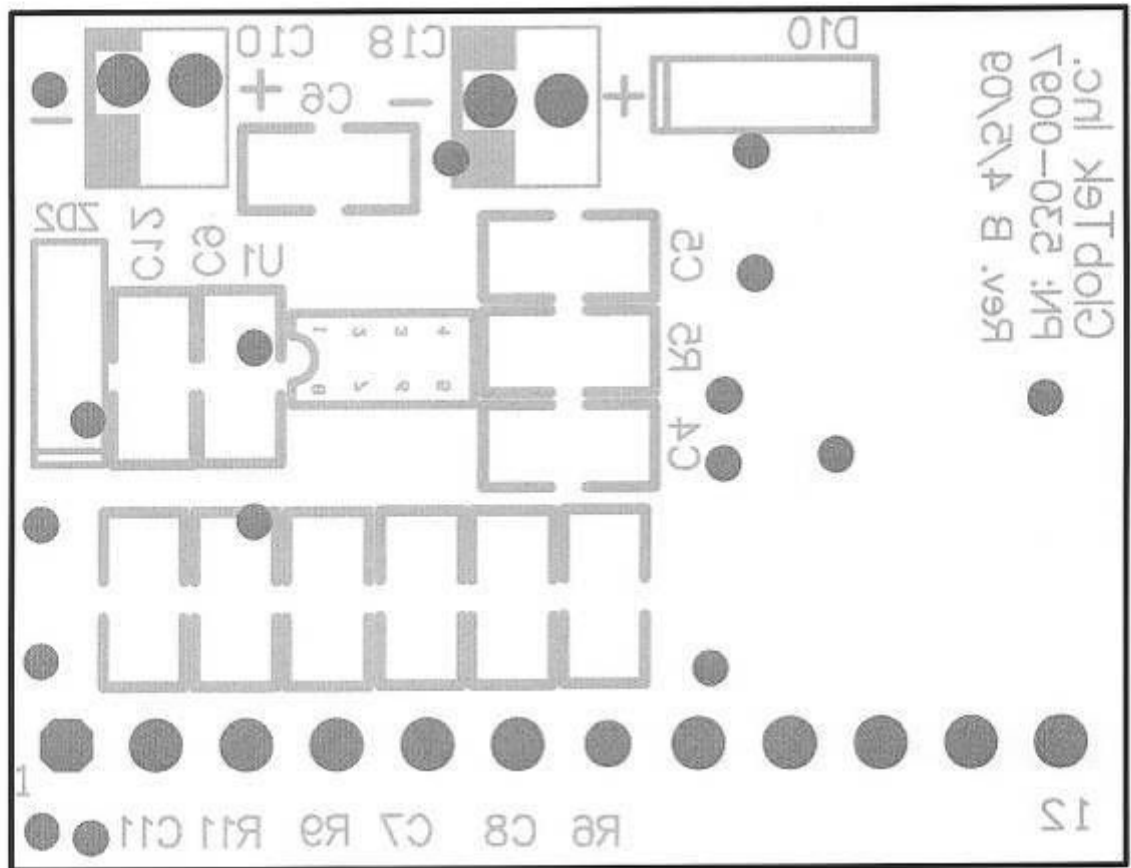


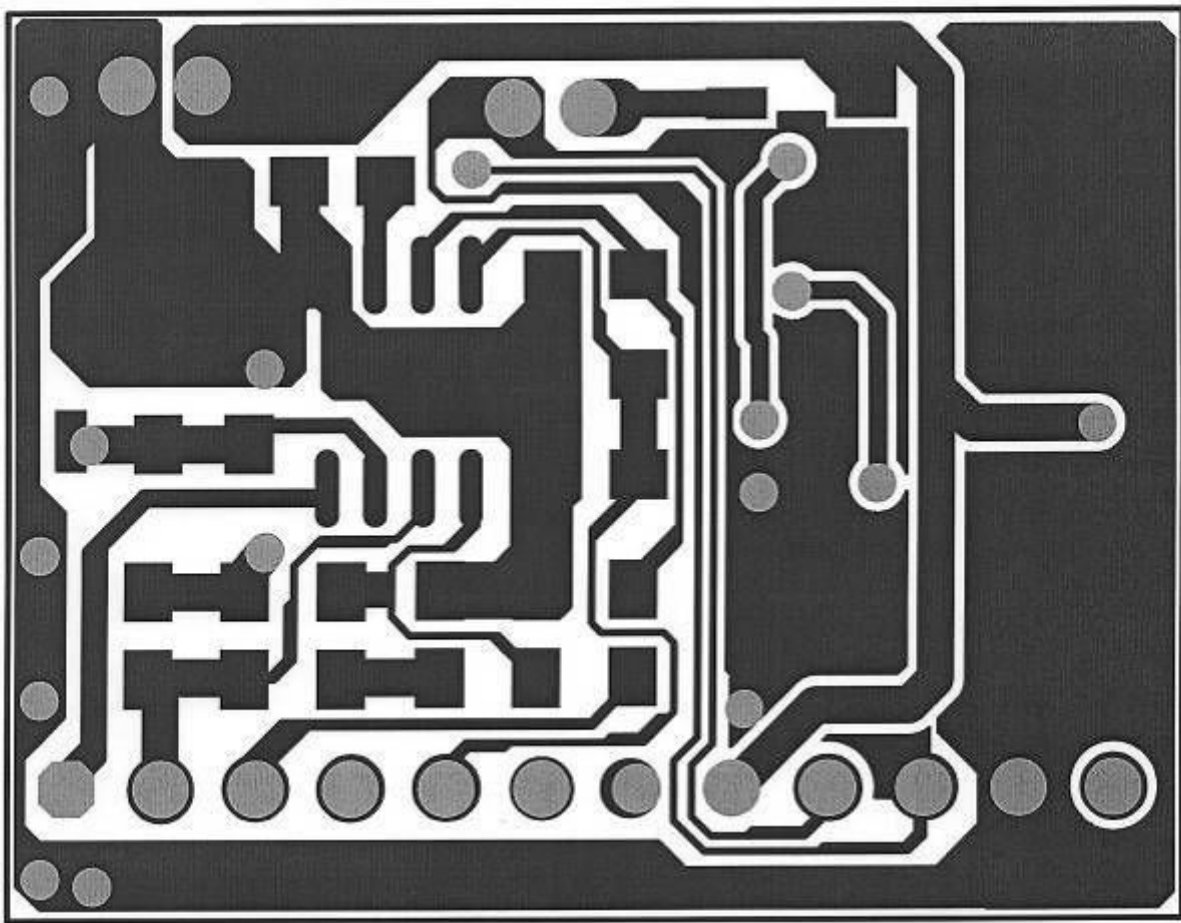
Part No.: 530-0097
Material: FR-4, 1.6mm
Copper: 2oz.
Text Color: White

PCB MASK COLOR: RED
Tolerance: ± 0.1 (mm)
Rev: B
Last Updated 4/7/09

PCB VENDOR: ADD UL APPROVED MANUFACTURER LOGO,
PCB MATERIAL & FLAMABILITY







| PROPRIETARY INFORMATION: | | REVISION | | | |
|--|--|----------|---|----------|----------|
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| | | A | INITIAL RELEASE, RFS. 13921, JB | 02/04/08 | HM |
| | | B | UPDATE SPEC., SCHEMATIC, RFS. 13377, JB | 04/13/08 | HM |
| | | C | UPDATE DRAWING, SCHEM. RFS. 15955, JB | 04/03/09 | HM |
| | | D | CHANGE N2 TO Ø0.28 PER VENDOR, RFS. 16295, JB | 05/19/09 | HM |

1. PHYSICAL DIMENSIONS (UNIT: mm)

PIN AND VENDOR INSULATION SYSTEM NUMBER
REVISION: D

HI-POT 'OK' STICKER

NOTE 6

FL1 FL2

| | |
|---------|------------|
| A (m/m) | 34.0 MAX |
| B (m/m) | 33.0 MAX |
| C (m/m) | 4.0 ± 0.5 |
| D (m/m) | 36.0 MAX |
| E (m/m) | 0.8 ± 0.1 |
| F (m/m) | 7.0 ± 0.5 |
| G (m/m) | 5.0 ± 0.5 |
| H (m/m) | 30.5 ± 0.5 |
| I (m/m) | 30.0 ± 2.0 |
| J (m/m) | 33.0 ± 3.0 |

NOTE:

1. SECURE CORE WITH 2T 0.025 x 10 mm AND 3T 0.025 x 22 mm MYLAR TAPE (YELLOW).
2. ADD SUITABLE AMOUNT OF EPOXY TO SECURE CORE TO CORE AND CORE TO BOBBIN.
3. VARNISH REQUIRED.
4. PUT "HIPOT OK" STICKER AFTER PASS HIPOT.
5. CUT PINS 3, 6, 8, 9, 11, 12.
6. AFTER THE SHIELD IS INSTALLED, ADD 3 LAYERS OF MYLAR TAPE, 15 mm WIDE.

| DIAG. NO. | PART NO. | REV. | DESCRIPTION | NOTES |
|--|----------|--|-------------|-------|
| TABULATION BLOCK | | | | |
| | | GlobTek, Inc. 186 Veterans Dr. Northvale, NJ 07647 Tel. 201-784-1000 Fax 201-784-0111 www.globtek.com | | |
| INT.BY: FB DATE: 01/31/08 DRAWN: NF DATE: 01/31/08 APRVD: HM DATE: 01/31/08 | | DWG TITLE: POWER TRANSFORMER 240 W 12V MODEL NO: GT(M)91110P PART NO: 403-0054(R) SCALE: NONE | | |
| | | REV. D SHEET 1 OF 6 | | |

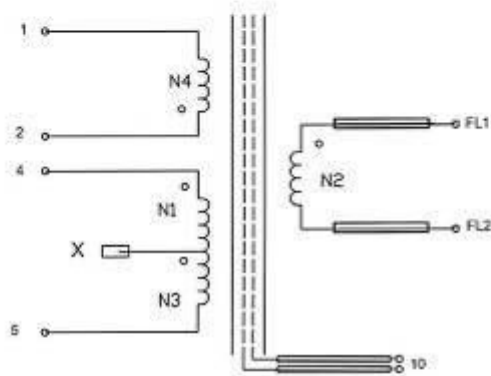
Four Note:
GlobTek Inc. will not be liable for the safety and performance of these power supplies if unauthorized access and repair occurs. End user should consult applicable UL, CSA or EN standards for proper installation instructions.

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2. SCHEMATIC


N1 (4 - X) 0.5 x 2P x 22T TEX-E

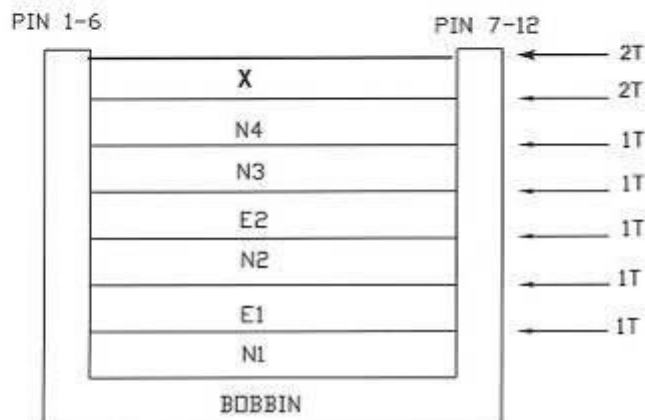
E1 (10) 0.025 x 17 mm COPPER STRIP x 0.8T

N2 (FL1 - FL2) 0.28 x 24 STRANDS LITZ WIRE x 2P x 4T

E2 (10) 0.025 x 17 mm COPPER STRIP x 0.8T

N1 (X - 5) 0.5 x 2P x 22T TEX-E

N4 (2 - 1) 0.37 x 1P x 2T TEX-E

3. WINDING CONSTRUCTION


INSULATION TAPE: 0.025 x 18 mm YELLOW

| | | |
|--|-------------|--|
| GlobTek, Inc. www.globtek.com | | 186 Veterans Dr. Northvale, NJ 07647 Tel. 201-784-1000 Fax 201-784-0111 |
| DWG TITLE: POWER TRANSFORMER 240 W 12V | | |
| MODEL NO: | GT(M)91110P | REV. D |
| PART NO: | 483-0054(R) | SHEET 2 OF 6 |

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4. MATERIAL LIST

| NO | ITEM | MATERIAL | SUPPLIER | UL No |
|----|--------------------|--|---|--------------------------------|
| 1 | BOBBIN | FR PHENOL BPQ 32/32-1112CP OR EQUIVALENT | TDK OR EQUIVALENT | E59481(S) |
| 2 | CORE | FERRITE CORE PC44PQ32/30Z-12 OR EQUIVALENT | TDK OR EQUIVALENT | |
| 3 | WIRE | POLYURETHANE ENAMELLED COPPER WIRE 130C | WAN WON INDUSTRIAL CORP. PACIFIC ELECTRONIC WIRE & CABLE CO LTD | E104091(S) E 84081 (S) |
| 4 | TRIPPLE WIRE | TRIPPLE INSULATION WIRE TEX-E | FURUKAMA ELECTRIC CO. LTD OR EQUIVALENT | E206440 |
| 5 | INSULATION TAPE | POLYESTER CT-280 POLYESTER CT-1350 POLYESTER CT-317F | JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO., LTD MINNESO TAMING & MFG 3M CENTER BONDTEC PACIFIC CO LTD | E165111 E7385(N) E175968 |
| 6 | TUBE | TEFLON 150V 200C | FLUO TECH INDUSTRIES CO.,LTD | E175982(S) |
| 7 | SHIELD | COPPER FOIL | DIANJIANG MATERIAL CO.,LTD PACIFIC ELECTRONIC WIRE & CABLE COOPER WIRE | |
| 8 | VARNISH | WA -238A V-130FC 180C | HITACHI CHEMICAL CO.,LTD PD GEORGE/VIKING | E72979 E73071 |
| 9 | EPOXY | 9001 A/B | GUANGZHOU WELLS CHEMICAL CO LTD | E222812 |
| | | | | |



186 Veterans Dr. Northvale, NJ 07647
Tel. 201-784-1000 Fax 201-784-0111

DWG TITLE: POWER TRANSFORMER 240 W 12V

MODEL NO: GT(M)91110P

REV.

D.

PART NO: 403-0054(R)

SHEET 3 OF 6

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5. ELECTRICAL CHARACTERISTIC

| TEST ITEM | TEST CONDITION | RESULT |
|-----------------------|---|--|
| INDUCTANCE | @1KHz 0.25V (4 - 6) | 10.0 mH \pm 25% |
| LEAKAGE INDUCTANCE | @1 KHz 0.25V (4 - 5) SHORT PIN 3,1 FL1, FL2 | 20 μ H max |
| D.C. RESISTANCE | @25°C (2 - 1) (4 - 5) (FL1, FL2) | 0.005 ohm max 0.130 ohm max 0.0015 ohm max |
| HI-POT | @10 mA 1 MIN | P S 4000 VAC P -C 1500 VAC S - C 1500 VAC |

| | | |
|--|-------------|--|
| GlobTek, Inc. www.globtek.com | | 186 Veterans Dr. Northvale, NJ 07647 Tel. 201-784-1000 Fax 201.784.0111 |
| DWG TITLE: POWER TRANSFORMER 240 W 12V | | |
| MODEL NO: | GT(M)91110P | REV. D |
| PART NO: | 403-0054(R) | SHEET 4 OF 6 |

PROPRIETARY INFORMATION:

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6. WINDING TABLE

| WINDING NO | PIN | COPPER WIRE | URNS | WINDING METHOD | TAPE TURNS | TUBE |
|------------|----------|----------------------------------|------|----------------|------------|-------------|
| N1 | 4 - X | 0.5 x 2P | 22 | CLOSED | 1 | — |
| E1 | 10 | 0.025 x 17 mm | 0.8 | COPPER FOIL | 1 | 25L x 55 mm |
| N2 | FL1- FL2 | 0.28 x 24 STRANDS LITZ WIRE x 2P | 4 | CLOSED | 1 | 10L x 50 mm |
| E2 | 10 | 0.025 x 17 mm | 0.8 | COPPER FOIL | 1 | 25L x 55 mm |
| N3 | X - 5 | 0.5 x 2P | 22 | CLOSED | 1 | — |
| N4 | 2 - 1 | 0.37 x 1P | 2 | CLOSED | 3 | — |

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DWG TITLE: POWER TRANSFORMER 240 W 12V

MODEL NO: GT(M)91110P

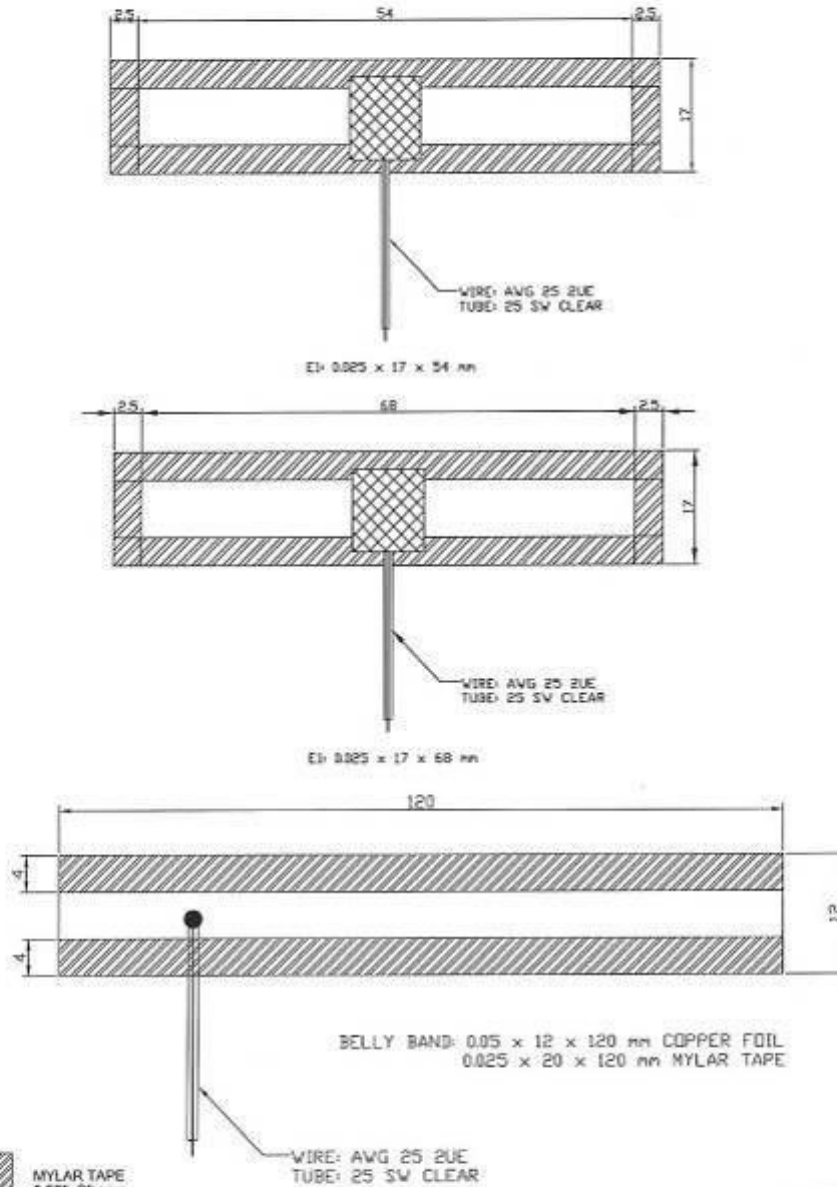
REV.
D

PART NO: 403-0054(R)

SHEET 5 OF 6

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7. MATERIAL PROCESSING (UNIT: mm)

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DWG TITLE: POWER TRANSFORMER 240 W 12V

MODEL NO: GT(M)91110P

REV.
D

PART NO: 403-0054(R)

SHEET 6 OF 6

| PROPRIETARY INFORMATION: PROPRIETARY OF GLOBTEK, INC. ANY REPRODUCTION, DISCLOSURE OR USE OF THIS DRAWING, IN WHOLE OR IN PART, IS HEREBY PROHIBITED EXCEPT AS SPECIFIED IN WRITING BY GLOBTEK, INC. | | REVISION | | | |
|--|---|-----------------|----------|--|--|
| REV | DESCRIPTION | DATE | APPROVED | | |
| A | INITIAL RELEASE, RFS. 12921, JB | 01/26/08 | HM | | |
| B | UPDATE SPEC. SCHEMATIC, RFS. 13377, JB | 04/13/08 | HM | | |
| C | UPDATE DRAWING, RFS. 13593, JB | 05/13/08 | HM | | |
| D | UPDATE DRAWING, SCHEM. RFS. 15955, JB | 04/03/09 | HM | | |
| E | CHANGE N2 TO Ø0.28 PER VENDOR, RFS. 16295, JB | 05/15/09 | HM | | |

1. PHYSICAL DIMENSIONS (UNIT: mm)

| A (m/m) | B (m/m) | C (m/m) | D (m/m) | E (m/m) | F (m/m) | G (m/m) | H (m/m) | I (m/m) | J (m/m) |
|----------|----------|-----------|----------|-----------|-----------|-----------|------------|------------|------------|
| 34.0 MAX | 33.0 MAX | 4.0 ± 0.5 | 36.0 MAX | 0.8 ± 0.1 | 7.0 ± 0.5 | 5.0 ± 0.5 | 30.5 ± 0.5 | 30.0 ± 2.0 | 33.0 ± 3.0 |

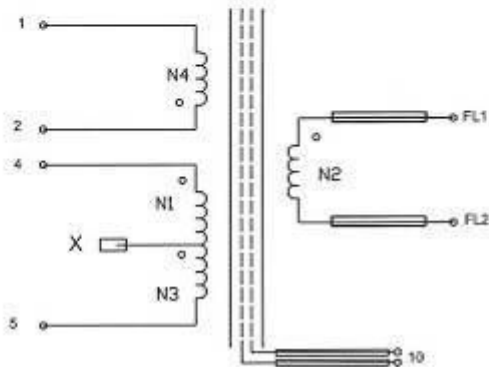
NOTE:

1. SECURE CORE WITH 2T 0.025 x 10 mm AND 3T 0.025 x 22 mm MYLAR TAPE (YELLOW).
2. ADD SUITABLE AMOUNT OF EPOXY TO SECURE CORE TO CORE AND CORE TO BOBBIN.
3. VARNISH REQUIRED.
4. PUT "HIPOT OK" STICKER AFTER PASS HIPOT.
5. CUT PINS 3, 6, 8, 9, 11, 12.
6. AFTER THE SHIELD IS INSTALLED, ADD 3 LAYERS OF MYLAR TAPE, 15 mm WIDE.

| | | | | | |
|--|----------|--|------|-------------|-------|
| Foot Note: GlobTek Inc. will not be liable for the safety and performance of these power supplies if unauthorized access and repair occurs. End user should consult applicable UL, CSA or EN standards for proper installation instructions. | DASH NO. | PART NO. | REV. | DESCRIPTION | NOTES |
| TABULATION BLOCK | | | | | |
| Limitation of Use: GlobTek products are not authorized for use as mission critical components in life support, hazardous environment, nuclear or aircraft applications without prior written approval from the CEO of GlobTek Inc. | | TOLERANCES: DECIMALS: .01 .02 .03 .05 .08 .12 .15 .20 .25 .30 .35 .40 .45 .50 .55 .60 .65 .70 .75 .80 .85 .90 .95 1.00 1.25 1.50 1.75 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 6.00 6.50 7.00 7.50 8.00 8.50 9.00 9.50 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 22.00 24.00 26.00 28.00 30.00 32.00 34.00 36.00 38.00 40.00 45.00 50.00 55.00 60.00 65.00 70.00 75.00 80.00 85.00 90.00 95.00 100.00 110.00 120.00 130.00 140.00 150.00 160.00 170.00 180.00 190.00 200.00 220.00 240.00 260.00 280.00 300.00 320.00 340.00 360.00 380.00 400.00 450.00 500.00 550.00 600.00 650.00 700.00 750.00 800.00 850.00 900.00 950.00 1000.00 1100.00 1200.00 1300.00 1400.00 1500.00 1600.00 1700.00 1800.00 1900.00 2000.00 2200.00 2400.00 2600.00 2800.00 3000.00 3200.00 3400.00 3600.00 3800.00 4000.00 4500.00 5000.00 5500.00 6000.00 6500.00 7000.00 7500.00 8000.00 8500.00 9000.00 9500.00 10000.00 11000.00 12000.00 13000.00 14000.00 15000.00 16000.00 17000.00 18000.00 19000.00 20000.00 22000.00 24000.00 26000.00 28000.00 30000.00 32000.00 34000.00 36000.00 38000.00 40000.00 45000.00 50000.00 55000.00 60000.00 65000.00 70000.00 75000.00 80000.00 85000.00 90000.00 95000.00 100000.00 110000.00 120000.00 130000.00 140000.00 150000.00 160000.00 170000.00 180000.00 190000.00 200000.00 220000.00 240000.00 260000.00 280000.00 300000.00 320000.00 340000.00 360000.00 380000.00 400000.00 450000.00 500000.00 550000.00 600000.00 650000.00 700000.00 750000.00 800000.00 850000.00 900000.00 950000.00 1000000.00 1100000.00 1200000.00 1300000.00 1400000.00 1500000.00 1600000.00 1700000.00 1800000.00 1900000.00 2000000.00 2200000.00 2400000.00 2600000.00 2800000.00 3000000.00 3200000.00 3400000.00 3600000.00 3800000.00 4000000.00 4500000.00 5000000.00 5500000.00 6000000.00 6500000.00 7000000.00 7500000.00 8000000.00 8500000.00 9000000.00 9500000.00 10000000.00 11000000.00 12000000.00 13000000.00 14000000.00 15000000.00 16000000.00 17000000.00 18000000.00 19000000.00 20000000.00 22000000.00 24000000.00 26000000.00 28000000.00 30000000.00 32000000.00 34000000.00 36000000.00 38000000.00 40000000.00 45000000.00 50000000.00 55000000.00 60000000.00 65000000.00 70000000.00 75000000.00 80000000.00 85000000.00 90000000.00 95000000.00 100000000.00 110000000.00 120000000.00 130000000.00 140000000.00 150000000.00 160000000.00 170000000.00 180000000.00 190000000.00 200000000.00 220000000.00 240000000.00 260000000.00 280000000.00 300000000.00 320000000.00 340000000.00 360000000.00 380000000.00 400000000.00 450000000.00 500000000.00 550000000.00 600000000.00 650000000.00 700000000.00 750000000.00 800000000.00 850000000.00 900000000.00 950000000.00 1000000000.00 1100000000.00 1200000000.00 1300000000.00 1400000000.00 1500000000.00 1600000000.00 1700000000.00 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750000000000000000.00 800000000000000000.00 850000000000000000.00 900000000000000000.00 950000000000000000.00 1000000000000000000.00 1100000000000000000.00 1200000000000000000.00 1300000000000000000.00 1400000000000000000.00 1500000000000000000.00 1600000000000000000.00 1700000000000000000.00 1800000000000000000.00 1900000000000000000.00 2000000000000000000.00 2200000000000000000.00 2400000000000000000.00 2600000000000000000.00 2800000000000000000.00 3000000000000000000.00 3200000000000000000.00 3400000000000000000.00 3600000000000000000.00 3800000000000000000.00 4000000000000000000.00 4500000000000000000.00 5000000000000000000.00 5500000000000000000.00 6000000000000000000.00 6500000000000000000.00 7000000000000000000.00 7500000000000000000.00 8000000000000000000.00 8500000000000000000.00 9000000000000000000.00 9500000000000000000.00 10000000000000000000.00 11000000000000000000.00 12000000000000000000.00 13000000000000000000.00 14000000000000000000.00 15000000000000000000.00 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300000000000000000000.00 320000000000000000000.00 340000000000000000000.00 360000000000000000000.00 380000000000000000000.00 400000000000000000000.00 450000000000000000000.00 500000000000000000000.00 550000000000000000000.00 600000000000000000000.00 650000000000000000000.00 700000000000000000000.00 750000000000000000000.00 800000000000000000000.00 850000000000000000000.00 900000000000000000000.00 950000000000000000000.00 1000000000000000000000.00 1100000000000000000000.00 1200000000000000000000.00 1300000000000000000000.00 1400000000000000000000.00 1500000000000000000000.00 1600000000000000000000.00 1700000000000000000000.00 1800000000000000000000.00 1900000000000000000000.00 2000000000000000000000.00 2200000000000000000000.0 | | | |

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2. SCHEMATIC


N1 (4 -X) 0.5 x 2P x 22T TEX-E

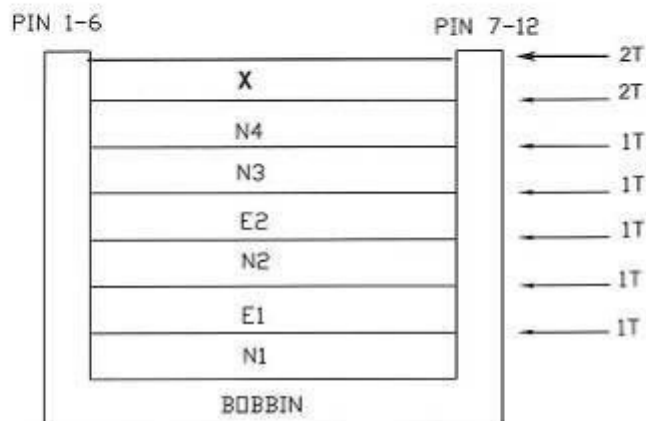
E1 (10) 0.025 x 17 mm COPPER STRIP x 0.8T

N2 (FL1-FL2) 0.28 x 32 STRANDS LITZ WIRE x 1P x 6T

E2 (10) 0.025 x 17 mm COPPER STRIP x 0.8T

N3 (X- 5) 0.5 x 2P x 22T TEX-E

N4 (2-1) 0.37 x 1P x 2T TEX-E

3. WINDING CONSTRUCTION


INSULATION TAPE: 0.025 x 18 mm YELLOW

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DWG TITLE: POWER TRANSFORMER 240 W 18V

MODEL NO: GT(M)91110P

REV.
E

PART NO: 403-9053(R)

SHEET 2 OF 6

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4. MATERIAL LIST

| NO | ITEM | MATERIAL | SUPPLIER | UL No |
|----|--------------------|--|---|--------------------------------|
| 1 | BOBBIN | FR PHENOL BPQ 32/32-1112CP OR EQUIVALENT | TDK OR EQUIVALENT | E59481(S) |
| 2 | CORE | FERRITE CORE PC44PQ32/30Z-12 OR EQUIVALENT | TDK OR EQUIVALENT | |
| 3 | WIRE | POLYURETHANE ENAMELLED COPPER WIRE 130C | WAN WON INDUSTRIAL CORP. PACIFIC ELECTRONIC WIRE & CABLE CO LTD | E104091(S) E 84081 (S) |
| 4 | TRIPPLE WIRE | TRIPPLE INSULATION WIRE TEX-E | FURUKAMA ELECTRIC CO. LTD OR EQUIVALENT | E206440 |
| 5 | INSULATION TAPE | POLYESTER CT-280 POLYESTER CT-1350 POLYESTER CT-317F | JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO., LTD MINNESO TAMING & MFG 3M CENTER BONDTEC PACIFIC CO LTD | E165111 E7385(N) E175868 |
| 6 | TUBE | TEFLON 150V 200C | FLUO TECH INDUSTRIES CO.,LTD | E175982(S) |
| 7 | SHIELD | COPPER FOIL | DIANJIANG MATERIAL CO.,LTD PACIFIC ELECTRONIC WIRE & CABLE COOPER WIRE | |
| 8 | VARNISH | WA -238A V-130FC 180C | HITACHI CHEMICAL CO.,LTD PD GEORGE/VIKING | E72979 E73071 |
| 9 | EPOXY | 9001 A/B | GUANGZHOU WELLS CHEMICAL CO LTD | E222812 |
| | | | | |



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DWG TITLE: POWER TRANSFORMER 240 W 18V

MODEL NO: GT(M)91110P

REV.
B

PART NO: 403-0053(R)

SHEET 3 OF 6

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5. ELECTRICAL CHARACTERISTIC

| TEST ITEM | TEST CONDITION | RESULT |
|-----------------------|---|---|
| INDUCTANCE | @1KHz 0.25V (4 - 6) | 10.0 mH \pm 25% |
| LEAKAGE INDUCTANCE | @1 KHz 0.25V (4 - 5) SHORT PIN 3,1 FL1- FL2 | 20 μ H max |
| D.C. RESISTANCE | @25°C (2 - 1) (4 - 5) (FL1 - FL2) | 0.005 ohm max 0.130 ohm max 0.004 ohm max |
| HI-POT | @10 mA 1 MIN | P S 4000 VAC P -C 1500 VAC S - C 1500 VAC |

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Tel. 201-784-1000 Fax 201.784.0111

DWG TITLE: POWER TRANSFORMER 240 W 18V

MODEL NO: GT(M)91110P

REV.
E

PART NO: 403-0053(R)

SHEET 4 OF 6

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6. WINDING TABLE

| WINDING NO | PIN | COPPER WIRE | TURNS | WINDING METHOD | TAPE TURNS | TUBE |
|------------|----------|----------------------------------|-------|----------------|------------|-------------|
| N1 | 4 - X | 0.5 x 2P | 22 | CLOSED | 1 | — |
| E1 | 10 | 0.025 x 17 mm | 0.8 | COPPER FOIL | 1 | 25L x 55 mm |
| N2 | FL1- FL2 | 0.28 x 32 STRANDS LITZ WIRE x 1P | 6 | CLOSED | 1 | 8L x 55mm |
| E2 | 10 | 0.025 x 17 mm | 0.8 | COPPER FOIL | 1 | 25L x 55 mm |
| N3 | X - 5 | 0.5 x 2P | 22 | CLOSED | 1 | — |
| N4 | 2 - 1 | 0.37 x 1P | 2 | CLOSED | 3 | — |

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DWG TITLE: POWER TRANSFORMER 240 W 18V

MODEL NO: GT(M)91110P

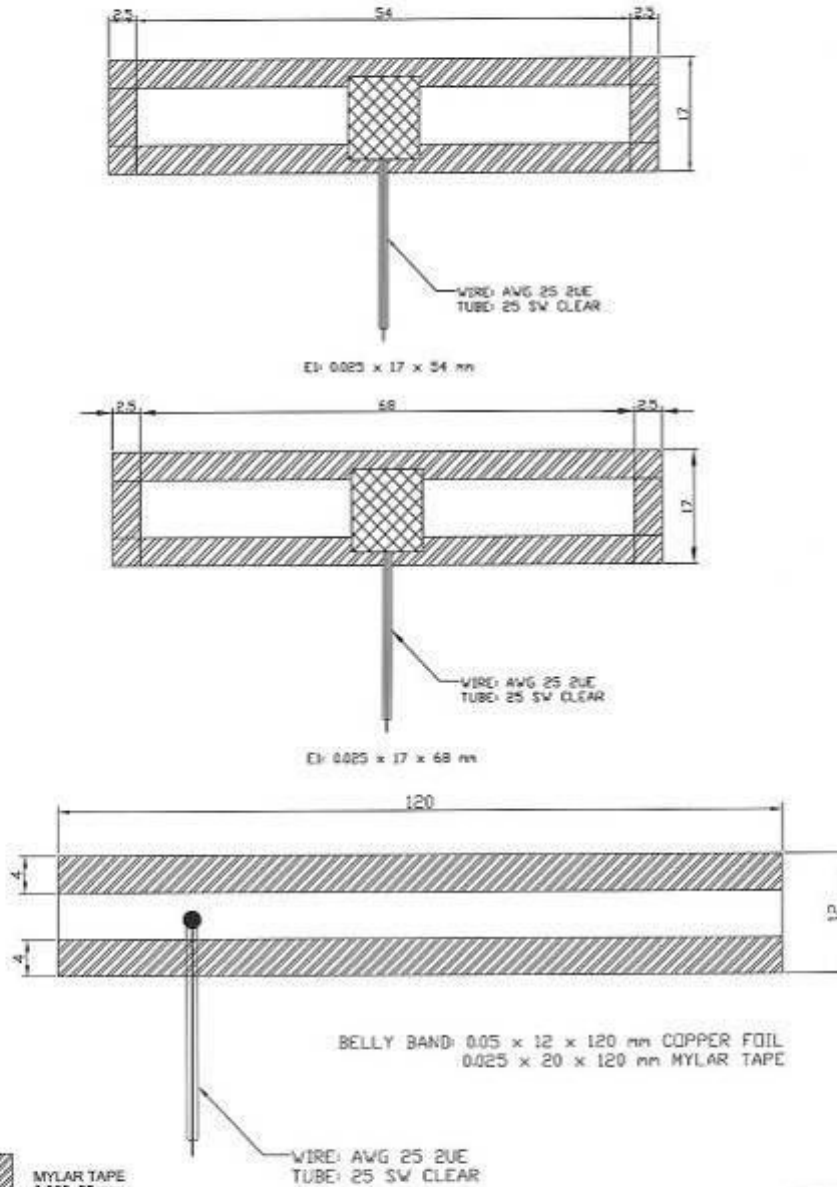
REV.
E

PART NO: 403-0053(R)

SHEET 5 OF 6

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7. MATERIAL PROCESSING (UNIT: mm)


MYLAR TAPE
0.025 25 mm

MARGIN TAPE
10 x 13 mm

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DWG TITLE: POWER TRANSFORMER 240 W 18V

MODEL NO: GT(M)91118P

REV.
E

PART NO: 403-0053(R)

SHEET 6 OF 6

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| REV | DESCRIPTION | DATE | APPROVED |
|-----|--|----------|----------|
| A | INITIAL RELEASE, RFS. 12921, JB | 01/31/08 | HM |
| B | UPDATE SPEC. AND SCHEMATIC, RFS. 13377, JB | 04/13/08 | HM |
| C | UPDATE DRAWING RFS. 13593, JB | 05/13/08 | HM |
| D | UPDATE DRAWING SCHEM. RFS. 15955, JB | 04/03/09 | HM |
| E | CHANGE N2 TO 20.28 PER VENDOR, RFS. 16295, JB | 06/19/09 | HM |
| F | UPDATE DRW BASED ON COMMENTS FOUND IN UNITS | | |
| | BUILT FOR EMC&SAFETY APPROVALS, RFS. 17805, JB | 01/03/10 | HM |

1. PHYSICAL DIMENSIONS (UNIT: mm)

| Dimension | Value |
|-----------|------------|
| A (m/m) | 34.0 MAX |
| B (m/m) | 33.0 MAX |
| C (m/m) | 4.0 ± 0.5 |
| D (m/m) | 36.0 MAX |
| E (m/m) | 0.8 ± 0.1 |
| F (m/m) | 7.0 ± 0.5 |
| G (m/m) | 5.0 ± 0.5 |
| H (m/m) | 30.5 ± 0.5 |
| I (m/m) | 30.0 ± 2.0 |
| J (m/m) | 28.0 ± 2.0 |

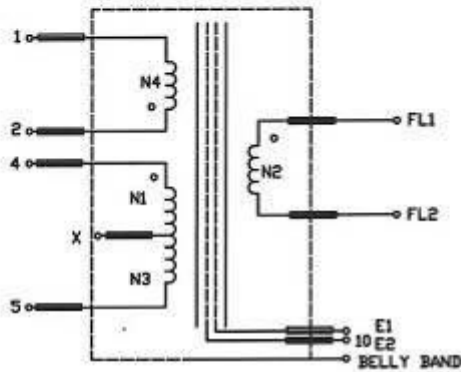
NOTE:

1. SECURE CORE WITH 2T 0.025 x 10 mm; AND 3T 0.025 x 22 mm MYLAR TAPE (YELLOW), AROUND THE WINDING BEFORE BELLY BAND IS INSTALLED.
2. ADD SUITABLE AMOUNT OF EPOXY TO SECURE CORE TO CORE AND CORE TO BOBBIN.
3. VARNISH REQUIRED.
4. PUT "HIPOT OK" STICKER AFTER PASS HIPOT.
5. CUT PINS 1, 6, 8, 9, 11, 12.
6. AFTER THE BELLY BAND IS INSTALLED, ADD 3 LAYERS OF MYLAR TAPE, 15 mm WIDE, AROUND THE BELLY BAND.
7. THEN ADD 3T 0.025 x 22 mm MYLAR TAPE (YELLOW) AROUND THE CORE.

| DASH NO. | PART NO. | REV. | DESCRIPTION | NOTES |
|--|----------|---|-------------|-------|
| TABULATION BLOCK | | | | |
| INIT. BY: JB DATE: 01/26/08 | | DESCRIPTION: POWER TRANSFORMER 240 W 24V MODEL NO: GT(M)91110P24024-S PART NO: 403-0052(R) | | |
| DRAWN: NF DATE: 01/26/08 | | REV. F SHEET 1 OF 6 | | |
| APRVD: HM DATE: 01/26/08 | | SCALE: NONE | | |

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2. SCHEMATIC


N1 (4 - X) 0.5 x 2P x 22T TEX-E

E1 (10) 0.025 x 17 mm COPPER STRIP x 0.8T

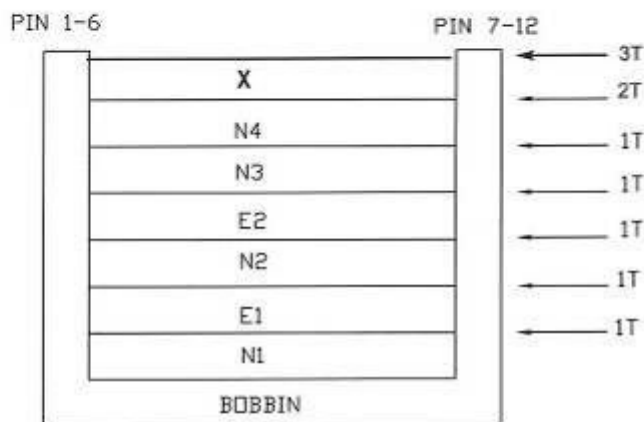
N2 (FL1-FL2) 0.28 x 24 STRANDS LITZ WIRE x 1P x 8T

E2 (10) 0.025 x 17 mm COPPER STRIP x 0.8T

N3 (X - 5) 0.5 x 2P x 22T TEX-E

N4 (2- 1) 0.37 x 1P x 2T TEX-E

BELLY BAND(10) 0.025 x 12 mm COPPER STRIP x 1T

3. WINDING CONSTRUCTION


INSULATION TAPE: 0.025 x 18 mm YELLOW

| | | |
|--|--------------------|--|
| GlobTek, Inc. www.globtek.com | | 186 Veterans Dr. Northvale, NJ 07647 Tel. 201-784-1000 Fax 201-784-0111 |
| DWG TITLE: POWER TRANSFORMER 240 W 24V | | |
| MODEL NO: | GT(M)91110P24024-S | REV. F |
| PART NO: | 403-0053(R) | SHEET 2 OF 6 |

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4. MATERIAL LIST

| NO | ITEM | MATERIAL | SUPPLIER | UL No |
|----|--------------------|--|---|--------------------------------|
| 1 | BOBBIN | FR PHENOL BPQ 32/32-1112CP OR EQUIVALENT | TDK OR EQUIVALENT | E59481(S) |
| 2 | CORE | FERRITE CORE PC44PQ32/30Z-12 OR EQUIVALENT | TDK OR EQUIVALENT | |
| 3 | WIRE | POLYURETHANE ENAMELLED COPPER WIRE 130C | WAN WON INDUSTRIAL CORP. PACIFIC ELECTRONIC WIRE & CABLE CO LTD | E104091(S) E 84081 (S) |
| 4 | TRIPPLE WIRE | TRIPPLE INSULATION WIRE TEX-E | FURUKAMA ELECTRIC CO. LTD OR EQUIVALENT | E206440 |
| 5 | INSULATION TAPE | POLYESTER CT-280 POLYESTER CT-1350 POLYESTER CT-317F | JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO., LTD MINNESO TAMING & MFG 3M CENTER BONDTEC PACIFIC CO LTD | E165111 E7385(N) E175868 |
| 6 | TUBE | TEFLON 150V 200C | FLUO TECH INDUSTRIES CO.,LTD | E175982(S) |
| 7 | SHIELD | COPPER FOIL | DIANQIANG MATERIAL CO.,LTD PACIFIC ELECTRONIC WIRE & CABLE COOPER WIRE | |
| 8 | VARNISH | WA -238A V-130FC 180C | HITACHI CHEMICAL CO.,LTD PD GEORGE/VIKING | E72979 E73071 |
| 9 | EPOXY | 9001 A/B | GUANGZHOU WELLS CHEMICAL CO LTD | E222812 |
| | | | | |



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DWG TITLE: POWER TRANSFORMER 240 W 24V

MODEL NO: GT(M)91110P24024-S

REV.

P

PART NO: 403-0052(R)

SHEET 3 OF 6

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5. ELECTRICAL CHARACTERISTIC

| TEST ITEM | TEST CONDITION | RESULT |
|-----------------------|---|--|
| INDUCTANCE | @1KHz 0.25V (4 - 6) | 10.0 mH \pm 25% |
| LEAKAGE INDUCTANCE | @1 KHz 0.25V (4 - 5) SHORT PIN 2, 1, FL1, FL2 | 20 μ H max |
| D.C. RESISTANCE | @25°C (2 - 1) (4 - 5) (FL1-FL2) | 0.030 ohm max 0.130 ohm max 0.007 ohm max |
| HI-POT | @10 mA 1 MIN | P S 4000 VAC P - C 1500 VAC S - C 1500 VAC |

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DWG TITLE: POWER TRANSFORMER 240 W 24V

MODEL NO: GT(M)91110F24024-S

REV.
F

PART NO: 493-0052(R)

SHEET 4 OF 6

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6. WINDING TABLE

| WINDING NO | PIN | COPPER WIRE | TURNS | WINDING METHOD | TAPE | TUBE |
|------------|----------|-------------------------------------|-------|-----------------------|------|--------------------------|
| N1 | 4 - X | 0.5 x 2P | 22 | CLOSED | 1 | 15 mm (2x) |
| E1 | 10 | 0.025 x 17 mm | 0.8 | COPPER FOIL | 1 | 15 mm (1x) |
| N2 | FL1- FL2 | 0.28 x 24 STRANDS LITZ WIRE x 1P | 8 | CLOSED | 1 | 40 mm (1x) 15 mm (1x) |
| E2 | 10 | 0.025 x 17 mm | 0.8 | COPPER FOIL | 1 | 15 mm (1x) |
| N3 | X - 5 | 0.5 x 2P | 22 | CLOSED | 1 | 15 mm (2x) |
| N4 | 2 - 1 | 0.37 x 1P | 2 | CLOSED | 3 | 15 mm (2x) |
| BELLY BAND | 10 | 0.025 x 12 mm | 1 | COPPER FOIL CLOSED | 3 | 15 mm (1x) |

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DWG TITLE: POWER TRANSFORMER 240 W 24V

MODEL NO: GT(M)91110P24024-S

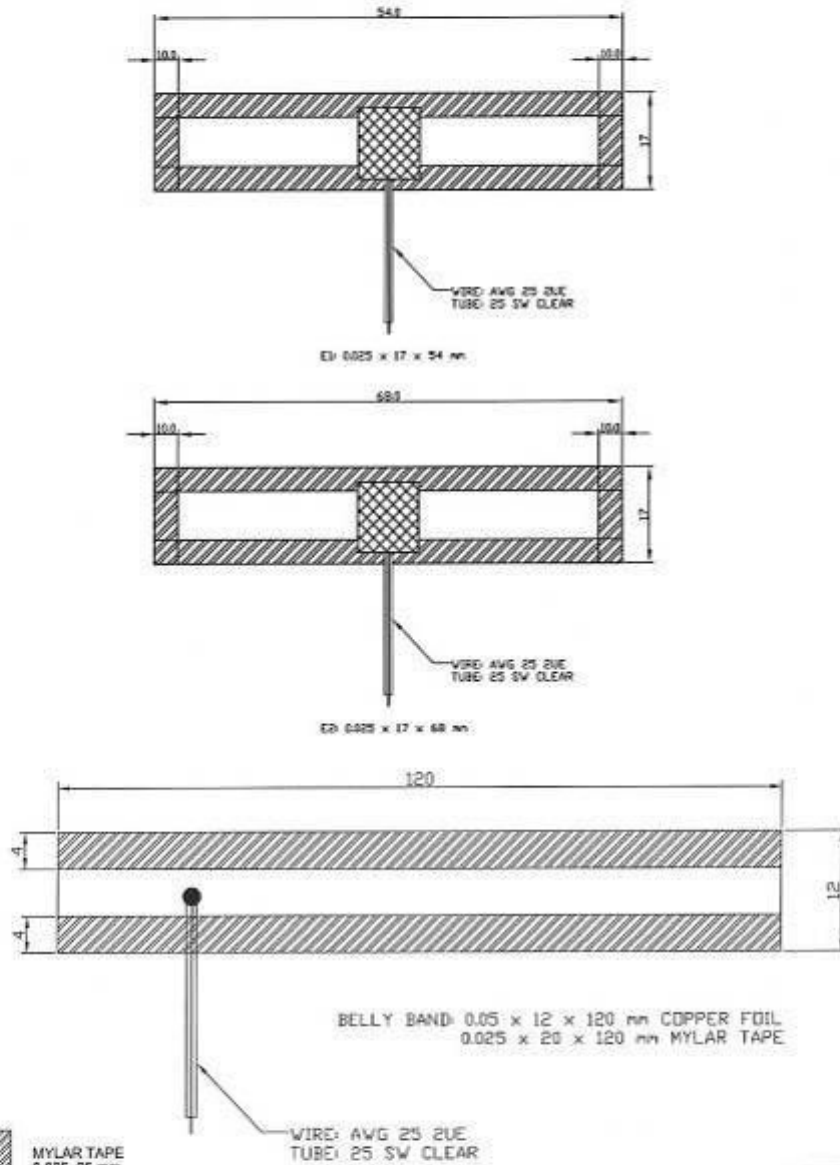
REV.
F

PART NO: 403-0052(R)

SHEET 5 OF 6

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7. MATERIAL PROCESSING (UNIT: mm)

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DWG TITLE: POWER TRANSFORMER 240 W 24V

MODEL NO: GT(M)91110P24024-S

REV. F

PART NO: 403-0052(R)

SHEET 6 OF 6

| PROPRIETARY INFORMATION: | | REVISION | | | |
|---|--|----------|---|----------|----------|
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| | | A | INITIAL RELEASE, 12921, JB | 01/31/08 | HM |
| | | B | UPDATE SPEC AND SCHEMATIC, RFS. 13377, JB | 04/13/08 | HM |
| | | C | UPDATE DRAWING RFS. 13593, JB | 05/13/08 | HM |
| | | D | UPDATE DRAWING RFS. 15955, JB | 04/03/09 | HM |
| | | E | CHANGE N2 TO Ø0.28 PER VENDOR, RFS. 16295, JB | 05/19/09 | HM |
| | | F | UPDATE DRW, SPEC., DIMENSIONS, RFS. 16751, JB | 07/30/09 | HM |

1. PHYSICAL DIMENSIONS (UNIT: mm)

Top View

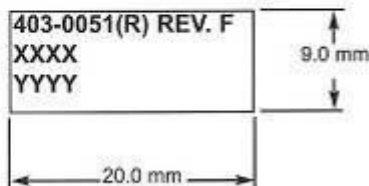
Side View

| Dimension | Value |
|-----------|------------|
| A (m/m) | 34.0 MAX |
| B (m/m) | 33.0 MAX |
| C (m/m) | 4.0 ± 0.5 |
| D (m/m) | 36.0 MAX |
| E (m/m) | 0.8 ± 0.1 |
| F (m/m) | 7.5 ± 0.5 |
| G (m/m) | 5.0 ± 0.5 |
| H (m/m) | 30.5 ± 0.5 |
| I (m/m) | 30.0 ± 2.0 |

| | | | | | | |
|---|--|----------|--|-------------|--|---------------------------------------|
| <p>Foot Note: Globtek Inc. will not be liable for the safety and performance of these power supplies if unauthorized access and repair occurs. End user should consult applicable UL, CSA or EN standards for proper installation instructions.</p> <p>Limitation of Use: Globtek product are not authorized for use as mission critical components in life support, hazardous environment, nuclear or aircraft applications without prior written approval from the CEO of Globtek Inc.</p> <p>Contents of this document are subject to change without prior notice.</p> | DASH NO. | PART NO. | REV. | DESCRIPTION | NOTES | |
| | TABULATION BLOCK | | | | | |
| | INIT. BY: FB DATE: 01/31/08 | | TOLERANCES: DECIMALS: .00 .01 .02 .05 .10 .15 .20 .25 .30 .35 .40 .45 .50 .55 .60 .65 .70 .75 .80 .85 .90 .95 1.00 1.25 1.50 1.75 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 6.00 6.50 7.00 7.50 8.00 8.50 9.00 9.50 10.00 ANGULAR: ±0.5° ±1.0° ±1.5° ±2.0° ±2.5° ±3.0° ±3.5° ±4.0° ±4.5° ±5.0° ±5.5° ±6.0° ±6.5° ±7.0° ±7.5° ±8.0° ±8.5° ±9.0° ±9.5° ±10.0° | | GlobTek, Inc. 186 Veterans Dr. Northvale, NJ 07647 Tel. 201-784-1000 Fax 201-784-0111 www.globtek.com | |
| | DRAWN: NF DATE: 01/31/08 | | SCALE: NONE | | DWG TITLE: POWER TRANSFORMER 240 W 48V AND 55V MODEL NO: GT(M)91110P PART NO: 403-0051(R) | REV. F. SHEET 1 OF 7 |

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LABEL #1

LABEL #2


Where:

XXXX = Vendor insulation number

YYYY = Vendor name

Label 1 and 2 material: UL approved, Clear/Transparent with Black text.

NOTE:

1. Add suitable amount of black epoxy to secure core to core and core to bobbin.
2. Add Mylar tape around the core, 2 layers, 0.025 mm*10 mm.
3. Add Mylar tape around the winding, 2 layers, 0.025 mm*18 mm.
4. Install the shield E3 and terminate to pin. 10.
5. Add Mylar tape on top of shield E3, 3 layers, 0.025 mm*18 mm.
6. Add Mylar tape around the core, 3 layers, 0.025 mm*22 mm.
7. Cut pins 3,6,8,9, 11 and 12.
8. Add Labels 1 and 2.
9. Dip transformer in varnish and dry it.
10. Perform hipot test, P-S 4000Vac, P-C 1500Vac, S-C 1500Vac, add hipot sticker only when transformer passed the test.

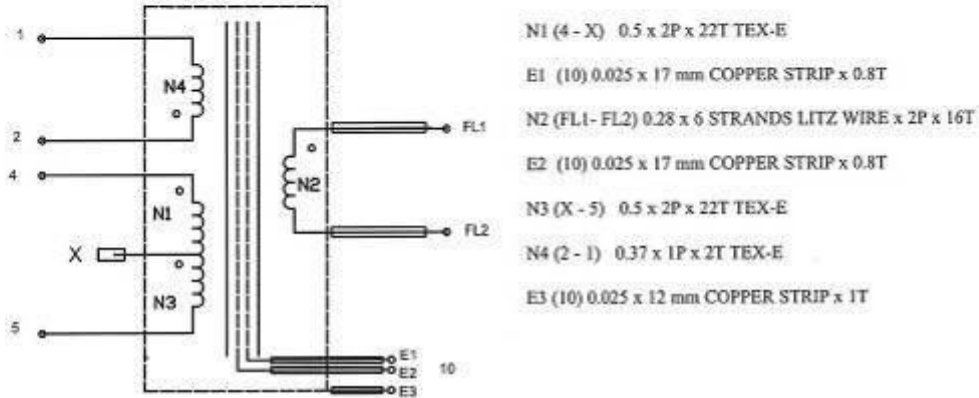
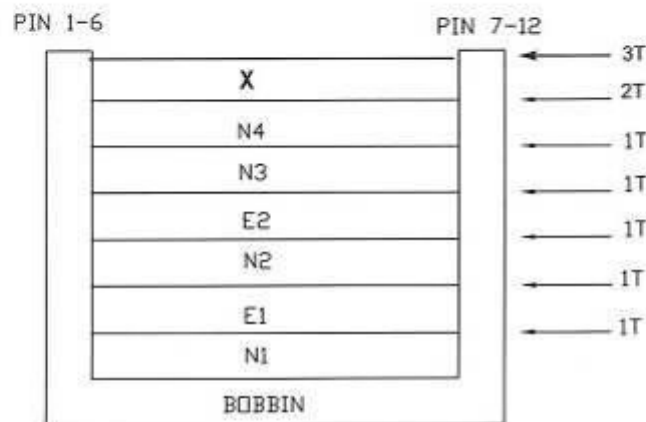
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| | | | |
|------------|-------------------------------------|--------------|---|
| DWG TITLE: | POWER TRANSFORMER 240 W 48V AND 55V | | |
| MODEL NO: | GT(M)91110P | REV: | F |
| PART NO: | 403-0051(R) | SHEET 2 OF 7 | |

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2.

3. WINDING CONSTRUCTION


INSULATION TAPE: 0.025 x 18 mm YELLOW

| | | |
|--|-------------------------------------|--|
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| DWG TITLE: | POWER TRANSFORMER 240 W 48V AND 55V | |
| MODEL NO: | GT(M)91110P | REV. F |
| PART NO: | 403-0051(R) | SHEET 3 OF 7 |

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4. MATERIAL LIST

| NO | ITEM | MATERIAL | SUPPLIER | UL No |
|----|--------------------|--|---|--------------------------------|
| 1 | BOBBIN | FR PHENOL BPQ 32/32-1112CP OR EQUIVALENT | TDK OR EQUIVALENT | E59481(S) |
| 2 | CORE | FERRITE CORE PC44PQ32/30Z-12 OR EQUIVALENT | TDK OR EQUIVALENT | |
| 3 | WIRE | POLYURETHANE ENAMELLED COPPER WIRE 130C | WAN WON INDUSTRIAL CORP. PACIFIC ELECTRONIC WIRE & CABLE CO LTD | E104091(S) E 84081 (S) |
| 4 | TRIPPLE WIRE | TRIPPLE INSULATION WIRE TEX-E | FURUKAMA ELECTRIC CO. LTD OR EQUIVALENT | E206440 |
| 5 | INSULATION TAPE | POLYESTER CT-280 POLYESTER CT-1350 POLYESTER CT-317F | JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO., LTD MINNESO TAMING & MFG 3M CENTER BONDTEC PACIFIC CO LTD | E165111 E7385(N) E175868 |
| 6 | TUBE | TEFLON 150V 200C | FLUO TECH INDUSTRIES CO.,LTD | E175982(S) |
| 7 | SHIELD | COPPER FOIL | DIANQIANG MATERIAL CO.,LTD PACIFIC ELECTRONIC WIRE & CABLE COOPER WIRE | |
| 8 | VARNISH | WA -238A V-130FC 180C | HITACHI CHEMICAL CO.,LTD PD GEORGE/VIKING | E72979 E73071 |
| 9 | EPOXY | 9001 A/B | GUANGZHOU WELLS CHEMICAL CO LTD | E222812 |
| | | | | |



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DWG TITLE: POWER TRANSFORMER 240 W 48V AND 55V

MODEL NO: GT(M)91110P

REV.
F

PART NO: 403-0051(R)

SHEET 4 OF 7

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5. ELECTRICAL CHARACTERISTIC

| TEST ITEM | TEST CONDITION | RESULT |
|-----------------------|---|---|
| INDUCTANCE | @1KHz 0.25V (4 - 5) | 10.0 mH \pm 25% |
| LEAKAGE INDUCTANCE | @1 KHz 0.25V (4 - 5) SHORT PIN 2 & 1 FL1, FL2 | 20 μ H max |
| D.C. RESISTANCE | @25°C (2 - 1) (4 - 5) (FL1 - FL2) | 0.030 ohm max 0.130 ohm max 0.030 ohm max |
| HI-POT | @10 mA 1 MIN | P-S 4000 VAC P-C 1500 VAC S-C 1500 VAC |



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DWG TITLE: POWER TRANSFORMER 240 W 48V AND 55V

MODEL NO: GT(M)91110P

REV.
F


PART NO: 403-0051(R)

SHEET 5 OF 7

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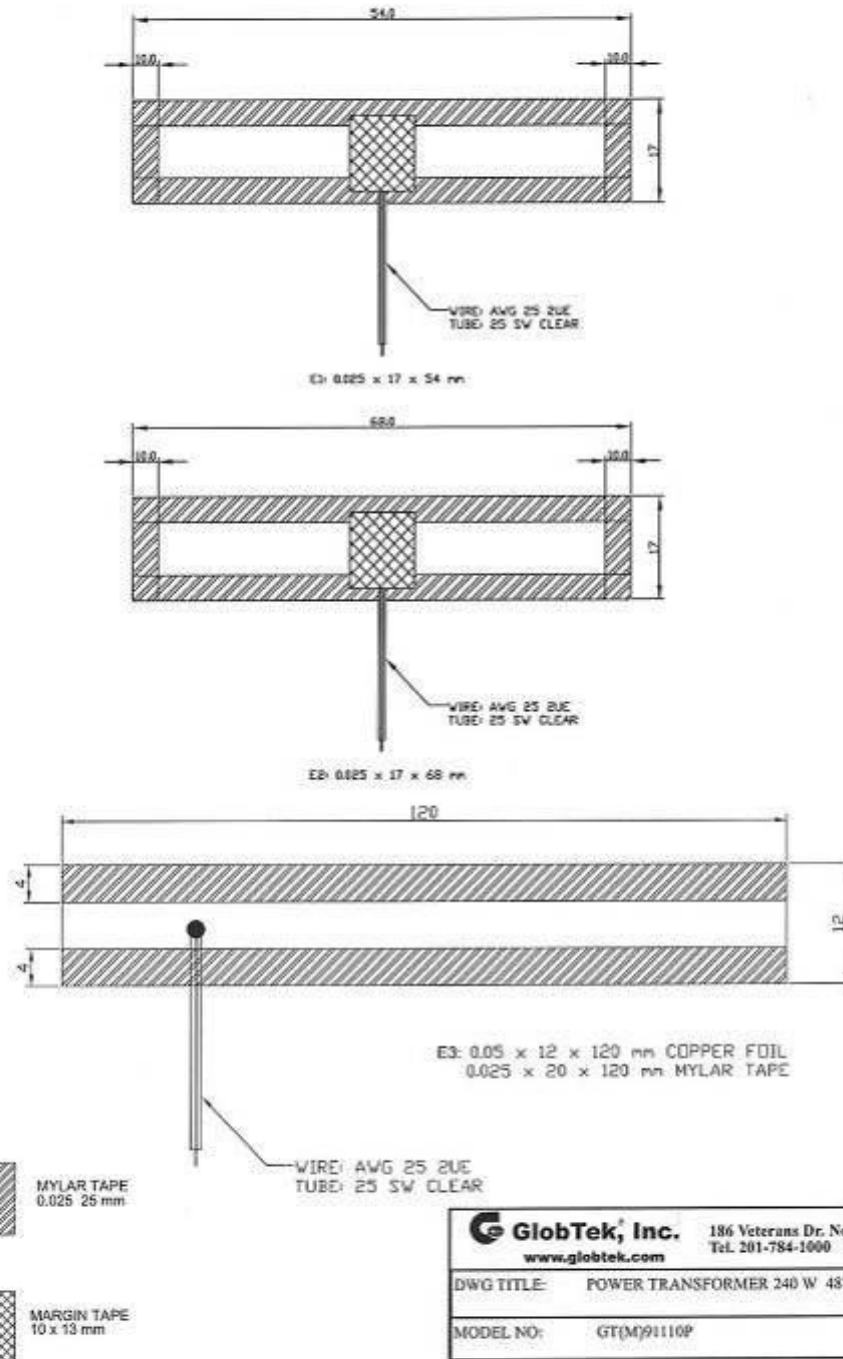
6. WINDING TABLE

| WINDING NO | PIN | COPPER WIRE | TURNS | WINDING METHOD | TAPE TURNS | TUBE |
|------------|----------|------------------------------------|-------|----------------|------------|-----------|
| N1 | 4 - X | 0.5 x 2P | 22 | CLOSED | 1 | 15 mm, 2X |
| E1 | 10 | 0.025 x 17 mm | 0.8 | COPPER FOIL | 1 | 15 mm, 1X |
| N2 | FL1- FL2 | 0.28 x 6 STRANDS LITZ WIRE x 2P | 16 | CLOSED | 1 | 20 mm, 4X |
| E2 | 10 | 0.025 x 17 mm | 0.8 | COPPER FOIL | 1 | 15 mm, 1X |
| N3 | X - 5 | 0.5 x 2P | 22 | CLOSED | 1 | 15 mm, 2X |
| N4 | 2 - 1 | 0.37 x 1P | 2 | CLOSED | 3 | 15 mm, 2X |
| E3 | 10 | 0.025 x 12 mm | 1 | COPPER FOIL | 3 | 15 mm, 1X |

| | | |
|--|-------------|--|
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| DWG TITLE: POWER TRANSFORMER 240 W 48V AND 55V | | |
| MODEL NO: | GT(M)91110P | REV. F |
| PART NO: | 403-0051(R) | SHEET 6 OF 7 |

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7. MATERIAL PROCESSING (UNIT: mm)


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DWG TITLE: POWER TRANSFORMER 240 W 48V AND 55V

MODEL NO: GT(M)91110P

REV.
P

PART NO: 403-0051(R)

SHEET 7 OF 7

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| REVISION | | DATE | APPROVED |
|----------|---------------------------------|----------|----------|
| REV | DESCRIPTION | | |
| A | INITIAL RELEASE, RFS. 15943, JB | 04/07/00 | HM |
| B | UPDATE SHIELD, RFS. 18827, JB | 08/21/10 | HM |

1. GENERAL SCHEMATIC

2. MECHANICAL OUTLINE

3. PCB BASE DIMENSIONS

NOTE:

1. Add 2 layers of 12 mm wide tape after the Shield is installed.

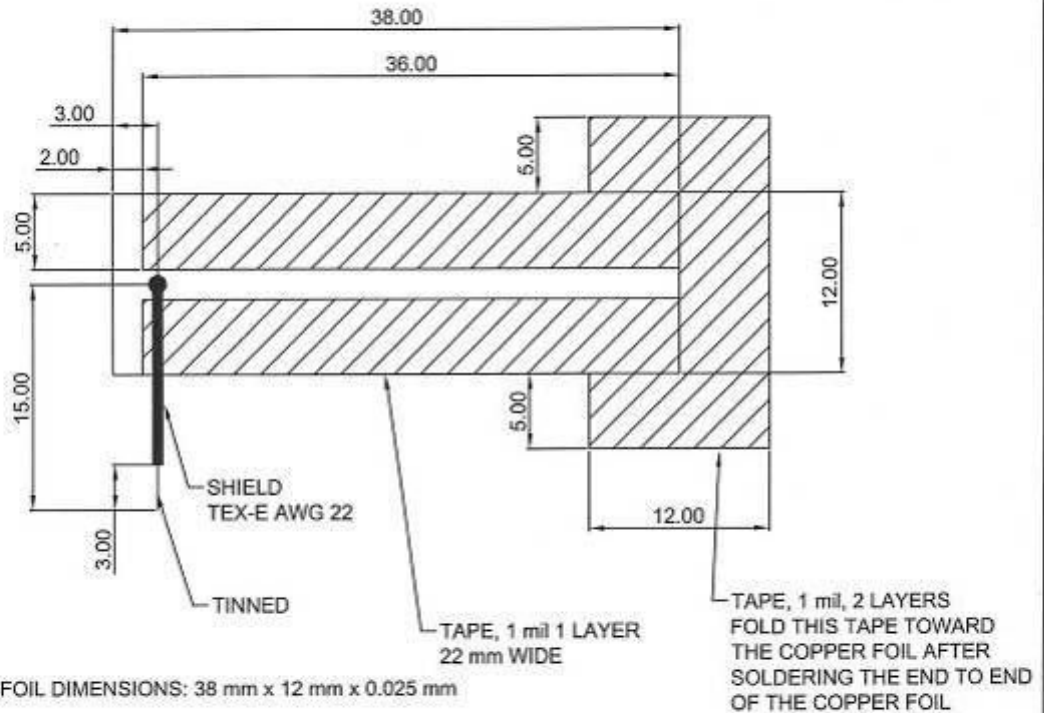
SPECIFICATION CONTROL DRAWING

| DASH NO | PART NO | DESCRIPTION | | NOTES | | |
|-------------------------|------------------|---|-----------|--|--|--|
| TABULATION BLOCK | | | | | | |
| REV. STATUS | REVISION | TOLERANCES: DECIMALS: .XX ± .01 .XXX ± .005 MILLIMETERS: .XX ± .03 .XXX ± .013 | | GlobTek, Inc. 186 Veterans Dr. Northvale, NJ 07647 DWG Title: GATE DRIVE TRANSFORMER FOR GTM91110P240XX SERIES | | |
| OF SHEETS | SHEET | | | | | |
| DRAWN NF | DATE 04/07/00 | FSCN NO: G, D | SIZE A | | | |
| APPROVED JB | DATE 04/07/00 | SCALE: NONE | | MODEL NO: GTM91110P240XX | | |
| | | | | PART NO: 320-02320004(R) | | |
| | | | | REV. B | | |

SHEET 1 OF 2

PROPRIETARY INFORMATION:
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4. SHIELD



5. SPECIFICATION

| ITEM | SPECIFICATION |
|---------------|---|
| URNS | 1S - 1F: 12T 2S - 2F: 12T 3S - 3F: 12T TRIFILAR WOUND |
| WIRE GAUGE | 2S-2F:AWG#27 TEX-E, 1S-1F: AWG#27 (MW28-C OR MW80-C) RED 3S-3F: AWG#27 (MW28-C OR MW80-C) GRN |
| INDUCTANCE | 1S - 1F, 2S-2F, 3S-3F: (544 - 1011) μ H |
| DC RESISTANCE | 0.01 Ohm EACH WINDING |
| CORE | TX13/7.1/4.8 - 3EG PHILIPS OR EQUIVALENT |
| HIPOT | N1 to N3 = 100Vac 1 minute, N1 to N2 = 500Vac 1 minute, N2 to N3 = 500Vac 1 minute |
| PCB MATERIAL | CEM 1, 0.8 mm THICKNESS |

GlobTek, Inc.

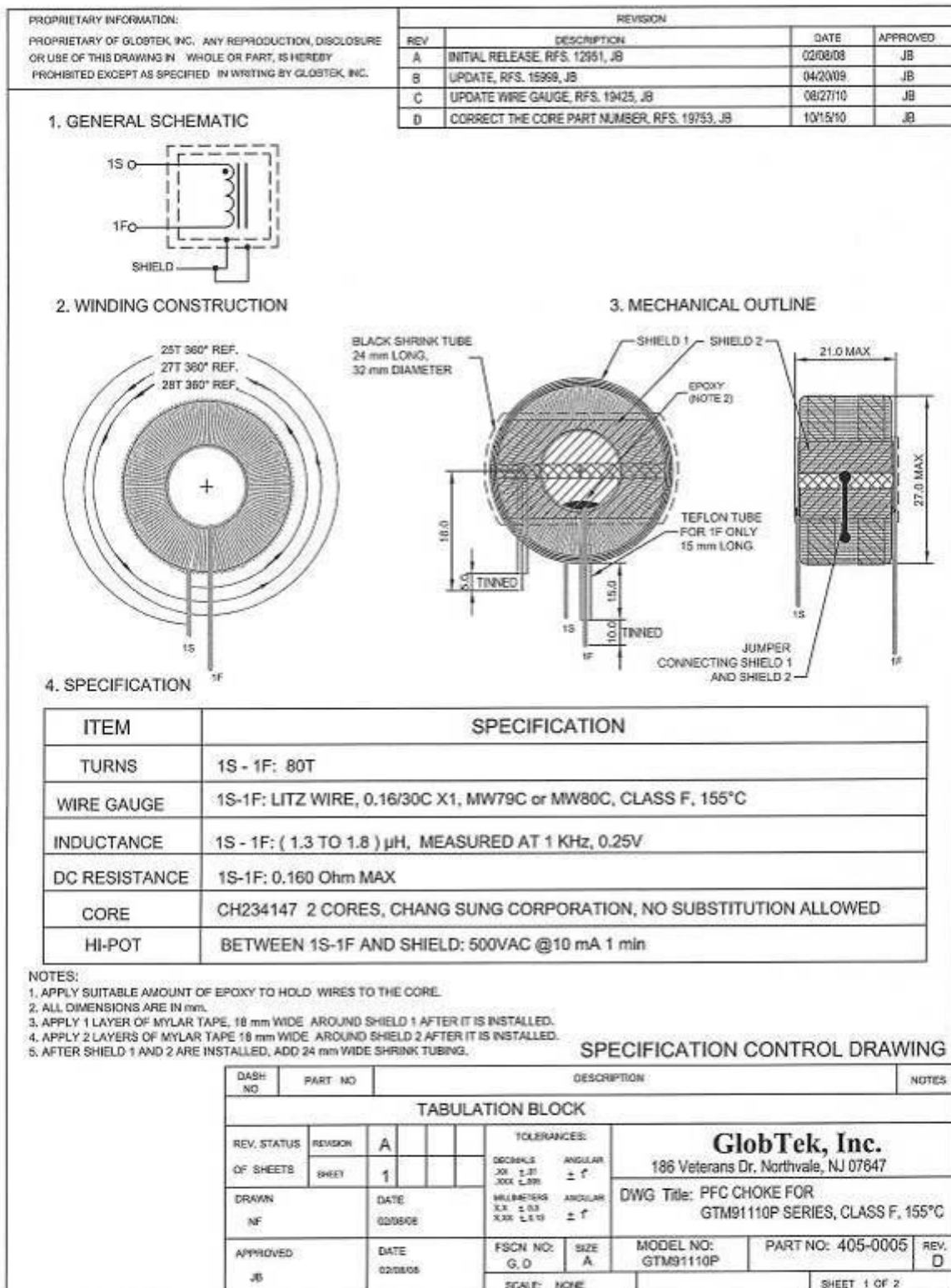
186 Veterans Dr. Northvale, NJ 07647

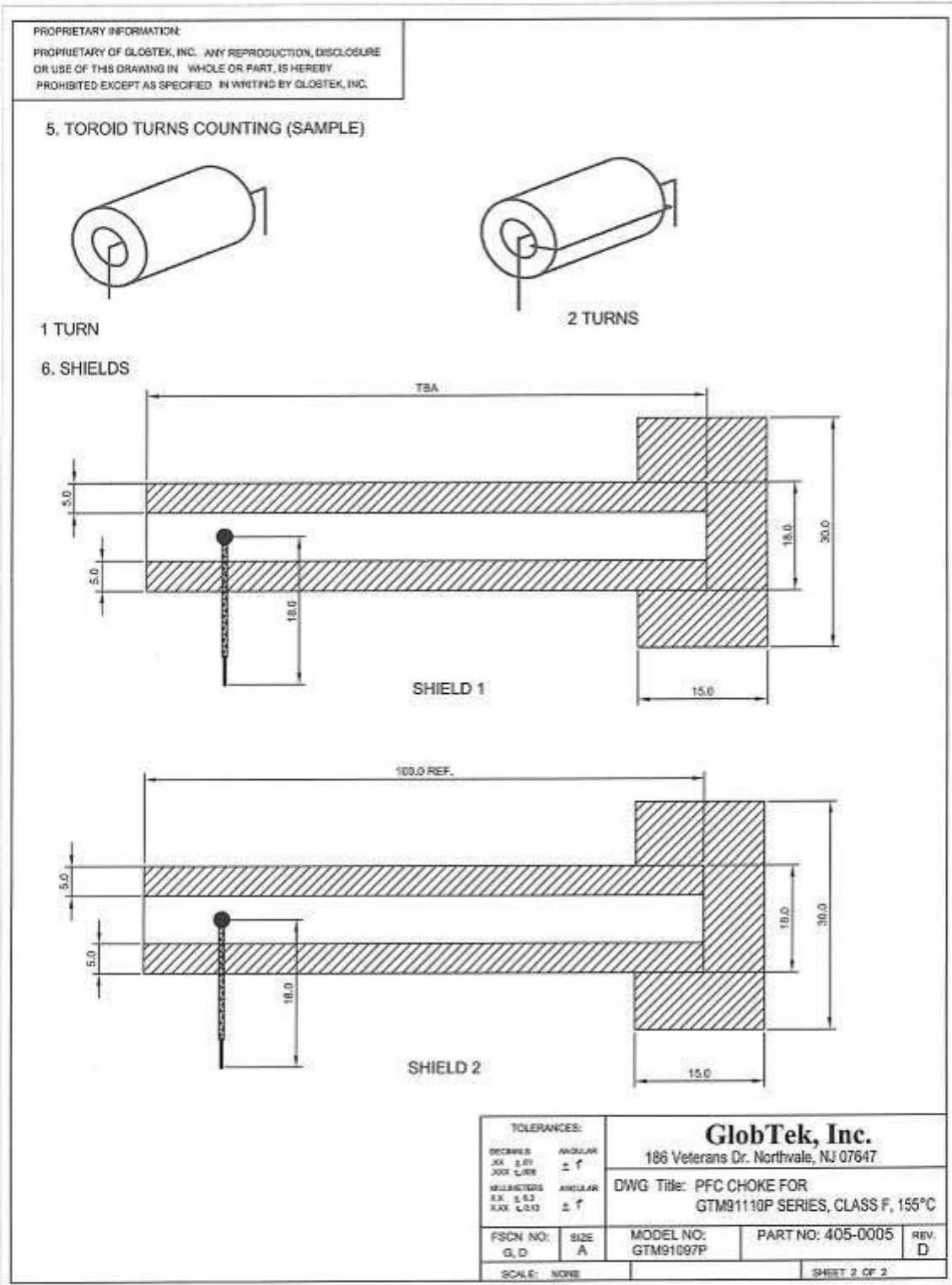
DWG Title: GATE DRIVE TRANSFORMER FOR
GTM91110P240XX SERIES

MODEL NO:
GTM91110P240XX

PART NO: 320-02320004(R) REV.
B

SHEET 2 OF 2





3. SHIELD DRAWING:
Copper: 0.025T*18+Tape

1. MECHANICAL ASSEMBLY (UNIT): mm

2. SCHEMATIC:

3. ELECTRONICS WIRETABLES: AT 1KHz / 0.25V (CHEN HWA CH100)

| NO | START | FINISH | WIRE SIZE | COLOR | TURNS | INDUCTANCE |
|----|-------|--------|-----------|--------|-------|--------------------------|
| N1 | 1 | 4 | 0.75#1 | YELLOW | 80T | 60mH Minimum, 1KHz/0.25V |
| N2 | 2 | 3 | 0.75#1 | YELLOW | 80T | 60mH Minimum, 1KHz/0.25V |

Rdc 7.30mH Max.

4. HI-POT TEST: AC 50Hz/5mA
Apply 1500Vac from N1 to Shield; N2 to Shield
500Vac from N1 to N2; 1 minute

| NO | NAME | MATERIAL | SUPPLIER | UL NO | CLASS |
|----|--------------------|--------------------|--|---------|--------|
| 1 | WIRE | 2UEW | PACIFIC TROXTRIC WIRE & CABLE CO., LTD | E201757 | 130° C |
| 2 | CORE | Perlite | Magnetics Inc. PN: 2H-42508-7C or Equivalent | | |
| 3 | EPOXY BOARD | 1.0mm FR4 | XIANG YE CO., LTD | | |
| 4 | EPOXY | Black gum | GUDAK CHEMISTRY TECH (DONGGUAN) LTD. | E216733 | 130° C |
| 5 | HEAT SHRINK TUBING | WIDTH: 24mm, Black | | | |
| 6 | Copper | 0.025t*18mm | For shield use | | |

REVISION

| REV | DESCRIPTION | DATE | APPROVED |
|-----|---------------------------|------------|----------|
| A | INITIAL RELEASE 1/18/2016 | 2023.04.10 | JIB |

WHERE USED: GTM8110P

LOCATION: GTS

INIT. DATE: 2023.04.10

DRAWN: J.C.

APPROVED: RYAN

DATE: 2023.04.10

MODEL NO.: GTM8110P

PART NO.: GTM8110P

SCALE: 1:1

SHEET: 1 OF 1

NOTES:

- Add 2 layers of 18mm wide Mylar tape after the shield is installed.
- 繞線均勻平整
- THE WINDING SHOULD BE EVEN
- 成品底部兩側需點黑膠固定 如圖示
- EPOXY FIXING ON THE BOTTOM AS THE DRAWING
- 成品需含浸
- VARNISH REQUIRED

GLOBAL (Suzhou), Co., Ltd

Tel: +86-21-4916-0033 Fax: +86-21-4915-0422 Web: www.globtek.com

DWG Title: GTM8110P Common Mode Choke, LFT

| APPROVED | | By: JAYSON S. at 2:23 AM, 07/10/20 | | REVISION | | DESCRIPTION | | DATE | | APPROVED | |
|----------|--|------------------------------------|--|----------|--|--------------------------|--|------------|--|----------|--|
| | | | | A. | | INITIAL RELEASE 07/03/20 | | 2008.04.10 | | J.S. | |

1. MECHANICAL ASSEMBLY: (UNIT) :mm

2. SCHEMATIC:

3. ELECTRONICS WIRE/TURNS: AT 1KHz/0.25V (CHEN HWA CH100)

| Nº | START | FINISH | WIRE SIZE | COLOR | TURNS | INDUCTANCE |
|----|-------|--------|-----------|--------|-------|---------------------|
| N1 | 1 | 4 | 0.75mm X1 | YELLOW | 40T | 6mH Min, 1KHz/0.25V |
| N2 | 2 | 3 | 0.75mm X1 | YELLOW | 40T | 6mH Min, 1KHz/0.25V |

Rdc 1, 2 ohms Max.

4. HI-POT TEST: AC 50Hz/5mA

Apply 500Vac between N1 and N2 for 60 seconds

| Nº | NAME | MATERIAL | SUPPLIER | UL NO | CLASS |
|----|--------------------|-----------|---|---------|--------|
| 1 | WIRE | ZUEW | PACIFIC TRONTRIC WIRE & CABLE CO., LTD | E201757 | 130° C |
| 2 | CORE | Ferrite | TOK. PW: T22-146, 4413, 7E H572 OR Equivalent | | |
| 3 | EPOXY BOARD | 1.0mm FR4 | XIANG YE CO., LTD | | |
| 4 | EPOXY | Black gum | GUJAK CHEMISTRY TECH (DONGGUAN) LTD. | E216733 | 130° C |
| 5 | HEAT SHRINK TUBING | | | | |

NOTE:

- 繞線均勻平穩
- THE WINDING SHOULD BE EVEN
- 成品底部無鬆動點即為合格 如圖示
- EPOXY FIXING ON THE BOTTOM AS THE DRAWING
- 成品需背浸
- VARNISH REQUIRED

5. SPECIFICATION CONTROL DRAWING

| DASH NO | PART NO | REV. | DESCRIPTION | NOTES |
|---------|---------|------|-------------|-------|
| | | | | |

WHERE USED:

GTMB1150P

LOCATION: QTS

INT. BY: JAYSON

DATE: 2008.04.10

DESIGN: G.L.

DATE: 2008.04.10

APPROVED: JAYSON

DATE: 2008.04.10

TOLERANCES:

| DECIMALS | FRACTIONS | ANGULAR |
|------------|------------|----------|
| XXX ± .005 | XXX ± .005 | XXX ± 1° |
| XX ± .01 | XX ± .01 | XX ± 5° |
| X ± .02 | X ± .02 | X ± 10° |

SCALE: 1:1

GLOBAL

GLOBAL TEK (SUZHOU) CO., LTD

TEL: +86-512-6916-2655 FAX: +86-512-6916-4472 Web: www.globtek.cn

GTMB1150P Common Mode Choke, LF2

REV. A

PART NO: GTMB1150P

MODEL NO: GTMB1150P

SIZE: A

SCALE: 1:1

[illegible]

| NO. | STAFF | FINISH | WIRE SIZE | COLOR | THICK | INDUCTANCE | UL NO. | CLASS |
|-----|-------|--------|-----------|----------|-------|----------------|-------------|--------|
| 1 | NI | 1 | 2 | 1.0mm X1 | 9T | 200uH to 220uH | 100uA/0.25T | 130° C |
| 2 | | | | | | | | |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |

| NO. | NAME | MATERIAL | SUPPLIER | UL NO. | CLASS |
|-----|-----------|----------------|---|---------|--------|
| 1 | WIRE | 44N | PACIFIC THERMOPLASTIC WIRE & CABLE CO., LTD | | 130° C |
| 2 | CABLE | Porcile | Unita Corp. PK-FR-212 04465, Green | | |
| 3 | TUBE | UL TUBE | UNISTRAN QUANTA ELECTRONICS CO., LTD | E227136 | 120° C |
| 4 | EPOXY | G-8500A/B | DIKAR CHEMISTRE TECH(SINGAPORE) LTD | E216735 | 130° C |
| 5 | WIRE BOND | 40-3800-26 (1) | HITACHI CHEMICAL CO. LTD | 275079 | 130° C |

1. MECHANICAL ASSEMBLY: (UNIT) : mm
机构组装图: (单位) : mm

2. SCHEMATIC: 线路图

NOTE:
1. 导线均须平整
2. 成品底部须固定点或胶固定 如图示
3. 成品需含胶
4. 漆面须平整

WHERE USED: GTM1110P
LOCATION: GTM1110P

DATE: 2003.04.10
DATE: 2003.04.10
DATE: 2003.04.10

APPROVED: RYAN
DATE: 2003.04.10

Comments of the document are subject to change without prior notice.

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 PROHIBITED EXCEPT AS SPECIFIED IN WRITING BY GLOBTEK, INC.

| REVISION | | DATE | APPROVED |
|----------|--------------------------------|----------|----------|
| REV | DESCRIPTION | | |
| A | INITIAL RELEASE, RFS.19104, JB | 04/24/05 | HM |
| B | ADJUST N2 TO 11. RFS.19626, JB | 05/14/10 | HM |
| C | MOVE S-SHIELD, RFS.19635, JB | 10/12/10 | HM |

1. SCHEMATIC

2. WINDING CONSTRUCTION

BEFORE SHIELD AND SHRINK TUBING ARE INSTALLED, ADD 2 LAYERS OF MYLAR TAPE 12 mm WIDE ALONG THE WINDING

3. TOROID TURNS COUNTING SAMPLE

SPECIFICATION CONTROL DRAWING

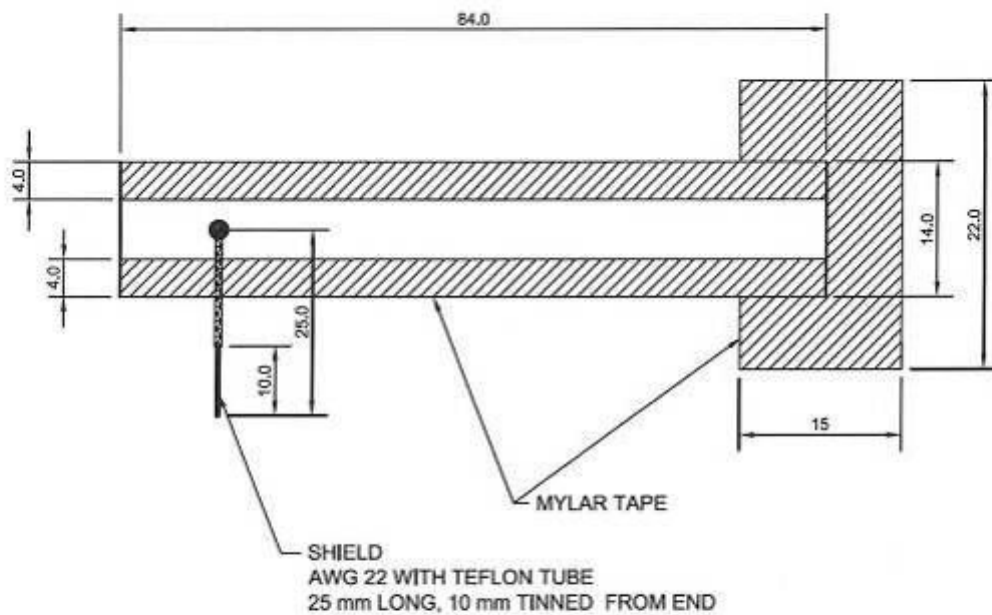
| DASH NO | PART NO | DESCRIPTION | | NOTES |
|--------------------------|----------|------------------|--------------------------|---|
| TABULATION BLOCK | | | | |
| REV. STATUS OF SHEETS | REVISION | | | TOLERANCES: DECIMALS .XX ± .01 .XXX ± .005 MILLIMETERS .XX ± .03 .XXX ± .013 |
| | SHEET | | | |
| DRAWN NF | | DATE 02/05/08 | | GlobTek, Inc. 186 Veterans Dr. Northvale, NJ 07647 DWG Title: OUTPUT CHOKE 48V, 55V FOR GTM91110P24055 |
| APPROVED JB | | DATE 02/05/08 | | |
| FSCN NO: G.D | | SIZE A | MODEL: GTM91110P24055 | PART NO: 403-0056 |
| SCALE: 1:1 | | SHEET 1 OF 2 | | |

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4. SPECIFICATION

| ITEM | SPECIFICATION |
|---------------|--|
| URNS | 1S - 1F: 40T |
| | 2S - 2F: 7T, SPREAD EVENLY ACROSS THE ENTIRE CORE |
| WIRE GAUGE | 1S - 1F: 0.85 X 2P, 2UEW, YELLOW; 2S - 2F: AWG #22, 2UEW, RED; |
| | SHIELD TERMINATION: AWG 22, WIRE WITH TEFLON TUBE |
| INDUCTANCE | 1S - 1F: 150 μ H TO 170 μ H MEASURED 1 KHz 0.25V |
| DC RESISTANCE | 1S - 1F: 20 mOhm MAXIMUM |
| CORE | CM234125 X1, CHANG SUNG CORPORATION, NO SUBSTITUTION ALLOWED |
| HIPOT | HIPOT BETWEEN N1 TO SHIELD AND N2 TO SHIELD, 1500Vac, 1 MINUTE |

5. SHIELD CONSTRUCTION

GlobTek, Inc.

186 Veterans Dr, Northvale, NJ 07647

DWG Title: OUTPUT CHOKE 48V, 55V
FOR GTM91110P24055

| | | |
|--------------------------|----------------------|-----------|
| MODEL: GTM91110P24055 | PART NO: 403-0056 | REV. C |
|--------------------------|----------------------|-----------|

SHEET 2 OF 2