

TEST REPORT

IEC 60950-1: 2005 (2nd Edition) and/or EN 60950-1:2006 Information technology equipment – Safety – Part 1: General requirements

Report Reference No. : T223-0388/10

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CB/CCA Testing Laboratory : SIQ – Slovenian Institute of Quality and Metrology
Testing Laboratory is accredited by Slovenian Accreditation, Reg. No.: LP-009

Address : Tržaška cesta 2, 1000 Ljubljana, Slovenia

Applicant's name : GlobTek Inc.

Address : Corporate Headquarters, 186 Veterans Dr Northvale, NJ 07647 /
USA

Manufacturer's name : GlobTek Inc.

Address : Corporate Headquarters, 186 Veterans Dr Northvale, NJ 07647 /
USA

Factory's name : GlobTek Inc.

Address : Corporate Headquarters, 186 Veterans Dr Northvale, NJ 07647 /
USA

Factory's name : Globtek (Suzhou) Co. Ltd.

Address : Building 4, # 76, Jin Ling East Rd., Suzhou Park, Suzhou, Jiangsu
215021, P.R. China

Test specification:

Standard : ☒ IEC 60950-1:2005 (2nd Edition) + Am 1:2009 and/or
☒ EN 60950-1:2006 + Am 1:2010 + Am 11:2009

Test procedure : CB

Non-standard test method : N/A

Test Report Form No. : IECEN60950_1C

Test Report Form(s) Originator : SGS Fimko Ltd, modified by SIQ

Master TRF : Dated 2007-06. modified by SIQ 2010-07

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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.

Test item description : Switch Mode Power Supply for building-in

Trade Mark: GlobTek

Model/Type reference: GT(M)91110P24012-ZA(W)-S or -HI0XX or -H0XXX or -HIXXX


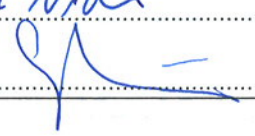
Where:

GT(M)	GLOBTEK series
91110P	Family designator
24012	240W 12V output power and output voltage
"Z"	"Z"= "F": Open frame "Z"= "C": Perforated enclosure
A(W)	"A" for airflow for 240 W load "W" for models without protective earth (optional)
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
-HIOXXX	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).
-HOXXX:	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).

Ratings: Input: 100-240 V~; 50-60 Hz; 4,0 A or 130-320V $\overline{=}$, 2,5A

Output: see table on next page.

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	12V \equiv	0,2A	12,5A	20,0A
GT(M)91110P24015-X.X-FA(W)-S or -HI0XX or -H0XXX or -HIXXX	15V \equiv	0,2A	10,0A	16,0A
GT(M)91110P24018-X.X-FA(W)-S or -HI0XX or -H0XXX or -HIXXX	18V \equiv	0,2A	8,33A	13,3A
GT(M)91110P24024-X.X-FA(W)-S or -HI0XX or -H0XXX or -HIXXX	24V \equiv	0,1A	6,25A	10,0A
GT(M)91110P24036-X.X-FA(W)-S or -HI0XX or -H0XXX or -HIXXX	36V \equiv	0,1A	4,17A	6,7A
GT(M)91110P24048-X.X-FA(W)-S or -HI0XX or -H0XXX or -HIXXX	48V \equiv	0,1A	3,12A	5,0A
GT(M)91110P24055-X.X-FA(W)-S or -HI0XX or -H0XXX or -HIXXX	55V \equiv	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	12V \equiv	0,2A	6,7A	16,67A
GT(M)91110P24015-X.X-CA(W)-S or -HI0XX or -H0XXX or -HIXXX	15V \equiv	0,2A	5,3A	13,38A
GT(M)91110P24018-X.X-CA(W)-S or -HI0XX or -H0XXX or -HIXXX	18V \equiv	0,2A	4,4A	11,11A
GT(M)91110P24024-X.X-CA(W)-S or -HI0XX or -H0XXX or -HIXXX	24V \equiv	0,1A	3,3A	8,33A
GT(M)91110P24036-X.X-CA(W)-S or -HI0XX or -H0XXX or -HIXXX	36V \equiv	0,1A	2,2A	5,5A
GT(M)91110P24048-X.X-CA(W)-S or -HI0XX or -H0XXX or -HIXXX	48V \equiv	0,1A	1,7A	4,17A
GT(M)91110P24055-X.X-CA(W)-S or -HI0XX or -H0XXX or -HIXXX	55V \equiv	0,1A	1,4A	3,64A
<p>* Other output voltages from 12V to 55V in 0,1V increment available upon request.</p> <p>** Output voltage is within regulation range even at no load, but minimal level of audible noise may be heard from the supply.</p>				

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

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

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

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

See next pages

Testing location:

SIQ

Summary of compliance with National Differences:

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

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

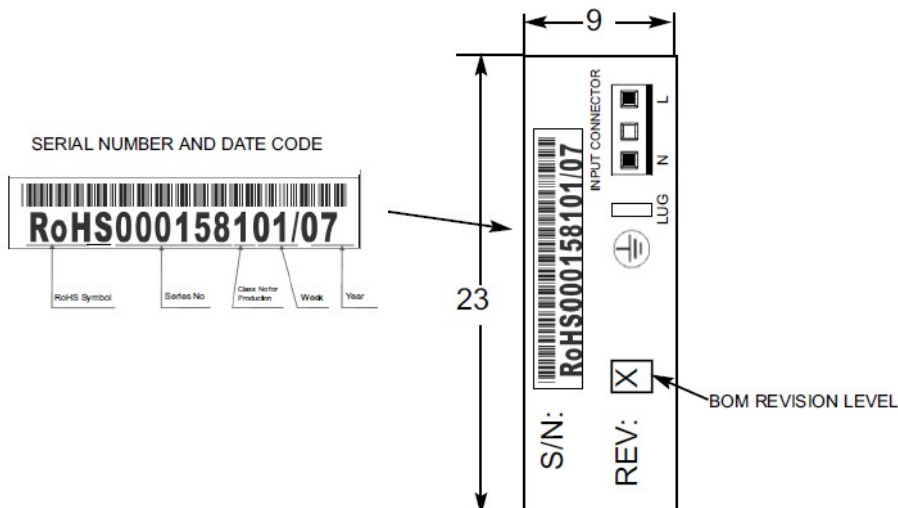
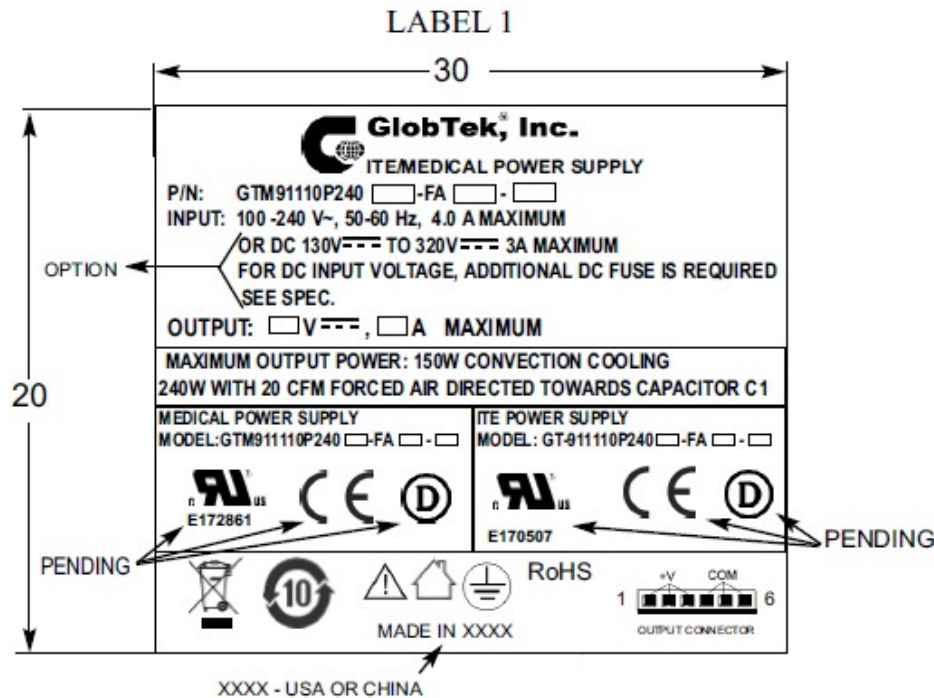
** No national differences to IEC 60950-1:2005 (2nd edition) or IEC 60950-1:2001 (1st edition) declared

Copy of marking plate:

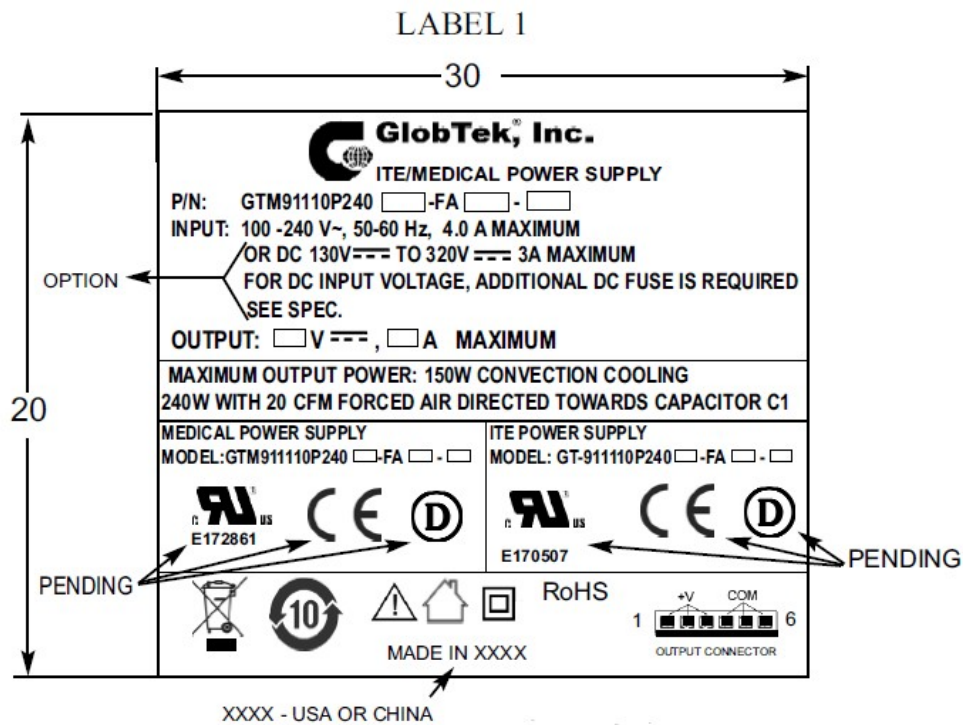
The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

(Additional requirements for markings. See 1.7 NOTE)

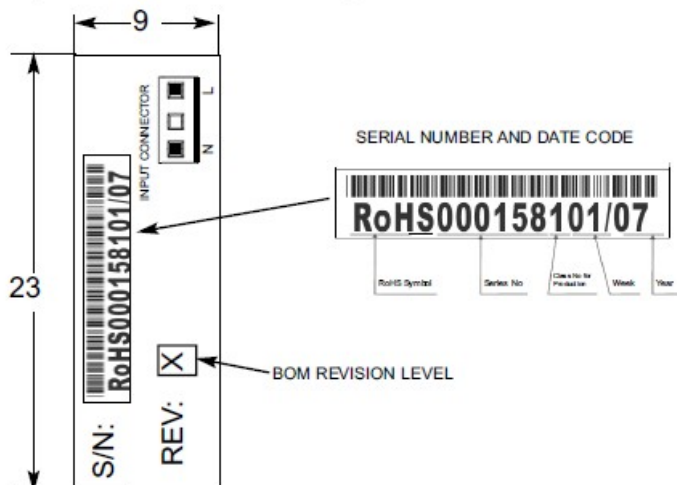
a) LABEL FOR OPEN FRAME VERSION (With PE):



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

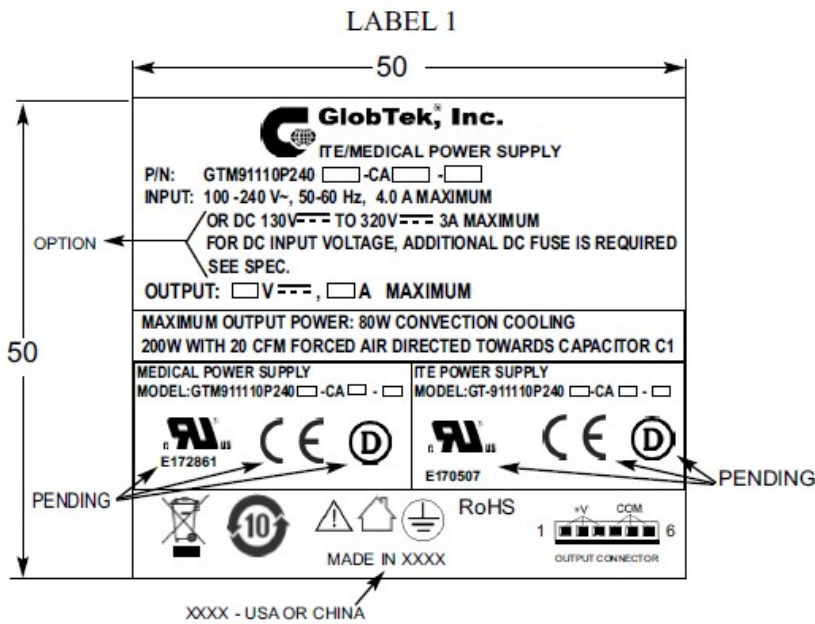


POSITION THIS LABEL ON THE VISIBLE SIDE OF CAPACITOR



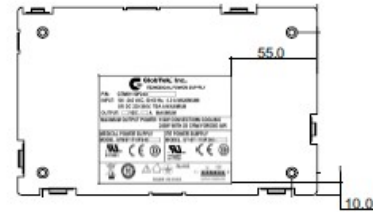
POSITION THIS LABELS ON TOP OF CXI
FACING THE INPUT CONNECTOR

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

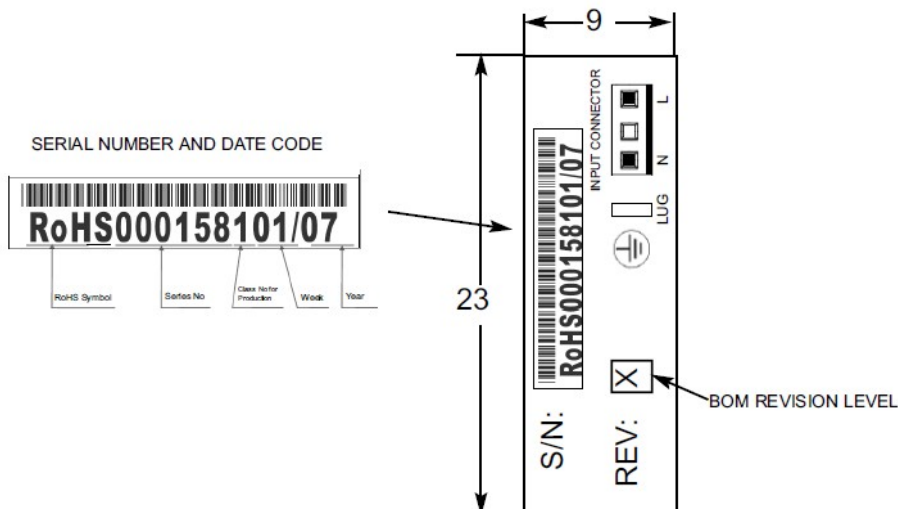


POSITION THIS LABEL ON THE VISIBLE SIDE OF CAPACITOR

LOCATION OF LABEL 1

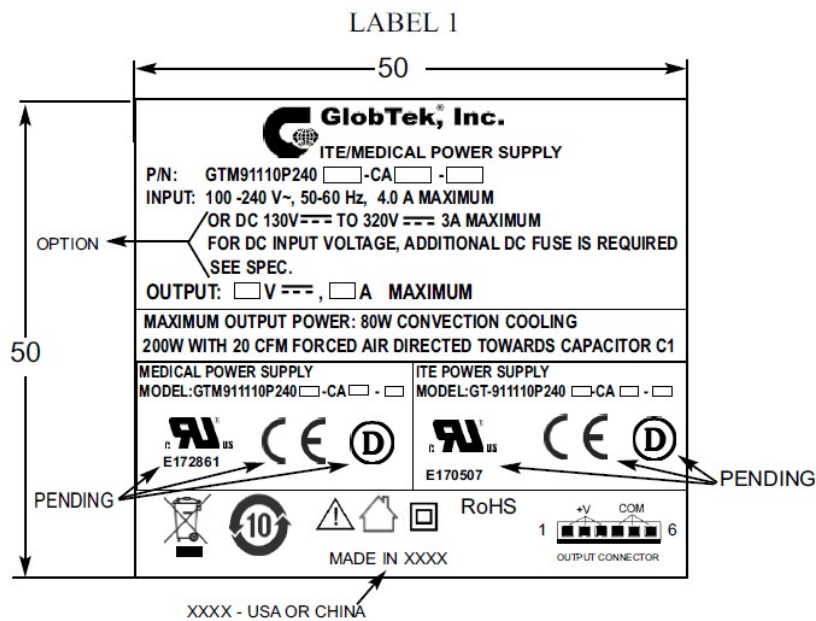


BOTTOM VIEW OF ENCLOSURE



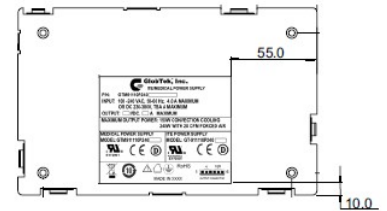
*POSITION THIS LABEL ON TOP OF CX1
FACING THE INPUT CONNECTOR*

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

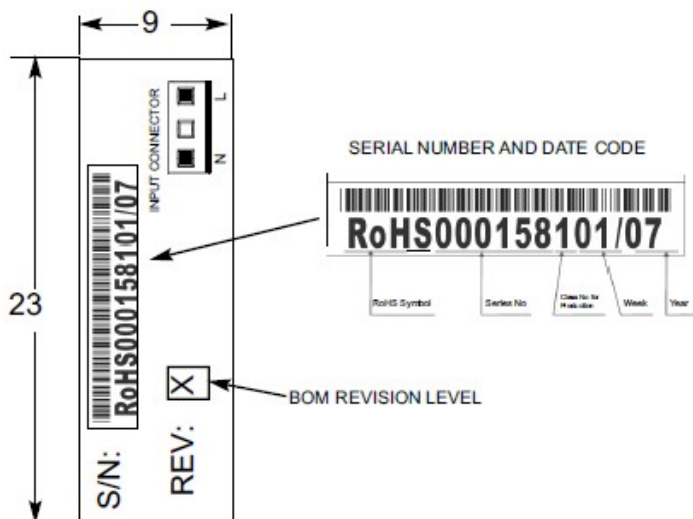


POSITION THIS LABEL ON THE VISIBLE SIDE OF CAPACITOR

LOCATION OF LABEL 1



BOTTOM VIEW OF ENCLOSURE



POSITION THIS LABEL ON TOP OF CXI
FACING THE INPUT CONNECTOR

Overview of the testing done

(P = Test passed, N/A test not applicable)

Clause	Test	Test Conducted
1.6.2	Input Test	P
1.7.11	Durability	P
2.1.1.5	Energy Hazard Measurements	N/A*
2.1.1.7	Capacitance Discharge Test	P
2.1.1.8	Energy hazards – d.c. mains supplies	P
2.2.2	SELV: Hazard Voltage (Circuit) Measurement Test	P
2.2.3	SELV Reliability testing	P
2.4	Limited Current Circuit (Bridging components)	P
2.5	Limited Power Source	N/A
2.6	Earthing Test, earth trace test (UL PAG)	P
2.9.2	Humidity Test	P
2.10.2	Working Voltage measurement on PCB and Transformer	P
2.10.3/ 2.10.4	Clearance and Creepage distance measurement	P
2.10.5.6	Thin Sheet Material (barriers)	P
2.10.5.3 2.10.12	Enclosed or Hermetically Sealed Unit Test Enclosed and sealed parts	N/A
4.2.2- 4.2.4	Steady force test, 10N.	P
4.2.5	Impact test, Fall test, Swing test	N/A
4.2.6	Drop test	N/A
4.2.7	Stress relief test; heat test (°C/7 h)	N/A
4.2.10	Wall or ceiling mounted equipment	N/A
4.3.2	Handle Test (with USA Deviation)	N/A
4.3.6	Torque Test for direct plug in Products. Dimensions of the plugs	N/A
4.5.2	Heating (Temperature) Test	P
4.5.5	Resistance to abnormal heat (Ball pressure test)	P
5.1	Touch Current and protective conductor current	P
5.2	Electric Strength Test	P
5.3	Abnormal Operating Tests foreseeable misuse: SELV reliability and failure in the voltage regulation Functional insulation, Component faults Overload and short, Air holes closed, Fan (external, if provided) blocked	P
* Measurement performed → end product consideration		

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 V~) DC input: 130 – 320 V==
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 checked="" type="checkbox"/> Class II <input type="checkbox"/> Class III <input type="checkbox"/> Not classified
Considered current rating (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:	
<p>The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory. "(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.</p> <p>Note: This TRF includes EN Group Differences together with National Differences and Special National Conditions, if any. All Differences are located in the Appendix to the main body of this TRF.</p> <p>Throughout this report a <input checked="" type="checkbox"/> comma / <input type="checkbox"/> point is used as the decimal separator.</p>	

Manufacturer's Declaration per sub-clause 6.2.5 of IECEE 02:

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

- ☒ Yes
☐ Not applicable

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

Name and address of factory (ies)..... : GlobTek Inc.

Corporate Headquarters, 186 Veterans Dr
Northvale, NJ 07647 / USA

Á

Globtek (Suzhou) Co. Ltd.

Building 4, # 76, Jin Ling East Rd., Suzhou Park,
Suzhou, Jiangsu 215021, P.R. China

General product information:

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).

Abbreviations used in the report:

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

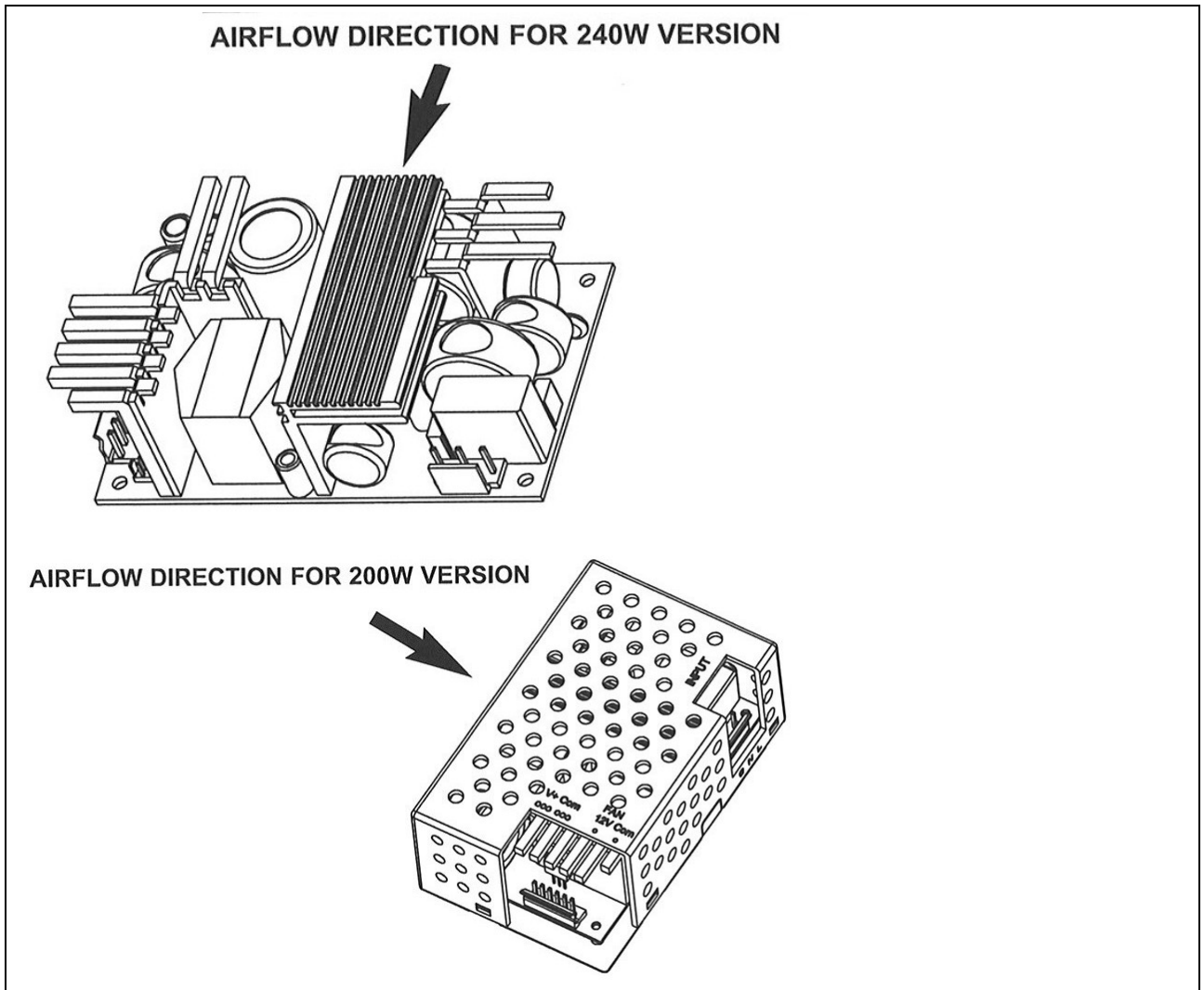
Indicate used abbreviations (if any)

Summary of testing:

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

Additionally the component was also evaluated according to the standards CSA C22.2 No. 60950-1:2007 and UL60950-1:2007 (2nd Edition) 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.
12. 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 convection cooling. The product with 50% output power was evaluated for a maximum ambient temperature of 50°C for DC input voltage with air convection 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 convection cooling. The temperature test was performed 100 mm above bench. See next page for air flow direction.



Information for Production testing to be done by the manufacturer:

Factory Tests:

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

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


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


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

IEC/EN 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 table 1.5.1)	P
1.5.2	Evaluation and testing of components	<p>Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of this standard.</p> <p>Components not certified are used in accordance with their ratings and they comply with applicable parts of IEC 60950-1 and the relevant component standard.</p> <p>Components, for which no relevant IEC-standard exists, have been tested under the conditions occurring in the equipment, using applicable parts of IEC 60950-1.</p>	P
1.5.3	Thermal controls	<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/EN 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 marking	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 V ~ DC input: 130 - 320 V 	P

IEC/EN 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	 GlobTek, Inc.	P
	Model identification or type reference	GT(M)91110P24012-ZA(W)-S or -HI0XX or -H0XXX or -HIXXX (see page 2 and page 3 for details)	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
1.7.2	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)	--	—

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Clause	Requirement + Test	Result - Remark	Verdict
1.7.14	Equipment for restricted access locations.....:	End product consideration.	N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict

2.1.3	Protection in restricted access locations	--	N/A
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2.2	SELV circuits		P
2.2.1	General requirements	SELV limits (at accessible parts) are not exceeded under normal condition and after a single fault.	P
2.2.2	Voltages under normal conditions (V)	Within SELV limits. See 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	No limited power source.	N/A
	b) Impedance limited output	--	N/A
	c) Regulating network limited output under normal operating and single fault condition	--	N/A
	d) Overcurrent protective device limited output	--	N/A
	Max. output voltage (V), max. output current (A), max. apparent power (VA)	--	—
	Current rating of overcurrent protective device (A) ..	-	—

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
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	--	—
	Protective current rating (A), cross-sectional area (mm^2), AWG	--	—
2.6.3.4	Resistance of earthing conductors and their terminations; resistance (Ω), voltage drop (V), test current (A), duration (min)	See appended table 2.6.	P
2.6.3.5	Colour of insulation.....:	The built in Power Supply does not provide wiring (for earthing).	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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
2.7.3	Short-circuit backup protection	--	P

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Clause	Requirement + Test	Result - Remark	Verdict
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
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
2.9.4	Separation from hazardous voltages		P

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Clause	Requirement + Test	Result - Remark	Verdict
	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 layer of outer wrap.	—
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	No TNV circuits.	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

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

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Clause	Requirement + Test	Result - Remark	Verdict
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
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

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Clause	Requirement + Test	Result - Remark	Verdict
	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
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

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Clause	Requirement + Test	Result - Remark	Verdict
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	No interconnection is used.	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

4	PHYSICAL REQUIREMENTS		P
4.1	Stability		N/A
	Angle of 10°	The unit is for built in use. Therefore, the test is not applicable.	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

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Clause	Requirement + Test	Result - Remark	Verdict
	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
4.2.11	Rotating solid media	--	N/A
	Test to cover on the door.....:	--	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
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

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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
4.3.13.5	Laser (including LEDs)	--	N/A
4.3.13.5.1	Lasers (including laser laser diodes)	--	N/A
	Laser class	Diffuse LED's only.	—
4.3.13.5.2	Light emitting diodes (LEDs)	Only used in low power application.	—
4.3.13.6	Other types	--	N/A

4.4	Protection against hazardous moving parts		N/A
4.4.1	General	--	N/A
4.4.2	Protection in operator access areas	No hazardous moving parts.	N/A
	Household and home/office document/media shredders	--	N/A
4.4.3	Protection in restricted access locations	--	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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 output load according to manufacturer's specification.	—
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

4.6	Openings in enclosures		N/A
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 bottommm, 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

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Clause	Requirement + Test	Result - Remark	Verdict
	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
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

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS	P
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Clause	Requirement + Test	Result - Remark	Verdict
5.1	Touch current and protective conductor current		P
5.1.1	General	--	P
5.1.2	Configuration of equipment under test (EUT)	--	P
5.1.2.1	Single connection to an a.c. mains supply	--	P
5.1.2.2	Redundant multiple connections to an a.c. mains supply	--	N/A
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply	--	N/A
5.1.3	Test circuit	According to Fig. 5A	P
5.1.4	Application of measuring instrument	Measuring instrument D1 was used.	P
5.1.5	Test procedure	--	P
5.1.6	Test measurements	--	P
	Supply voltage (V)	(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)...	--	—
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
	a) EUT with earthed telecommunication ports	--	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

	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 strength test.	P

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)	--	—

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Clause	Requirement + Test	Result - Remark	Verdict

	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	--	—

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

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

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Clause	Requirement + Test	Result - Remark	Verdict
	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
A.3.2	Test procedure	--	N/A
A.3.3	Compliance criterion	--	N/A
B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		N/A
B.1	General requirements	No motor. External fan used for cooling was not part of the investigation.	N/A
	Position	--	—
	Manufacturer	--	—

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Clause	Requirement + Test	Result - Remark	Verdict
	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)	--	—

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

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Clause	Requirement + Test	Result - Remark	Verdict

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

E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		N/A
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F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)		P
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G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		N/A
G.1	Clearances	--	N/A
G.1.1	General	--	N/A
G.1.2	Summary of the procedure for determining minimum clearances	--	N/A
G.2	Determination of mains transient voltage (V)	--	N/A
G.2.1	AC mains supply	--	N/A
G.2.2	Earthed d.c. mains supplies	--	N/A
G.2.3	Unearthed d.c. mains supplies	--	N/A
G.2.4	Battery operation	--	N/A
G.3	Determination of telecommunication network transient voltage (V)	--	N/A
G.4	Determination of required withstand voltage (V)	--	N/A
G.4.1	Mains transients and internal repetitive peaks	--	N/A
G.4.2	Transients from telecommunication networks	--	N/A
G.4.3	Combination of transients	--	N/A
G.4.4	Transients from cable distribution systems	--	N/A
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
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Clause	Requirement + Test	Result - Remark	Verdict

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
L.7	Other business equipment	Rated load as specified by the manufacturer.	P

M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		N/A
M.1	Introduction	--	N/A
M.2	Method A	--	N/A
M.3	Method B	--	N/A
M.3.1	Ringing signal	--	N/A
M.3.1.1	Frequency (Hz)	--	—
M.3.1.2	Voltage (V)	--	—

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Clause	Requirement + Test	Result - Remark	Verdict
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	Verified.	P
	b) Maximum continuous voltage	See list of critical components.	P
	c) Pulse current	Min. 3000A. Approved to IEC 61051-2. See list of critical components.	P
R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		N/A
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)	--	N/A
R.2	Reduced clearances (see 2.10.3)	--	N/A
S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		N/A
S.1	Test equipment	--	N/A
S.2	Test procedure	--	N/A
S.3	Examples of waveforms during impulse testing	--	N/A
T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		N/A
		--	—

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Clause	Requirement + Test	Result - Remark	Verdict

U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		N/A
		TIW wire is separately approved. It was verified but no additional tests performed.	—

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

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

X	ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)		P
X.1	Determination of maximum input current	The input current was measured and recorded (see test list abnormal testing)	P
X.2	Overload test procedure	--	P

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

Z	ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)		N/A
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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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Clause	Requirement + Test	Result - Remark	Verdict

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

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

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

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Clause	Requirement + Test	Result - Remark	Verdict

EN 60950-1:2006 – CENELEC COMMON MODIFICATIONS			
Contents	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations		P
General	Delete all the “country” notes in the reference document according to the following list: 1.4.8 Note 2 1.5.1 Note 2 & 3 1.5.7.1 Note 1.5.8 Note 2 1.5.9.4 Note 1.7.2.1 Note 4, 5 & 6 2.2.3 Note 2.2.4 Note 2.3.2 Note 2.3.2.1 Note 2 2.3.4 Note 2 2.6.3.3 Note 2 & 3 2.7.1 Note 2.10.3.2 Note 2 2.10.5.13 Note 3 3.2.1.1 Note 3.2.4 Note 3. 2.5.1 Note 2 4.3.6 Note 1 & 2 4.7 Note 4 4.7.2.2 Note 4.7.3.1 Note 2 5.1.7.1 Note 3 & 4 5.3.7 Note 1 6 Note 2 & 5 6.1.2.1 Note 2 6.1.2.2 Note 6.2.2 Note 6. 2.2.1 Note 2 6.2.2.2 Note 7.1 Note 3 7.2 Note 7.3 Note 1 & 2 G.2.1 Note 2 Annex H Note 2		P
1.1.1	Replace the text on NOTE 3 by the following: Note 3 The requirements of EN 60065 may also be used to meet safety requirements for multimedia equipment. See IEC Guide 112, Guide on the safety of multimedia equipment. For television sets EN 60065 applies.		N/A
1.2.3	Add the following definition: 1.2.3.Z1 PORTABLE SOUND SYSTEM Small battery powered audio equipment: - whose prime purpose is to listen to recorded or broadcasted sound; and - that uses headphones or earphones that can be worn in or around the ears; and - that allows the user to walk around NOTE Examples are mini-disk or CD players; MP3 audio players or similar equipment.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
1.3.Z1	<p>Add the following subclause:</p> <p>1.3.Z1 Exposure to excessive sound pressure</p> <p>The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones.</p> <p>NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment:</p> <p>Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 1: General method for "one package equipment", and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers.</p>		N/A
1.5.1	<p>Add the following NOTE:</p> <p>NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC</p>		P
1.7.2.1	<p>Add the following paragraph at the end of the subclause:</p> <p>In addition, for PORTABLE SOUND SYSTEM, the instructions shall include a warning that excessive sound pressure from earphones and headphones can cause hearing loss.</p>		N/A
2.7.1	<p>Replace the subclause as follows:</p> <p>Basic requirements</p> <p>To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):</p> <p>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p> <p>c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>		P
2.7.2	This subclause has been declared 'void'.		N/A
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.		N/A

IEC/EN 60950-1														
Clause	Requirement + Test	Result - Remark	Verdict											
3.2.5.1	<p>Replace “60245 IEC 53” by “H05 RR-F”; “60227 IEC 52” by “H03 VV-F or H03 VVH2-F”; “60227 IEC 53” by “H05 VV-F or H05 VVH2-F2”.</p> <p>In Table 3B, replace the first four lines by the following:</p> <table><tr><td> Up to and including 6</td><td> </td><td>0,75 ^{a)}</td><td> </td></tr><tr><td> Over 6 up to and including 10</td><td> (0,75) ^{b)}</td><td>1,0</td><td> </td></tr><tr><td> Over 10 up to and including 16</td><td> (1,0) ^{c)}</td><td>1,5</td><td> </td></tr></table> <p>In the conditions applicable to Table 3B delete the words “in some countries” in condition ^{a)}.</p> <p>In NOTE 1, applicable to Table 3B, delete the second sentence.</p>	Up to and including 6		0,75 ^{a)}		Over 6 up to and including 10	(0,75) ^{b)}	1,0		Over 10 up to and including 16	(1,0) ^{c)}	1,5		N/A
Up to and including 6		0,75 ^{a)}												
Over 6 up to and including 10	(0,75) ^{b)}	1,0												
Over 10 up to and including 16	(1,0) ^{c)}	1,5												
3.3.4	<p>In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following:</p> <table><tr><td> Over 10 up to and including 16</td><td> 1,5 to 2,5</td><td> 1,5 to 4</td><td> </td></tr></table> <p>Delete the fifth line: conductor sizes for 13 to 16 A.</p>	Over 10 up to and including 16	1,5 to 2,5	1,5 to 4		N/A								
Over 10 up to and including 16	1,5 to 2,5	1,5 to 4												
4.3.13.6	<p>Replace the existing NOTE by the following:</p> <p>NOTE Z1 Attention is drawn to:</p> <p>1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz, and</p> <p>2006/25/EC: Directive on the minimum health and safety requirements regarding the exposure of workers to risks arising from physical agents (artificial optical radiation)</p> <p>Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.</p>	N/A												
Annex H	<p>Replace the last paragraph of this annex by:</p> <p>At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 µSv/h (0,1 mR/h) (see NOTE). Account is taken of the background level.</p> <p>Replace the notes as follows:</p> <p>NOTE These values appear in Directive 96/29/Euratom.</p> <p>Delete NOTE 2.</p>	N/A												
Biblio-graphy	<p>Additional EN standards.</p> <p>IEC 60908 NOTE Harmonized as EN 60908</p>													

ZA	NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS	—
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ZB	SPECIAL NATIONAL CONDITIONS	P
1.2.4.1	In Denmark , certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.	N/A

IEC/EN 60950-1			
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
1.7.2.1	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. The marking text in the applicable countries shall be as follows: In Finland: "Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan" In Norway: "Apparatet må tilkoples jordet stikkontakt" In Sweden: "Apparaten skall anslutas till jordat uttag"		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.		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.		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.		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.		N/A
2.10.5.13	In Finland, Norway and Sweden , there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.		N/A
3.2.1.1	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: SEV 6532-2.1991 Plug Type 15 3P+N+PE 250/400 V, 10 A SEV 6533-2.1991 Plug Type 11 L+N 250 V, 10 A SEV 6534-2.1991 Plug Type 12 L+N+PE 250 V, 10 A 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: SEV 5932-2.1998 Plug Type 25 3L+N+PE 230/400 V, 16 A SEV 5933-2.1998 Plug Type 21 L+N 250 V, 16 A SEV 5934-2.1998 Plug Type 23 L+N+PE 250 V, 16 A		N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	<p>In Denmark, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.</p>		N/A
3.2.1.1	<p>In Spain, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994.</p> <p>Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994.</p> <p>If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.</p>		N/A
3.2.1.1	<p>In the United Kingdom, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations.</p> <p>NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>		N/A
3.2.1.1	<p>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.</p>		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	<p>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:</p> <ul style="list-style-type: none"> • 1,25 mm² to 1,5 mm² nominal cross-sectional area. 		N/A
4.3.6	<p>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.</p>		N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.3.6	In Ireland , DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.		N/A
5.1.7.1	<p>In Finland, Norway and Sweden TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment:</p> <ul style="list-style-type: none"> • STATIONARY PLUGGABLE EQUIPMENT TYPE A that <ul style="list-style-type: none"> ○ is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and ○ has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and ○ is provided with instructions for the installation of that conductor by a SERVICE PERSON; • STATIONARY PLUGGABLE EQUIPMENT TYPE B; • STATIONARY PERMANENTLY CONNECTED EQUIPMENT. 		N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.1.2.1	<p>In Finland, Norway and Sweden, add the following text between the first and second paragraph of the compliance clause:</p> <p>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. <p>Alternatively for components, there is no distance through insulation requirements for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> - passes the tests and inspection criteria of 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.10 shall be performed using 1,5 kV), and - is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV. <p>It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b.</p> <p>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclause Y2.</p> <p>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 60384-14; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14. 		N/A
6.1.2.2	<p>In Finland, Norway and Sweden, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.</p>		N/A
7.2	<p>In Finland, Norway and Sweden, for requirements see 6.1.2.1 and 6.1.2.2 of this annex.</p> <p>The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.</p>		N/A
7.3	<p>In Norway and Sweden, there are many buildings where the screen of the coaxial cable is normally not connected to the earth in the building installation.</p>		N/A
7.3	<p>In Norway, for installation conditions see EN 60728-11:2005.</p>		N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
ZC	A-DEVIATIONS (informative)		P
1.5.1	Sweden (Ordinance 1990:944) Add the following: NOTE In Sweden, switches containing mercury are not permitted.		P
1.5.1	Switzerland (Ordinance on environmentally hazardous substances SR 814.081, Annex 1.7, Mercury - Annex 1.7 of SR 814.81 applies for mercury.) Add the following: NOTE In Switzerland, switches containing mercury such as thermostats, relays and level controllers are not allowed.		P
1.7.2.1	Denmark (Heavy Current Regulations) Supply cords of CLASS I EQUIPMENT, which is delivered without a plug, must be provided with a visible tag with the following text: <p style="text-align: center;">Vigtigt! Lederen med grøn/gul isolation må kun tilsluttes en klemme mærket</p>  eller  If essential for the safety of the equipment, the tag must in addition be provided with a diagram, which shows the connection of the other conductors, or be provided with the following text: "For tilslutning af de øvrige ledere, se medfølgende installationsvejledning."		N/A
1.7.2.1	Germany (Gesetz über technische Arbeitsmittel und Verbraucherprodukte (Geräte- und Produktsicherheitsgesetz – GPSG) [Law on technical labour equipment and consumer products], of 6th January 2004, Section 2, Article 4, Clause (4), Item 2). If for the assurance of safety and health certain rules during use, amending or maintenance of a technical labour equipment or readymade consumer product are to be followed, a manual in German language has to be delivered when placing the product on the market. Of this requirement, rules for use even only by SERVICE PERSONS are not exempted.		N/A
1.7.5	Denmark (Heavy Current Regulations) With the exception of CLASS II EQUIPMENT provided with a socket outlet in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-4a, CLASS II EQUIPMENT shall not be fitted with socket-outlets for providing power to other equipment.		N/A
1.7.13	Switzerland (Ordinance on chemical hazardous risk reduction SR 814.81, Annex 2.15 Batteries) Annex 2.15 of SR 814.81 applies for batteries.		N/A
5.1.7.1	Denmark (Heavy Current Regulations, Chapter 707, clause 707.4) TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for PERMANENTLY CONNECTED EQUIPMENT and PLUGGABLE EQUIPMENT TYPE B.		N/A

IEC/EN 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	UL 94	cURus E115239	
Enclosure top, alternate 1	Sabic Innovative plastics	SE1X, SE100X, CX741	OD approx 140 by 87,6 mm Thickness 2,5 mm Min. UL94-V1	UL 94	cURus E115239	
Enclosure top, alternate 2	Sabic Innovative	SE1, SE100	OD approx 140 by 87,6mm; thickness 2,5mm, Min. UL94-V1	UL 94	cURus E115239	
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	UL94	cURus E121855	
Enclosure bottom	OD approx 140 by 87,6 mm Thickness 0,6 mm Nickel plated			IEC 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 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 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 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 60947	cURus E29179 TÜV R75108	

IEC/EN 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 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 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 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 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 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 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 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 60947	cURus E60389 TÜV R75087
Earth quick connector (Faston Class I units)	+Kanyang	PCH250	Double crimped Uninsulated 6.35 x 0,8 mm	IEC 60950-1	Accepted
Input connector female (CON1)	+Molex	09-50-3031	UL94-V0 5 A / 250 Vac 75°C max.	UL 1977 IEC 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 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 60947	cURus E60389 TÜV R75087

IEC/EN 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 60127-4	UL E56092 VDE
Fuse (F2)	LITTELFUSE WICKMANN WERKE	392	250 Vac / 5 A Time delay	(YDYX2) (YDYX8) IEC 60127-3	UL E67006 VDE
Fuse (F2)	CONQUER ELECTRONICS CO., LTD	MST	250 Vac / 5 A Time delay	(JDYX8) (JDYX2) IEC 60127-3	cURus E82636 VDE

IEC/EN 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
Fuse (F2)	BEL FUSE INC	RST	250 Vac / 5 A Time delay	(JDYX2) (JDYX8) IEC 60127-3	cURus E20624 VDE
Fuse (F2)	COOPER BUSSMANN INC.	SS-5	250 Vac / 5 A Time delay	(YDYX2) (YDYX8) IEC 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	(VZCA2) (VZCA8) IEC 61051-2 IEC 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	(VZCA2) (VZCA8) IEC 61051-2 IEC 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	(VZCA2) IEC 61051-2 IEC 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	(VZCA2) (VZCA8) IEC 61051-2 IEC 60950-1 Annex Q	cURus E309297 VDE
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

IEC/EN 60950-1					
Clause	Requirement + Test		Result - Remark		Verdict
Inductor (LF2)	GlobTek (Suzhou)	321-02176003(R)	<p>Open type construction with tubing</p> <p>Overall approx. dimension: 26 by 12 mm</p> <p>Rating: 6 mH Min; 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
Inductor (LF3)	GlobTek (Suzhou)	321-02171003(R)	<p>Open type construction with outerwrap Myler tape overall</p> <p>Overall approx. dimension: 15 by 8 mm</p> <p>Rating: 1 to 1,5mH Min; 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>2 Layers Myler tape after the copper shield is installed. Epoxy fixing on the bottom as a drawing</p>	IEC/EN 60950-1	Accepted
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

IEC/EN 60950-1					
Clause	Requirement + Test		Result - Remark		Verdict
PFC Inductor (L1)	GlobTek	405-0005	Open type construction with tubing Overall approx. dimension: 27 by 21 mm Rating: 1.3uH to 1.8uH; 1KHz/0.25V Core: Ferrite Coil: Enameled copper magnet wire wound on Core Temp. Class: Class F Epoxy to hold wires to the core. 1 Layer Myler tape, 18mm wide shield 1, than 2 Layers Myler tape, 18mm wide shield 2.	IEC/EN 60950-1	Accepted
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 Myler 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 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	5SE472MT402A98	250Vac Max. 4700pF Y1 type	(FOWX2) IEC 60384-14	cURus E114280 VDE

IEC/EN 60950-1					
Clause	Requirement + Test		Result - Remark		Verdict
Y-Capacitor (CY8)	+WALSIN TECHNOLOGY CORP.	YV0AH472M130	250Vac Max. 4700pF Y1 type	(FOWX2) IEC 60384-14	cURus E146544 VDE
Y-Capacitor (CY8)	+MURATA MFG CO., LTD.	Type KX	250Vac Max. 4700pF Y1 type	(FOWX2) IEC 60384-14	URus E37921 VDE
Y-Capacitor (CY8)	+TDK-EPC CORP.	Type CD	250Vac Max. 4700pF Y1 type	(FOWX2) IEC 60384-14	URus E37861 VDE
Y-Capacitor (CY8)	+WELSON INDUSTRIAL CO., LTD	Type WD	250Vac Max. 4700pF Y1 type	(FOWX2) IEC 60484-14	cURus E104572 VDE
Y-Capacitor (CY8)	+JYA-NAY CO., LTD.	Type JN	250Vac Max. 4700pF Y1 type	(FOWX2) IEC 60484-14	cURus E201384 VDE
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 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 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/EN 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/EN 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/EN 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/EN 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</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 (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/EN 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	(QQQX2)	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>					

IEC/EN 60950-1			
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.						

IEC/EN 60950-1			
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.			

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

2.1.1.7	TABLE: Discharge of capacitors in the primary circuit	P
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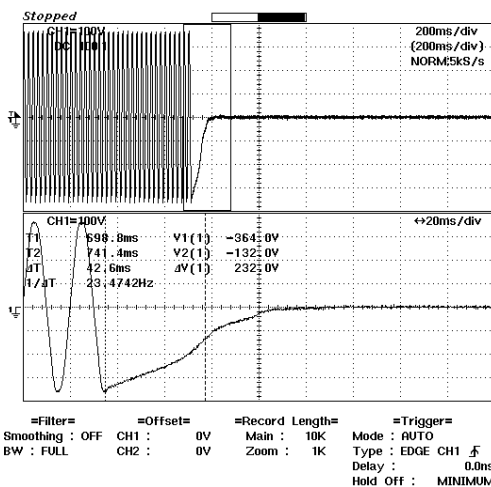
The unit was connected to 264 a.c , 50Hz. A storage oscilloscope was connected across the external point of disconnection of the mains supply. With all switches in the unit initially set to the off position, the unit was disconnected from the supply source. The voltage at the time of disconnection, Vo, 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

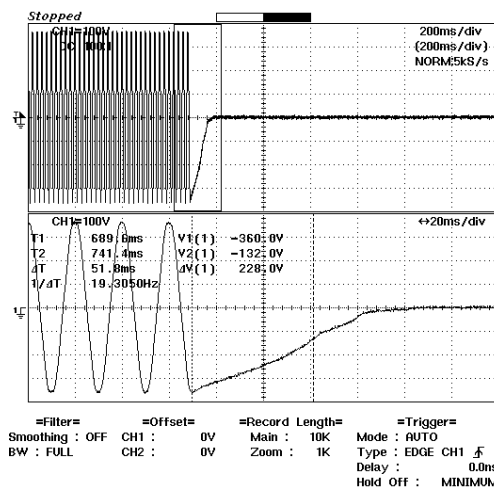
Comments: The voltage across the line capacitor did decay to less than 37 percent of it's original value in 1 second.

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



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

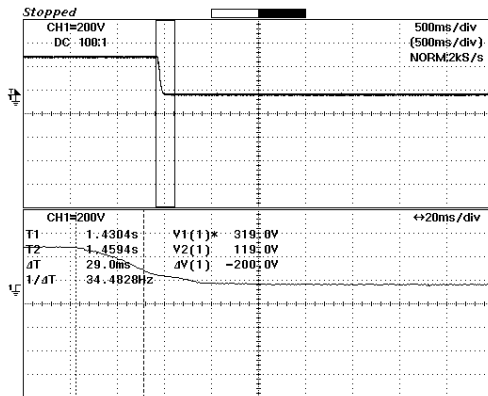
<p>GT(M)91110P24055-X.X-FA(W)-S or -HI0XX or -H0XXX or -HIXXX Rated load</p> <p>Stopped CH1=100V 200ms/div (200ms/div) NORM5kS/s</p> <p>CH1=100V 10ms/div T1=710.4ms T2=711.2ms dT=800us 1/dT=1.25000kHz</p> <p>V1(1)=360.0V V2(1)=104.0V dV(1)=-256.0V</p> <p>=Filter= Smoothing : OFF BW : FULL =Offset= CH1 : 0V CH2 : 0V =Record Length= Main : 10K Zoom : 500 =Trigger= Mode : AUTO Type : EDGE CH1 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>Stopped CH1=100V 200ms/div (200ms/div) NORM5kS/s</p> <p>CH1=100V 5ms/div T1=771.25ms T2=771.80ms dT=550us 1/dT=1.81818kHz</p> <p>V1(1)=350.5V V2(1)=127.5V dV(1)=-232.0V</p> <p>=Filter= Smoothing : OFF BW : FULL =Offset= CH1 : 0V CH2 : 0V =Record Length= Main : 10K Zoom : 250 =Trigger= Mode : AUTO Type : EDGE CH1 f Delay : 0.0ns Hold Off : MINIMUM</p>
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2.1.1.8	TABLE: Energy hazards-d.c. mains supply				P
<i>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.</i>					
Model	Location	Time Constant	Measured voltage after 2 sec.	Condition	
GT(M)91110P2405 5-X.X-FA(W)-S or - HI0XX or -H0XXX or -HIXXX	Between L and N	29,0ms	0V	No load	
GT(M)91110P2401 2-FA(W)-S or - HI0XX or -H0XXX or -HIXXX	Between L and N	44,5ms	0V	No load	
GT(M)91110P2405 5-X.X-FA(W)-S or - HI0XX or -H0XXX or -HIXXX	Between L and N	1,3ms	0V	4,36A@55Vdc	
GT(M)91110P2401 2-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.					

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

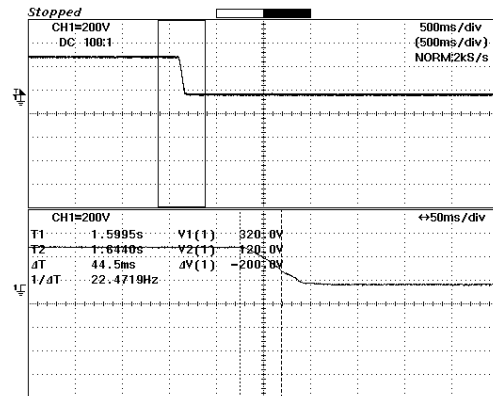
Scope pictures:

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



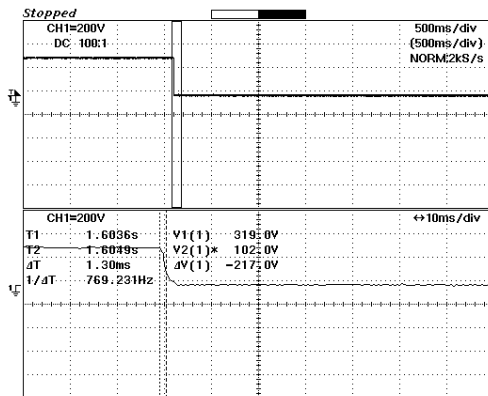
=Filter= =Offset= =Record Length= =Trigger=
Smoothing : OFF CH1 : 0V Main : 10K Mode : AUTO
BW : FULL CH2 : 0.00V Zoom : 400 Type : EDGE CH1 $\frac{f}{f}$
Delay : 0.0ns
Hold Off : MINIMUM

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



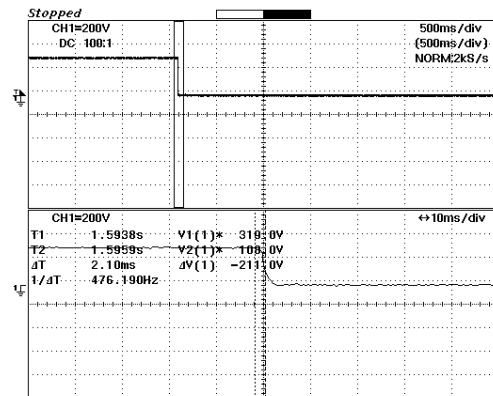
=Filter= =Offset= =Record Length= =Trigger=
Smoothing : OFF CH1 : 0V Main : 10K Mode : AUTO
BW : FULL CH2 : 0.00V Zoom : 1K Type : EDGE CH1 $\frac{f}{f}$
Delay : 0.0ns
Hold Off : MINIMUM

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



=Filter= =Offset= =Record Length= =Trigger=
Smoothing : OFF CH1 : 0V Main : 10K Mode : AUTO
BW : FULL CH2 : 0.00V Zoom : 200 Type : EDGE CH1 $\frac{f}{f}$
Delay : 0.0ns
Hold Off : MINIMUM

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



=Filter= =Offset= =Record Length= =Trigger=
Smoothing : OFF CH1 : 0V Main : 10K Mode : AUTO
BW : FULL CH2 : 0.00V Zoom : 200 Type : EDGE CH1 $\frac{f}{f}$
Delay : 0.0ns
Hold Off : MINIMUM

IEC/EN 60950-1			
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 mA _{peak}	
Circuit(s) tested		Bridging components CY8	
Measured working voltage:		Measured working voltage: 364,0V _{pk} , 183,5V _{rms}	
Measured frequency		CY8: 100kHz	
Measured current through 2000		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. 40,00V _{pk} , 4,989 V _{rms} 20,0 mA _{peak} , 2,49 mA _{rms}	
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>		

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Clause	Requirement + Test	Result - Remark	Verdict

2.10.2	Table: working voltage measurement			P
Location		RMS voltage (V)	Peak voltage (V)	Comments
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	
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.				

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Clause	Requirement + Test	Result - Remark	Verdict

2.10.2	Table: working voltage measurement			P
Location		RMS voltage (V)	Peak voltage (V)	Comments
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		
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.				

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Clause	Requirement + Test	Result - Remark	Verdict

2.10.2	Table: working voltage measurement			P
Location		RMS voltage (V)	Peak voltage (V)	Comments
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:				
Input voltage: 320Vdc Test Condition was: 4,36A@55Vdc				
Minus of the input, output minus and PE were connected.				

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Clause	Requirement + Test	Result - Remark	Verdict

2.10.2	Table: working voltage measurement			P
Location		RMS voltage (V)	Peak voltage (V)	Comments
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.				

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Clause	Requirement + Test	Result - Remark	Verdict

2.10.2	Table: working voltage measurement			P
Location		RMS voltage (V)	Peak voltage (V)	Comments
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.				

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Clause	Requirement + Test	Result - Remark	Verdict

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

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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)
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	
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	

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Clause	Requirement + Test	Result - Remark	Verdict

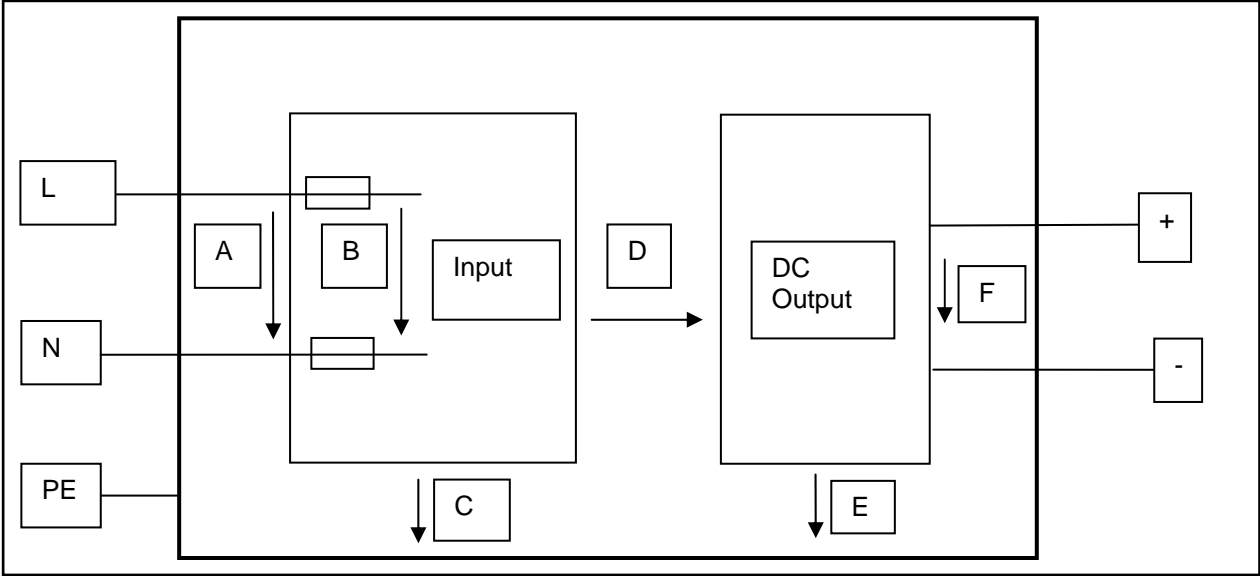
2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements						P
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)	
D3 - Primary to Secondary on PCB near Optical insulators (for 320 Vdc)	384	368	4,0	7,4	7,4*	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	
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	

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Clause	Requirement + Test	Result - Remark	Verdict

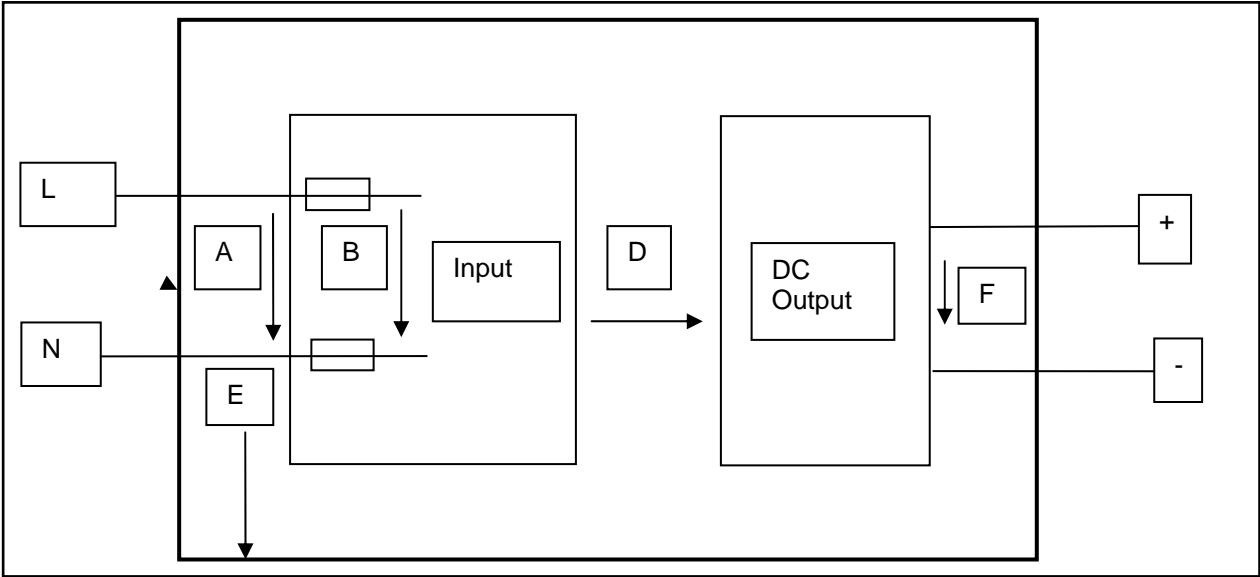
2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements					P
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)
D4 - Primary to Secondary on PCB (for 240 Vac)	392	240 {230,3}	4,0	6,9	4,8*	9,8
D4 - Primary to Secondary on PCB (for 320 Vdc)	544	325	4,4	6,9	6,5*	9,8
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
<p>Supplementary information:</p> <p>* Value was interpolated.</p> <p>{ } means, that maximum rated input voltage was applied, but the measured value is mentioned in brackets.</p> <p>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).</p>						

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Clause	Requirement + Test	Result - Remark	Verdict

Block diagram for power supply units with PE:

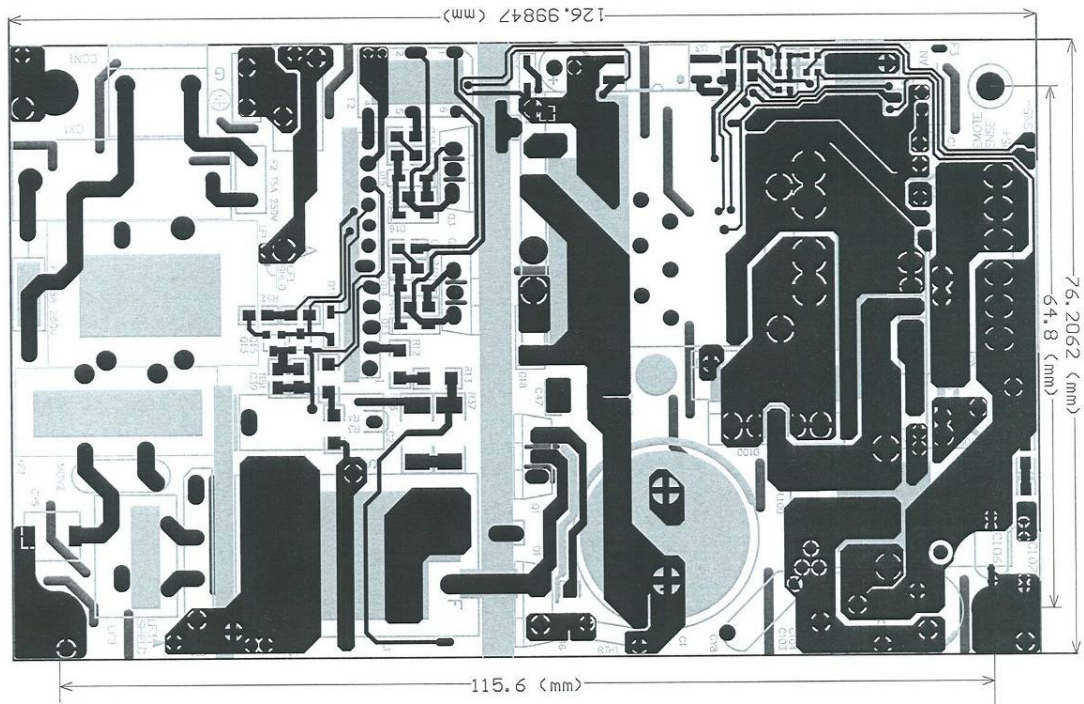


Block diagram for power supply units without PE:

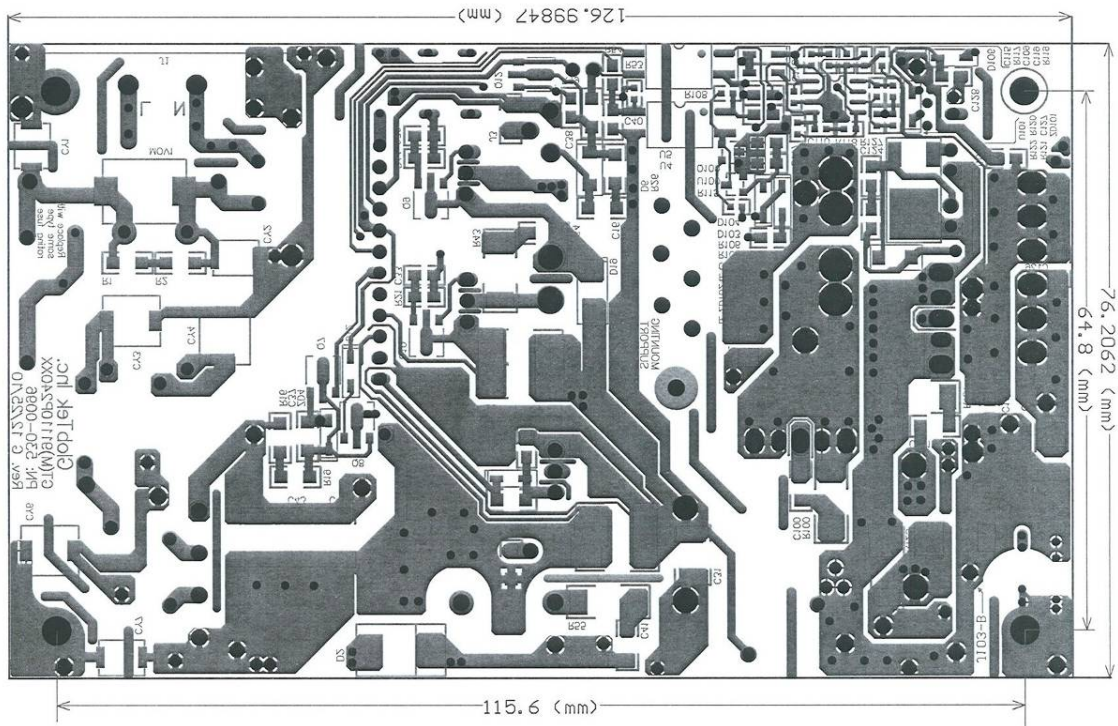


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Clause	Requirement + Test	Result - Remark	Verdict

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
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. 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.				
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 -H10XX or -H0XXX or -H1XXX							
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)							

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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-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)							

IEC/EN 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):	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)							

IEC/EN 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)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)							

IEC/EN 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):	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)							

IEC/EN 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):	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)							

IEC/EN 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) :	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/EN 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 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/EN 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) :	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)							

IEC/EN 60950-1			
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)							

IEC/EN 60950-1			
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)							

IEC/EN 60950-1			
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)							

IEC/EN 60950-1			
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)							

IEC/EN 60950-1			
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)							

IEC/EN 60950-1			
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)							

IEC/EN 60950-1			
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)							

IEC/EN 60950-1			
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)							

IEC/EN 60950-1			
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)							

IEC/EN 60950-1			
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 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)							

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

4.5	TABLE: Thermal requirements						P
	Supply voltage (V \equiv) :	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 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 $\overline{=}$)	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 \Rightarrow) :	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 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 \Rightarrow)	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 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 $\overline{=}$)	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 $\overline{=}$) :	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)							

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

4.5	TABLE: Thermal requirements						P
	Supply voltage (V $\overline{=}$)	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)							

IEC/EN 60950-1			
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)							

IEC/EN 60950-1			
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 \Rightarrow)	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 $\overline{=}$)	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 -H10XX or -H0XXX or –H1XXX							
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 \Rightarrow)	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.	
Main to Output (-55V)	0,239	0,25	Without load. Switch “e” closed, “p1” reverse on, “p2” reverse on.	

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Clause	Requirement + Test	Result - Remark	Verdict

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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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

Supplementary information:

There was no flame, extensive smoke or melted metal.

When components were failing, the test was repeated two times.

Test time: The time until the effect occurred was recorded. The value in bracket records the time, the failure was not removed.

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.	

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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

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

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.

IEC/EN 60950-1						
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.

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

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

Supplementary information:

There was no flame, extensive smoke or melted metal.

When components were failing, the test was repeated two times.

Test time: The time until the effect occurred was recorded. The value in bracket records the time, the failure was not removed.

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

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

IEC 60950-1:2005			
Clause	Difference – Test	Result – Remark	Verdict
USA - Differences to IEC 60950-1:2005, Second Edition			
1.1	Equipment able to be installed in accordance with the National Electrical Code ANSI/NFPA 70	EUT is intended for building-in.	P
1.1.1	Equipment able to be installed in accordance with ANSI/NFPA 75 and NEC Art. 645 unless intended for use outside of computer room and provided with such instructions.	--	N/A
1.1.2	Equipment in wire-line communication facilities serving high-voltage electric power stations operating at greater than 1kV are excluded.	--	N/A
1.1.2	Equipment intended for outdoor use	EUT is not intended for outdoor use.	N/A
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20 A.	--	N/A
1.5.1	All IEC standards for components identified in Annex P.1 replaced by the relevant requirements of UL component standards in Annex P.1.	--	P
1.5.1	All IEC standards for components identified in Annex P.2 alternatively satisfied by the relevant requirements of UL component standards	--	P
1.5.5	Interconnecting cables acceptable for the application regarding voltage, current, temperature, flammability, mechanical serviceability and the like.	No interconnecting cables are used.	N/A
1.5.5	For other than limited power and TNV circuits, the type of output circuit identified for output connector.	--	P
1.5.5	External cable assemblies that exceed 3.05 m in length to be types specified in the NEC	--	N/A

IEC 60950-1:2005			
Clause	Difference – Test	Result – Remark	Verdict
1.5.5	Detachable external interconnecting cables 3.05 m or less in length and provided with equipment marked to identify the responsible organization and the designation for the cable	--	N/A
1.5.5	Building wiring and cable for use in ducts, plenums and other air handling space subject to special requirements and excluded from scope.	--	N/A
1.5.5	Telephone line and extension cords and the like comply with UL 1863	--	N/A
1.6.1.2	Equipment intended for connection to a d.c. power (mains) distribution system subjected to special circuit classification requirements (e.g., TNV-2)	--	N/A
1.6.1.2	Earthing of d.c. powered equipment provided	For unit with PE.	P
1.7	Lamp replacement information indicated on lampholder in operator access area	--	N/A
1.7.1	Special marking format for equipment intended for use on a supply system with an earthed neutral and more than one phase conductor	Single phase unit.	N/A
1.7.1	Equipment voltage rating not higher than rating of the plug except under special conditions	--	N/A
1.7.6	Fuse replacement marking for operator accessible fuses	--	N/A
1.7.7	Identification of terminal connection of the equipment earthing conductor	Symbol for protective earthing conductor provided near the terminal.	P
1.7.7	Connectors and field wiring terminals for external Class 2 or Class 3 circuits provided with marking indicating minimum Class of wiring to be used.	--	N/A
1.7.7	Marking located adjacent to terminals and visible during wiring	--	N/A
2.1.1.1	Bare TNV conductive parts protected by a cover are exempt if instructions include directions for disconnection of TNV prior to removal of the cover	--	N/A
2.3.1.b	Other telecommunication signaling systems than described in 2.3.1(b) are subject to M.4.	--	N/A
2.3.1.b	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 Vp or 60 V d.c., the max. current limit through a resistor ≥ 2000 Ohm with loads disconnected is 7.1 mA peak or 30 mA d.c. under normal conditions	--	N/A

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Clause	Difference – Test	Result – Remark	Verdict
2.3.1.b	Limits for measurements across 5000 Ohm resistor in the event of a single fault are replaced after 200 ms with the limits of M.3.1.4.	--	N/A
2.3.2.1	For a single fault, the limits of 2.2.3 apply to SELV circuits and accessible conductive parts.	--	N/A
2.3.2.4	Enamel coating on signal transformer winding wire allowed as an alternative to Basic insulation in specific telecommunication applications if subject to special construction requirements and testing	--	N/A
2.5	Overcurrent protection device required for Class 2 and Class 3 limiting according to the NEC, or for a Limited Power Source, not interchangeable with devices of higher ratings if operator replaceable	--	N/A
2.6	Equipment having receptacles for output a.c. power connectors generated from an internal separately derived source have the earthed (grounded) circuit conductor suitably bonded to earth.	--	N/A
2.6.3.3	For Pluggable Equipment Type A, if a) b) or c) are not applicable, the current rating of the circuit is taken as 20 A	EUT is intended for building-in.	N/A
2.6.3.4	Capacity of connection between earthing terminal and parts required to be earthed subject to special conditions based on the current rating of the circuit.	--	P
2.6.4.1	Field wiring terminals for earthing conductors suitable for wire sizes (gauge) used in US	No field wiring terminals for earthing provided.	N/A
2.7.1	Data for selection of special external branch circuit overcurrent devices marked on the equipment	Unit is intended for building-in. See Summary of testing.	N/A
2.7.1	Standard supply outlets protected by overcurrent device in accordance with the NEC	--	N/A
2.7.1	Overcurrent protection for individual transformers that distribute power to other units over branch circuit wiring	--	N/A
2.7.1	Additional requirements for overcurrent protection apply to equipment provided with panelboards	--	N/A
2.7.1	Non-motor-operated equipment requiring special overcurrent protective device marked with device rating.	--	N/A
2.10.5.12	Multi-layer winding wire subject to UL component wire requirements in addition to 2.10.5.12 and Annex U.	IEC / UL approved triple insulated wire is used. See list of critical components.	P

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Clause	Difference – Test	Result – Remark	Verdict
3.1.1	Permissible combinations of internal wiring/external cable sizes for overcurrent & short circuit protection	--	P
3.1.1	All interconnecting cables protected against overcurrent and short circuit.	No interconnecting cables.	N/A
3.2	Wiring methods permit connection of equipment to primary power supply in accordance with the NEC	Approved connectors are used (see list of safety critical components).	P
3.2.1	Permitted use for flexible cords and plugs.	--	N/A
3.2.1	Flexible cords provided with attachment plug rated 125% of equipment current rating.	--	N/A
3.2.1	Any Class II equipment provided with 15 or 20 A standard supply outlets, Edison-base lampholders or single pole disconnect device provided with a polarized type attachment plug.	--	N/A
3.2.1.2	Equipment intended for connection to DC mains supply power systems complies with special wiring requirements	The unit is not intended for direct connection to d.c. mains.	N/A
3.2.1.2	Equipment with one pole of the DC mains supply connected to both the equipment mains input terminal and the main protective earthing terminal provided with special instructions and construction provisions for earthing	--	N/A
3.2.1.2	Equipment with means for connecting supply to earthing electrode conductor has no switches or protective devices between supply connection and earthing electrode connection.	--	N/A
3.2.1.2	Markings and instructions for equipment with provisions to connect earthed conductor of a DC supply circuit to the equipment earthing conductor	The unit is not intended for direct connection to d.c. mains supply.	N/A
3.2.1.2	Special markings and instructions for equipment with earthed conductor of a DC supply circuit connected to the equipment earthing conductor	--	N/A
3.2.1.2	Terminals and leads provided for permanent connection of DC powered equipment to supply marked to indicate polarity if reverse polarity may result in a hazard.	--	N/A
3.2.3	Permanently connected equipment has provision for connecting and securing a field wiring system (i.e. conduit, or leads etc.) per the NEC	The unit is intended for building-in. The unit is not intended for direct connection to the mains.	N/A

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Clause	Difference – Test	Result – Remark	Verdict
3.2.3	Permanently connected equipment may have terminals or leads not smaller than No. 18 AWG (0.82 mm ²) and not less than 150 mm in length for connection of field installed wiring.	--	N/A
3.2.3	If supply wires exceed 60 °C, marking indicates use of 75 °C or 90 °C wiring for supply connection as appropriate.	--	N/A
3.2.3	Equipment compatible with suitable trade sizes of conduits and cables.	The unit is intended for building-in.	N/A
3.2.5	Length of power supply cord limited to between 1.5 and 4.5 m unless shorter length used when intended for a special installation.	--	N/A
3.2.5	Conductors in power supply cords sized per NEC	--	N/A
3.2.5	Power supply cords and cord sets incorporate flexible cords suitable for the particular application.	--	N/A
3.2.6	Strain relief provided for non-detachable interconnecting cables not supplied by a limited power source.	--	N/A
3.2.9	Adequate wire bending space and volume of field wiring compartment required to properly make the field connections.	End product consideration.	N/A
3.2.9	Equipment solely for installation in Restricted Access Locations using low voltage d.c. systems may not need provision for connecting and securing a field wiring system when wiring is protected from abuse.	--	N/A
3.3	Field wiring terminals provided for interconnection of units for other than LPS or Class 2 circuits also comply with 3.3.	--	N/A
3.3	Interconnection of units by LPS or Class 2 conductors may have field wiring connectors other than specified in 3.3 if wiring is reliably separated	--	N/A
3.3.1	Terminals for the connection of neutral conductor identified by a distinctive white marking or other equally effective means	No wiring terminals are used.	N/A
3.3.3	Wire binding screw terminal permitted for connection of No. 10 AWG (5.3 mm ²) or smaller conductor if provided with upturned lugs, cupped washer or equivalent retention.	--	N/A
3.3.4	Terminals accept US wire sizes (gauge)	--	N/A
3.3.4	Terminals accept current-carrying conductors rated 125% of the equipment current rating.	--	N/A

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Clause	Difference – Test	Result – Remark	Verdict
3.3.6	Field wiring terminals marked to indicate the material(s) of the conductor for the terminals used	--	N/A
3.3.6	Aluminum conductors not permitted for connection to terminal for equipment earthing conductor	End product consideration.	N/A
3.3.6	Field wiring connections made through the use of suitable pressure connectors (including set screw type), solder lugs or splices to flexible leads.	--	N/A
3.4.2	Separate motor control device(s) required for cord-connected equipment rated more than 12 A, or with motor rated more than 1/3 hp or more than 120 V.	--	N/A
3.4.8	Vertically mounted disconnect devices oriented so up position of handle is "on".	--	N/A
3.4.11	For computer-room applications, equipment with battery systems capable of supplying 750 VA for 5 minutes provided with battery disconnect means	--	N/A
4.2.8.1	Special opening restrictions for enclosures around CRTs with face dimension of 160 mm or more.	--	N/A
4.2.9	Compartment housing high-pressure lamp marked to indicate risk of explosion.	-	N/A
4.2.11	For equipment mounted on racks and provided with slide/rails allowing the equipment to slide away from the rack for installation and maintenance, additional construction, performance and marking requirements are applicable to determine the adequacy of the slide/rails	EUT is not intended for rack-mounting.	N/A
4.3.2	Loading test for equipment with handle(s) used to support more than 9 kg	--	N/A
4.3.6	In addition to the IEC requirements, Direct Plug-in Equipment complies with UL 1310	EUT is not direct plug-in equipment.	N/A
4.3.12	The max. quantity of flammable liquid stored in equipment per ANSI/NFPA 30 (Table NAE.6)	--	N/A
4.3.12	Equipment using replenishable liquids marked to indicate type of liquid to be used.	--	N/A
4.3.13.2	Equipment that produces x-radiation and does not comply with 4.3.12 under all conditions of servicing marked to indicate the presence of radiation	--	N/A
4.3.13.5	Requirements contained in the applicable national codes apply to lasers (21 CFR 1040).	--	N/A

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Clause	Difference – Test	Result – Remark	Verdict
4.7	Automated information storage equipment intended to contain more than 0.76 m ³ of combustible media requires provision for automatic sprinklers or a gaseous agent extinguishing system.	--	N/A
4.7.3.1	Equipment for use in environmental air space other than ducts or plenums provided with metal enclosure or with non-metallic enclosure having adequate fire-resistance and low smoke producing characteristics (according to UL 2043). Equipment for installation in space used for environmental air, described in Sec. 300-22(c) of the NEC, provided with instructions indicating suitability for installation	--	N/A
4.7.3.1	Flame spread rating for external surface of combustible material with exposed area greater than 0.93 m ² or a single dimension greater than 1.8 m; 50 or less for computer room applications or 200 or less for other applications.	--	N/A
4.7.3.4	Wire marked "VW-1" or "FT-1" considered equivalent.	No internal wiring.	N/A
5.1.8.2	Special earthing provisions and instructions for equipment with high touch current due to telecommunication network connections.	--	N/A
5.1.8.3	Touch current due to ringing voltage for equipment containing telecommunication network leads.	--	N/A
5.3.7	Overloading of SELV connectors and printed wiring board receptacles accessible to the operator.	Unit is intended for building-in. Output overload was performed.	N/A
5.3.7	Tests interrupted by opening of a component repeated two additional times.	--	P
5.3.9.1	Test interrupted by opening of wire or trace subject to certain conditions.	--	N/A
6	Specialized instructions for telephones that may be connected to a telecommunications network	--	N/A
6	Marking identifying function of telecommunication type connectors not used for connection to a telecommunication network.	--	N/A
6.3	Equipment remotely powered over telecommunication wiring systems provided with specialized markings adjacent to the connection.	--	N/A

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Clause	Difference – Test	Result – Remark	Verdict
6.3	Overcurrent protection incorporated into equipment to provide power over telecommunication wiring system not interchangeable with devices of higher ratings if operator replaceable.	--	N/A
6.4	Additional requirements for equipment connected to a telecommunication network using cable subject to overvoltage from power line failures	--	N/A
6.4	Where 26 AWG line cord required by Fig. 6C, either the cord is provided with the equipment or described in the safety instructions.	--	N/A
7	Equipment associated with the cable distribution system may need to be subjected to applicable parts of Chapter 8 of the NEC.	--	N/A
H	Ionizing radiation measurements made under single fault conditions according to 21 CFR 1020	--	N/A
M.2	Continuous ringing signals evaluated to Method A subjected to special accessibility considerations.	--	N/A
M.4	Special requirements for message waiting and similar telecommunications signals.	--	N/A
NAC	Equipment for use with a generic secondary protector marked with suitable instructions.	--	N/A
NAC	Equipment marked with suitable instructions if for use with a specific primary or secondary protector	--	N/A
NAD	Acoustic pressure from an ear piece for short and long duration disturbances	--	N/A
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
NAF	Household/Home Office Document Shredders		N/A
NAF.1.7	Markings and instructions alert the user to key safety considerations related to use of shredders, including not intended to be used by children, avoid touching document feed opening, avoid clothes and hair entanglement, and avoid aerosol products.	--	N/A
NAF.2.8.3	Safety interlock cannot be inadvertently activated by the articulated accessibility probe	--	N/A
NAF.3.4	Provided with an isolating switch complying with 3.4.2, including 3 mm contact gap, with appropriate markings associated with the switch.	--	N/A

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Clause	Difference – Test	Result – Remark	Verdict
NAF.4.4	Hazardous moving parts are not accessible, as determined using the articulated accessibility probe and the accessibility probe/wedge	--	N/A

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Clause	Difference – Test	Result – Remark	Verdict
National Differences for Canada			
Canada and the United States of America have adopted a single, bi-national standard, CAN/CSA C22.2 No. 60950-1/UL60950-1, Second Edition, which is based on IEC 60950-1, Second Edition. This bi-national standard should be consulted for further details on the national conditions and differences summarized below.			
SPECIAL NATIONAL CONDITIONS			
The following is a summary of the key national differences based on national regulatory requirements, such as the Canadian Electrical Code (CEC) Part and the Canadian Building Code, which are referenced in legislation and which form the basis for the rules and practices followed in electrical and building installations.			
1.1.1	All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.	EUT is intended for building-in.	P
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A..... :	EUT is intended for building-in.	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. :	No interconnecting cables.	N/A
	For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the CEC/NEC 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.	Single phase unit.	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 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. Marking shall be located adjacent to the terminals and shall be visible during wiring.	No wiring terminals are used.	N/A

IEC 60950-1:2005			
Clause	Difference – Test	Result – Remark	Verdict
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
2.7.1	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable. Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.	--	N/A
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains shall be in accordance with the NEC/CEC.	--	N/A
3.2.1	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.	Power supply cord not used.	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.	EUT is intended for building-in and not intended for direct connection to the mains.	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.	EUT is not permanently connected equipment.	N/A
3.2.5	Power supply cords are required to be no longer than 4.5 m in length. Flexible power supply cords are required to be compatible with Tables 11 and 12 of the CEC and Article 400 of the NEC.	Power supply cord not used.	N/A
3.2.9	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.	--	N/A
3.3	Wiring terminals and associated spacings for field wiring connections shall comply with CSA C22.2 No. 0.	--	N/A
3.3.3	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm ²).	--	N/A
3.3.4	Terminals for permanent wiring, including protective earthing terminals, are required to be suitable for Canadian/US wire gauge sizes, rated 125 percent of the equipment rating, and be specially marked when specified (1.7.7).	--	N/A


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Clause	Difference – Test	Result – Remark	Verdict
3.4.2	Motor control devices are required for cord-connected equipment with a motor if the equipment is rated more than 12 A, or if the motor has a nominal voltage rating greater than 120 V, or is rated more than 1/3 hp (locked rotor current over 43 A).	--	N/A
3.4.8	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position.	--	N/A
3.4.11	For computer room applications, equipment with battery systems capable of supplying 750 VA for five minutes are required to have a battery disconnect means that may be connected to the computer room remote power-off circuit.	--	N/A
	Battery system: When power-off is activated:	--	N/A
4.3.12	The maximum quantity of flammable liquid stored in equipment is required to comply with NFPA 30.	--	N/A
	Flammable liquid material: Flash point: Boiling point: Container material: Storage container size:	--	N/A
4.3.13.5	Equipment with lasers is required to meet the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations 21 CFR 1040, as applicable.	--	N/A
4.7	For computer room applications, automated information storage systems with combustible media greater than 0.76 m3 (27 cu ft) are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.	--	N/A
4.7.3.1	For computer room applications, enclosures with combustible material measuring greater than 0.9 m2 (10 sq ft) or a single dimension greater than 1.8 m (6 ft) are required to have a flame spread rating of 50 or less. For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less.	--	N/A
Annex H	Equipment that produces ionizing radiation is required to comply with the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations, 21 CFR 1020, as applicable.	--	N/A

OTHER DIFFERENCES

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

IEC 60950-1:2005			
Clause	Difference – Test	Result – Remark	Verdict
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.	See safety component list.	P
1.6.1.2	A circuit for connection to the DC Mains Supply is classified as either a SELV Circuit, TNV-2 Circuit or Hazardous Voltage Circuit depending on the maximum operating voltage of the supply. This maximum operating voltage shall include consideration of the battery charging “float voltage” associated with the intended supply system, regardless of the marked power rating of the equipment.	--	—
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, SELV Circuits and accessible conductive parts comply with the North American limits of 2.2.3.	--	N/A
2.6.3.4	Protective bonding conductors of non-standard protective bonding constructions (e.g., printed circuit traces) subjected to the additional limited short circuit test conditions specified, if required.	--	N/A
4.2.8.1	Enclosures around CRTs with a face diameter of 160 mm or more are provided with suitable enclosure to reduce the risk of injury due to the implosion of the CRT.	No CRT is used.	N/A

IEC 60950-1:2005			
Clause	Difference – Test	Result – Remark	Verdict
	Projected area of opening : Minor dimension of projected area :	--	—
4.2.11	For equipment intended for mounting on racks and provided with slide/rails allowing the equipment to slide away from the rack for installation, service and maintenance, additional construction, performance and marking requirements are applicable to determine the adequacy of the slide/rails.	EUT is not intended for rack-mounting.	N/A
4.3.2	Equipment with handles is required to comply with special loading tests.	--	N/A
5.1.8.3	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests.	--	N/A
	Ringing ports provided: Simulation provided to: Measured total touch current :	--	—
5.3.7	Internal (e.g., card cage) SELV circuit connectors and printed wiring board connectors that are accessible to the operator and that deliver power are to be overloaded. During abnormal operating testing, if a circuit is interrupted by the opening of a component, the test shall be repeated twice (three tests total) using new components as necessary.	--	N/A
6.4	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC.	--	N/A
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
Annex NAF	Document (paper) shredders likely to be used in a home or home office (Pluggable Equipment Type A plug configuration) are required to comply with additional requirements, including markings/instructions, protection against inadvertent reactivation of a safety interlock, disconnection from the mains supply (via provision of an isolating switch), and protection against operator access (accessibility determined via new accessibility probe & probe/wedge).	--	N/A

IEC 60950-1:2005			
Clause	Difference – Test	Result – Remark	Verdict
Annex NAF			
Household/home office Document shredders			
NAF1.7	Markings and Instructions	--	N/A
NAF 1.7.15	Symbols alerting the user to the following considerations are provided adjacent to the document feed opening. These symbols are explained in the instructions:	--	N/A
	Product is not intended for use by children (product is not a toy)	--	N/A
	Avoid touching the document feed opening with hands	--	N/A
	Avoid clothing touching the document feed opening	--	N/A
	Keep aerosol products away (applicable for product with brush motor only)	--	N/A
	The  (ISO 7000-0434) symbol to alert user to important operating, maintenance and/or servicing instructions and the explanation of above symbols	--	N/A
	Marking is permanent, comprehensible and easily discernible on the equipment.	--	N/A
NAF 2.8.3	Safety interlock can not be activated by articulated accessibility probe (NAF.1)	--	N/A
NAF 3.4	Isolation switch complying with 3.4.2 is provided to disconnect power to hazardous moving parts	--	N/A
	On/off marking is provided for two position switch . :	--	N/A
	Off marking for multi-position switch	--	N/A
		--	N/A
NAF 4.4	Protection against hazardous moving parts	--	N/A
	Accessibility probe (Fig NAF.1) is inserted without force into each opening and did not contact hazardous moving parts	--	N/A
	Operator accessible guards are removed and Accessibility wedge is inserted into each opening according without contacting mechanical hazards:	--	—
	Strip-cut (45N):	--	N/A
	Cross-cut (90N)	--	N/A

IEC 60950-1 / EN 60950-1					
Clause	Difference – Test	Result – Remark	Verdict		
AUSTRALIA-Differences to IEC 60950-1:2001 (national differences for IEC 60950-1:2005 do not exist)					
Annex ZZ (normative)					
Variations to IEC 60950-1:2001 for application in Australia and New Zealand					
ZZ.1 Introduction					
This Annex sets out variations between this Standard and IEC 60950-1:2001. These variations indicate national variations for purposes of the IECEE CB Scheme and will be published in the IECEE CB Bulletin. These variations are indicated within the body of the Standard.					
ZZ.” Variations					
The variations are as follows :					
1.2	Between the definitions for ‘Person, service’ and ‘Range, rated frequency’ insert the following: Ignition source 1.2.12.201	Considered.	P		
1.2.12.15	After the definition of 1.2.12.15, add the following: 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.	See abnormal testing.	P		
1.5.1	Add the following to the end of first paragraph: ‘or the relevant Australian/New Zealand Standard’.	--	N/A		
1.5.2	Add the following to the end of first and third dash items: ‘or the relevant Australian/New Zealand Standard’.	--	N/A		
2.1	Delete the Note.	--	N/A		
3.2.3	Delete Note 2.	Not permanently connected equipment.	N/A		
3.2.5.1	Modify Table 3B as follows: Delete the first four rows and replace with <table><tr><td>RATED CURRENT</td><td>Minimum conductor sizes</td></tr></table>	RATED CURRENT	Minimum conductor sizes	No cord provided.	N/A
RATED CURRENT	Minimum conductor sizes				

IEC 60950-1 / EN 60950-1					
Clause	Difference – Test			Result – Remark	Verdict
	OF EQUIPMENT A	Nominal cross-sectional area mm²	AWG or Kcmil (cross-sectional area in mm²) See note 1		
	Over 0.2 up to and including 3	0,5 ¹⁾	18 (0,8)		
	Over 3 up to and including 7,5	0,75	16 (1,3)		
	Over 7,5 up to and including 10	(0,75) ²⁾ 1,00	16 (1,3)		
	Over 10 up to and including 16	(1,0) ³⁾ 1,5	14 (2)		
	Replace footnote 1) with the following: ¹⁾ 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). Delete Note 1.			--	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 alternative tests refer to Clause 4.7.201.			--	N/A
4.7.201	Add the following after Clause 4.7.3.6. 4.7.201 Resistance to fire – Alternative tests 4.7.201.1 General Parts of non-metallic material shall be resistant to ignition and spread of fire. This requirement does not apply to decorative trims, knobs and other parts unlikely to be ignited or to propagate flames originating from inside the apparatus, or the following: Components that are contained in an enclosure having a flammability category of FV-0 according to AS/NZS 4695.707 and having openings only for the connecting wires filling the openings completely, and for ventilation not exceeding 1 mm in width regardless of length. The following parts which would contribute negligible fuel to a fire: small mechanical parts, the mass of which does not exceed 4 g, such as mounting parts, gears, cams, belts and bearings; small electrical components, such as capacitors with a volume not exceeding 1 750 mm ³ , integrated circuits, transistors and optocoupler packages, if these components are mounted on material of flammability category FV-1, or better, according			The flame rating of the components was evaluated to the requirements of IEC. The PCB board is specified min. V-1. Therefore no needle test was considered as required.	N/A

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
	<p>to AS/NZS 4695.707.</p> <p>NOTE In considering how to minimize propagation of fire and what ‘small parts’ are, account should be taken of the cumulative effect of small parts adjacent to each other for the possible effect of propagating 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. These tests are not carried out on internal wiring.</p> <p>4.7.201.2 Testing of non-metallic materials 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> <p>4.7.201.3 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>		

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test		Result – Remark
	<p>The test shall be also carried out on other parts of insulating material which are within a distance of 3mm 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 4695.2.2 with the following modifications:</p>		--
	<p>Clause of AS/NZS 4695.2.2</p> <p>5 Severities</p> <p>8 Test procedure</p> <p>8.2</p> <p>8.4</p> <p>8.5</p> <p>10 Evaluation of test results</p>	<p>Change</p> <p>Replace with:</p> <p>The duration of application of the test flame shall be 30 s ±1 s.</p> <p>Replace the first sentence with:</p> <p>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.</p> <p>The first paragraph does not apply.</p> <p>Addition:</p> <p>If possible, the flame shall be applied at least 10 mm from a corner.</p> <p>Replace with:</p> <p>The test shall be made on one specimen. If the specimen does not</p> <p>Replace with:</p> <p>The duration of burning (tb) shall not exceed 30 s. However, for printed circuit boards, it shall not exceed 15 s.</p>	--
	<p>The needle-flame test shall not be carried out on parts of material classified as V-0 or V-1 according to IEC 60695-11-10, provided that the sample tested was not thicker than the relevant part.</p> <p>4.7.201.4 Testing in the event of non-extinguishing material If parts, other than enclosures, do not withstand the glow wire tests of 4.7.201.3, by failure to extinguish within 30 s after the removal of the glow-wire tip, the needle-flame test detailed in 4.7.201.3 shall be made on all parts of non-metallic material which</p>		--

N/A

N/A

N/A

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Clause	Difference – Test	Result – Remark	Verdict
	<p>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. 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>4.7.201.5 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 — 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 FV-1 or better according to AS/NZS 4695.707, or the printed boards are protected by an enclosure meeting the flammability category FV-0 according to AS/NZS 4695.707, 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</p>		

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
	<p>supporting spark gaps which provides protection against overvoltages, is of flammability category FV-0 according to AS/NZS 4695.707 or the printed boards are contained in a metal enclosure, having openings only for connecting wires which fill the openings completely. 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>		
6.2.2	<p>Add the symbol NZ in the right hand margin beside the first paragraph.</p> <p>Add the following after the first paragraph:</p> <p>In Australia (this variation does not apply in New Zealand), compliance with 6.2.2 shall be checked by the tests of both 6.2.2.1 and 6.2.2.2.</p> <p>Delete the note.</p>	--	N/A
6.2.2.1	<p>Add the symbol NZ in the right hand margin beside the first paragraph including Note 1.</p> <p>Delete Note 2</p> <p>Add the following after the first paragraph:</p> <p>In Australia (this variation does not apply in New Zealand), the electrical separation is subjected to 10 impulses of alternating polarity, using the impulse test generator of annex N for 10/700µs impulses. The interval between successive impulses is 60 s and the initial voltage, U_c, is:</p> <p>for 6.2.1 a):7.0 kV for hand-held telephones and for headsets and 2.5 kV for other equipment; and 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

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
6.2.2.2	<p>Add the symbol NZ in the right hand margin beside the second paragraph.</p> <p>Delete the Note.</p> <p>Add the following after the second paragraph: In Australia (this variation does not apply in New Zealand), the a.c. test voltage is: for 6.2.1 a):3 kV; and 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
Annex P	<p>Add the following Normative References to Annex P:</p> <p>IEC 60065, Audio, Video and similar electronic apparatus—Safety requirements</p> <p>AS/NZS 3191, Approval and test specification—Electric flexible cords</p> <p>AS/NZS 3112, Approval and test specification—Plugs and socket-outlets</p> <p>AS/NZS 4695.707, Fire hazard testing of electrotechnical products—Methods of test for the determination of the flammability of solid electrical insulating materials when exposed to an igniting source</p>	<p>Considered.</p> <p>IEC approved material and components are used.</p>	P
Index	<p>Between the entries for 'polyimide insulating material' and 'powder' insert the following: potential ignition source 1.12.201, 4.7.201.3, 4.7.201.5</p>	--	P

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
CHINA-Differences to IEC 60950, Third Edition (1999) (National differences for IEC 60950-1:2005 and IEC 60950-1:2001 do not exist)			
1.	<p>Supply tolerance</p> <p>Item 1.4.5 of IEC60950 stipulates the tolerance of rated voltage is +6% and –10%, while GB4943-2001 makes a specification of tolerance of +10% and –10%.</p>	<p>The supply tolerance is covering the requirements.</p>	P

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
2.	<p>Power rating marking</p> <p>Item 1.7.1 of IEC60950 does not specify concrete figures of markings for supply voltage and frequency, instead, descriptions are given by examples. But the examples do not include China's mains voltage. GB4943-2001 stipulates that:</p> <ul style="list-style-type: none"> -A single rated voltage shall be expressed as 220V -When a rated voltage range is given, the range shall cover 220V -When a variety of rated voltages or rated voltage ranges are given, one of them shall be 220V, and shall be set as 220V when dispatched from the factory -Rated frequency or rated frequency range shall be 50Hz or include 50Hz -If a unit is not provided with a means for direct connection to the AC mains supply, it need not be marked with any electrical rating 	<p>See type label.</p> <p>Input voltage range is 100-240 Va.c.</p>	P
3.	<p>plate and warning marking in Chinese</p> <p>Item 1.7.12 of GB4943-2001 stipulates: instructions and equipment markings related to safety shall be in standardized Chinese.</p>	Chinese type label not part of this evaluation.	N/A
4.	<p>Power supply plug</p> <p>According to China's particular standards for power supply plug, it is added in article 3.2.1 of GB4943-2001 that plug connecting equipment with AC mains supply shall be in accordance with requirements of GB1002</p>	EUT is intended for building-in.	N/A

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
<p>JAPAN- Differences to IEC 60950, Third Edition (1999) (National differences to IEC 60950-1:2005 and IEC 60950-1:2001 do not exist)</p>			
1.2	<p>Addition:</p> <p>Add the following terms.</p> <p>Equipment, Class 0I 1.2.4.101</p> <p>Material, VTM 1.2.12.101</p>	Considered.	P

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
1.2.4.101	<p>Addition:</p> <p>CLASS 0I EQUIPMENT: Equipment where protection against electric shock is achieved by:</p> <ul style="list-style-type: none"> a) using BASIC INSULATION, and b) providing a means of connecting to the protective earthing conductor in the building wiring those conductive parts that are otherwise capable of assuming HAZARDOUS VOLTAGES if the BASIC INSULATION fails, and c) using a supply cord without earthing conductor and a plug without earthing wire although the equipment has externally an earth terminal or a lead wire for earthing. <p>Equipment provided with a cord set having a two-pin type plug with a lead wire for earthing is also regarded as Class 0I.</p> <p>NOTE – Class 0I equipment may have a part constructed with Double Insulation or Reinforced Insulation as well as an operating part as SELV circuit.</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
1.2.12.1	<p>Replacement:</p> <p>FLAMMABILITY CLASSIFICATION OF MATERIALS: The recognition of the burning behaviour of materials and their ability to extinguish if ignited. Materials are classified as in 1.2.12.2 to 1.2.12.9, and 1.2.12.101 when tested in accordance with annex A.</p> <p>NOTE 1 - When applying the requirements in this standard, HF-1 CLASS FOAMED MATERIALS are regarded as better than those of CLASS HF-2, and HF-2 better than HBF.</p> <p>NOTE 2 - Similarly, other MATERIALS, including rigid (engineering structural) foam of CLASSES 5V or V-0 are regarded as better than those of CLASS V-1, V-1 better than V-2, and V-2 better than HB.</p> <p>NOTE 3 - Similarly, for thin MATERIALS, VTM-0 Class materials are regarded as better than those of VTM-1 Class, and VTM-1 better than VTM-2.</p>	IEC/UL approved materials are used.	N/A
1.2.12.10 1	<p>Addition:</p> <p>VTM CLASS MATERIAL: Thin MATERIALS fulfill the specified conditions during the test of clause A.101 applied for materials that the test and evaluation of clauses A.6 to A.10 is difficult to enforce. Materials are classified to three classifications as VTM-0, VTM-1 and VTM-2 according to the conditions after the removal of the test flame.</p>	IEC/UL approved materials are used.	N/A

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
1.7.101	Addition: Marking for CLASS 0I EQUIPMENT For CLASS 0I EQUIPMENT, the following instruction shall be indicated on the visible place of the mains plug or the main body: “Provide an earthing connection” Moreover, for CLASS 0I EQUIPMENT, the following instruction shall be indicated on the visible place of the main body or written in the operating instructions: “Provide an earthing connection before the mains plug is connected to the mains. And, when disconnecting the earthing connection, be sure to disconnect after pulling out the mains plug from the mains.”	--	N/A
2.1.1.1	Replacement: Replace “IEC 60083” to “IEC 60083 or JIS C 8303” in 2.1.1.1 b).	Considered.	P
2.6.3.1	Addition: Add the following after 1st paragraph. This also applies to the conductor of lead wire for protective earthing of CLASS 0I EQUIPMENT.	EUT is intended for building-in. End product consideration.	N/A
2.6.4.1	Replacement: Replace 2nd sentence in 1st paragraph. For CLASS I EQUIPMENT with a DETACHABLE POWER SUPPLY CORD, the earthing terminal in the appliance inlet is regarded as the main protective earthing terminal.	Power supply cord is not used.	N/A
2.6.5.4	Replacement: Replace 1st sentence. Protective earthing connections of CLASS I EQUIPMENT shall make earlier and break later than the supply connections in each of the following:	EUT is intended for building-in. End product consideration.	N/A
2.6.101	Addition: Earthing of CLASS 0I EQUIPMENT Plugs with a lead wire for earthing shall not be used for equipment having a rated voltage exceeding 150V. For plugs with a lead wire for earthing, the lead wire shall not be earthed by a clip. CLASS 0I EQUIPMENT shall be provided with an earthing terminal or lead wire for earthing in the external where easily visible.	--	N/A
3.2.5	Delete 1) in Table 3B.	--	N/A

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
4.2.8	Addition: Add the following informative remark after the last sentence. Remark - IEC 61965 is also applicable instead of IEC 60065.	Cathode ray tubes not used.	N/A
4.5.1	Addition: Add the following to suffix 5) as specified in “Conditions applicable to Table 4A, Parts 1 and 2”. With regard to Table 4A, insulating materials complying with Japanese requirements (refer to Japanese differences for the current IEC 60335-1 (3rd Edition) in CB Bulletin 101B) are also acceptable. Add a suffix 7) in “Conditions applicable to Table 4A, Parts 1 and 2”. In the right column of Table 4A, Part 1, add suffix 7) to “50” (K), corresponding to “- without T – marking” in the left column so as to become “50 7)”. Add 7) to Table 4A, Part 2 as follows. 7) This value shall apply only to wiring or cords complying with relevant IEC standards. Others shall comply with Japanese requirements (refer to Japanese differences for the current IEC 60335-1 (3rd Edition) in CB Bulletin 101B).	EUT is intended for building-in.	N/A
4.7.3.2	Addition: Add the following in 7th paragraph. - for thin materials, e.g., flexible printed boards, etc., used inside equipment, be of FLAMMABILITY CLASS VTM-2 or better.	EUT is intended for building-in. End product consideration.	N/A
5.1.6	Replacement: Replace Table 5A.	Considered.	P

Type of equipment	Terminal A of measuring instrument connected to	Maximum TOUCH CURRENT (mA r.m.s.)	Maximum PROTECTIVE CONDUCTOR CURRENT
ALL equipment	Accessible parts and circuits not connected to protective earth	0.25	—
TRANSFORMER-POWERED EQUIPMENT	Equipment main protective earthing terminal of any CLASS I EQUIPMENT	0.75	—
TRANSFORMER-POWERED EQUIPMENT	Equipment main protective earthing terminal of any CLASS I EQUIPMENT	3.5	—
TRANSFORMER-POWERED EQUIPMENT	Equipment main protective earthing terminal of any CLASS I EQUIPMENT	2.5	—
TRANSFORMER-POWERED EQUIPMENT	Equipment main protective earthing terminal of any CLASS I EQUIPMENT	2.5	—
TRANSFORMER-POWERED EQUIPMENT	Equipment main protective earthing terminal of any CLASS I EQUIPMENT	—	5 % of input current
TRANSFORMER-POWERED EQUIPMENT	Equipment main protective earthing terminal of any CLASS I EQUIPMENT	2.5	—
TRANSFORMER-POWERED EQUIPMENT	Equipment main protective earthing terminal of any CLASS I EQUIPMENT	1.5	—

* If peak values of TOUCH CURRENT are measured, the maximum values obtained by multiplying them with 1.414.

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
5.3.8.2	Replacement: Replace 3rd Item as follows. - BASIC INSULATION between the PRIMARY CIRCUIT and accessible conductive parts of CLASS I or 0I EQUIPMENT;	--	N/A
Annex A	Addition: Add the subclause A.101 with the title "Flammability tests for classifying materials VTM" and the following: Thin sheet materials shall comply with ISO 9773.	--	N/A
Annex G	Addition: Add the following to the Note for Table G.1. 2. In Japan, MAINS TRANSIENT VOLTAGE for equipment with a Nominal AC MAINS SUPPLY VOLTAGE of 100V is to be decided based on the column where Nominal AC MAINS SUPPLY VOLTAGE in Table G.1 is 150V.	--	N/A
Annex P	Addition: Add "IEC 61965:2000, Mechanical Safety for Cathode Ray Tubes".	--	N/A
Annex U	Replacement: Replace 2nd paragraph. This annex covers to round winding wires having diameters between 0.05 mm and 5.00 mm.	All TIW used are approved. See list of critical components for details.	N/A
U.2.1	Replacement: Electric strength The test sample is prepared according to IEC 60851-5:1997, 4.4.1 (for a twisted pair). The sample is then subjected to the test of 5.2.2 of this standard, with a test voltage not less than twice the appropriate voltage in table 5B (see 5.2.2) of this standard. However, the minimum values shall be as follows: - for BASIC INSULATION or SUPPLEMENTARY INSULATION, 3000 V, or; - for REINFORCED INSULATION, 6000 V.	--	N/A

IEC 60950-1 / EN 60950-1															
Clause	Difference – Test	Result – Remark	Verdict												
U.2.2	<p>Replacement:</p> <p>Flexibility and adherence</p> <p>Test 8 of IEC 60851-3:1996, 5.1.1, using the mandrel diameters of table U.1. The test sample is then examined in accordance with IEC 60851-3:1996, 5.1.1.4, followed by the test of 5.2.2 of this standard except applying the test voltage between the wire and the mandrel. A test voltage shall not be less than twice the appropriate voltage in table 5B (see 5.2.2) of this standard. However, the minimum values shall be as follows:</p> <p>- for BASIC INSULATION or SUPPLEMENTARY INSULATION, 1500 V, or;</p> <p>- for REINFORCED INSULATION, 3000 V.</p>	--	N/A												
Table U.1	<p>Replacement:</p> <p>Mandrel diameter</p> <table><tr><th>Normal Conductor diameter mm</th><th>Mandrel diameter mm ± 0.2 mm</th></tr><tr><td>0.06 – 0.36</td><td>0.5</td></tr><tr><td>0.36 – 0.49</td><td>6.5</td></tr><tr><td>0.50 – 0.74</td><td>8.0</td></tr><tr><td>0.75 – 2.49</td><td>10.0</td></tr><tr><td>2.50 – 5.00</td><td>4 times of the diameter of conductor¹⁾</td></tr></table> <p>¹⁾ in compliance with IEC 60317-43</p> <p>The tension to be applied to the wire during winding on the mandrel is calculated from the wire diameter to be equivalent to 118 Mpa ± 10 % (118 N/mm² ± 10 %).</p>	Normal Conductor diameter mm	Mandrel diameter mm ± 0.2 mm	0.06 – 0.36	0.5	0.36 – 0.49	6.5	0.50 – 0.74	8.0	0.75 – 2.49	10.0	2.50 – 5.00	4 times of the diameter of conductor ¹⁾	--	N/A
Normal Conductor diameter mm	Mandrel diameter mm ± 0.2 mm														
0.06 – 0.36	0.5														
0.36 – 0.49	6.5														
0.50 – 0.74	8.0														
0.75 – 2.49	10.0														
2.50 – 5.00	4 times of the diameter of conductor ¹⁾														

Enclosure No. 1a

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

EN 60950-1:2006/A11:2009 – CENELEC COMMON MODIFICATIONS

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications (EN)) according to EN 60950-1:2006/A11:2009					
Clause	Requirement + Test			Result - Remark	Verdict
IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications (EN))					
Contents	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations				P
General	Delete all the “country” notes in the reference document according to the following list: 1.4.8 Note 2 1.5.1 Note 2 & 3 1.5.7.1 Note 1.5.8 Note 2 1.5.9.4 Note 1.7.2.1 Note 4, 5 & 6 2.2.3 Note 2.2.4 Note 2.3.2 Note 2.3.2.1 Note 2 2.3.4 Note 2 2.6.3.3 Note 2 & 3 2.7.1 Note 2.10.3.2 Note 2 2.10.5.13 Note 3 3.2.1.1 Note 3.2.4 Note 3. 2.5.1 Note 2 4.3.6 Note 1 & 2 4.7 Note 4 4.7.2.2 Note 4.7.3.1Note 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				P
1.3.Z1	Add the following subclause: 1.3.Z1 Exposure to excessive sound pressure The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones. NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 1: General method for “one package equipment”, and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers.			EUT not produces sound pressure.	N/A

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications (EN)) according to EN 60950-1:2006/A11:2009			
Clause	Requirement + Test	Result - Remark	Verdict
1.5.1	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	--	P
1.7.2.1	Add the following NOTE: NOTE Z1 In addition, the instructions shall include, as far as applicable, a warning that excessive sound pressure from earphones and headphones can cause hearing loss	--	N/A
2.7.1	Replace the subclause as follows: Basic requirements 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): 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; 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
	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. 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.	--	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

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications (EN)) according to EN 60950-1:2006/A11:2009									
Clause	Requirement + Test	Result - Remark	Verdict						
3.2.5.1	<p>Replace “60245 IEC 53” by “H05 RR-F”; “60227 IEC 52” by “H03 VV-F or H03 VVH2-F”; “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								
3.3.4	<p>In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following:</p> <p>Over 10 up to and including 16 1,5 to 2,5 1,5 to 4 </p> <p>Delete the fifth line: conductor sizes for 13 to 16 A</p>	--	N/A						
4.3.13.6	<p>Add the following NOTE:</p> <p>NOTE Z1 Attention is drawn to 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz. Standards taking into account this Recommendation which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.</p>	--	N/A						
Annex H	<p>Replace the last paragraph of this annex by:</p> <p>At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 µSv/h (0,1 mR/h) (see NOTE). Account is taken of the background level.</p> <p>Replace the notes as follows:</p> <p>NOTE These values appear in Directive 96/29/Euratom.</p> <p>Delete NOTE 2.</p>	--	N/A						
Bibliography	Additional EN standards.	--	—						

ZA	NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS	—
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ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)	P
1.2.4.1	In Denmark , certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.	EUT is intended for building-in. N/A

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications (EN)) according to EN 60950-1:2006/A11:2009			
Clause	Requirement + Test	Result - Remark	Verdict
1.2.13.14	In Norway and Sweden , for requirements see 1.7.2.1 and 7.3 of this annex.	--	N/A
1.5.7.1	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 such resistors provided.	N/A
1.5.8	In Norway , due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).	--	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.	EUT is intended for building-in.	N/A
1.7.2.1	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. The marking text in the applicable countries shall be as follows: In Finland: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan"	--	N/A

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications (EN)) according to EN 60950-1:2006/A11:2009			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>In Norway: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In Sweden: "Apparaten skall anslutas till jordat uttag"</p> <p>In Norway and Sweden, the screen of the cable distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation need to be isolated from the screen of a cable distribution system.</p> <p>It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by e.g. a retailer.</p> <p>The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in:</p> <p>"Equipment connected to the protective earthing of the building installation through the mains connection or through other equipment with a connection to protective earthing – and to a cable distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a cable distribution system has therefore to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)."</p> <p>NOTE In Norway, due to regulation for installations of cable distribution systems, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway):</p> <p>"Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel-TV nettet."</p> <p>Translation to Swedish:</p> <p>"Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet."</p>	--	N/A

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications (EN)) according to EN 60950-1:2006/A11:2009			
Clause	Requirement + Test	Result - Remark	Verdict
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.	No socket-outlets 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.	--	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.	Considered.	P
2.7.1	In the United Kingdom , to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.	EUT is not direct plug-in equipment.	N/A
2.10.5.13	In Finland, Norway and Sweden , there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.	--	N/A
3.2.1.1	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: SEV 6532-2.1991 Plug Type 15 3P+N+PE 250/400 V, 10 A	Power supply cord not used. EUT is intended for building-in.	N/A



IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications (EN)) according to EN 60950-1:2006/A11:2009			
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
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

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications (EN)) according to EN 60950-1:2006/A11:2009			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	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. NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.	--	N/A
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.	No appliance inlet is used.	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.	EUT is not direct plug-in equipment.	N/A

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications (EN)) according to EN 60950-1:2006/A11:2009			
Clause	Requirement + Test	Result - Remark	Verdict
5.1.7.1	<p>In Finland, Norway and Sweden TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment:</p> <ul style="list-style-type: none"> • STATIONARY PLUGGABLE EQUIPMENT TYPE A that <ul style="list-style-type: none"> ○ is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and ○ has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and ○ is provided with instructions for the installation of that conductor by a SERVICE PERSON; • STATIONARY PLUGGABLE EQUIPMENT TYPE B; • STATIONARY PERMANENTLY CONNECTED EQUIPMENT. 	--	N/A
6.1.2.1	<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>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement 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. 	--	N/A

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications (EN)) according to EN 60950-1:2006/A11:2009			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 132400:1994, 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 132400, 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 132400; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400. 	--	N/A
6.1.2.2	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.	--	N/A
7.2	In Finland, Norway and Sweden , for requirements see 6.1.2.1 and 6.1.2.2 of this annex. The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.	--	N/A
7.3	In Norway and Sweden , for requirements see 1.2.13.14 and 1.7.2.1 of this annex.	--	N/A
7.3	In Norway , for installation conditions see EN 60728-11:2005.	--	N/A

ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN). A-DEVIATIONS (informative)		P
1.5.1	<p>Sweden (Ordinance 1990:944)</p> <p>Add the following:</p> <p>NOTE In Sweden, switches containing mercury are not permitted.</p>	No switches are used.	N/A

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications (EN)) according to EN 60950-1:2006/A11:2009			
Clause	Requirement + Test	Result - Remark	Verdict
1.5.1	<p>Switzerland (Ordinance on environmentally hazardous substances SR 814.081, Annex 1.7, Mercury - Annex 1.7 of SR 814.81 applies for mercury.)</p> <p>Add the following:</p> <p>NOTE In Switzerland, switches containing mercury such as thermostats, relays and level controllers are not allowed.</p>	--	N/A
1.7.2.1	<p>Denmark (Heavy Current Regulations)</p> <p>Supply cords of CLASS I EQUIPMENT, which is delivered without a plug, must be provided with a visible tag with the following text:</p> <p style="text-align: center;">Vigtigt! Lederen med grøn/gul isolation må kun tilsluttes en klemme mærket</p> <p style="text-align: center;"> eller </p> <p>If essential for the safety of the equipment, the tag must in addition be provided with a diagram, which shows the connection of the other conductors, or be provided with the following text:</p> <p>“For tilslutning af de øvrige ledere, se medfølgende installationsvejledning.”</p>	EUT is intended for building-in and provided without supply cord.	N/A
1.7.2.1	<p>Germany (Gesetz über technische Arbeitsmittel und Verbraucherprodukte (Geräte- und Produktsicherheitsgesetz – GPSG) [Law on technical labour equipment and consumer products], of 6th January 2004, Section 2, Article 4, Clause (4), Item 2).</p> <p>If for the assurance of safety and health certain rules during use, amending or maintenance of a technical labour equipment or readymade consumer product are to be followed, a manual in German language has to be delivered when placing the product on the market.</p> <p>Of this requirement, rules for use even only by SERVICE PERSONS are not exempted.</p>	--	N/A
1.7.5	<p>Denmark (Heavy Current Regulations)</p> <p>With the exception of CLASS II EQUIPMENT provided with a socket outlet in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-4a, CLASS II EQUIPMENT shall not be fitted with socket-outlets for providing power to other equipment.</p>	No socket-outlet is used.	N/A
1.7.13	<p>Switzerland (Ordinance on chemical hazardous risk reduction SR 814.81, Annex 2.15 Batteries)</p> <p>Annex 2.15 of SR 814.81 applies for batteries.</p>	No batteries are used.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.1.7.1	Denmark (Heavy Current Regulations, Chapter 707, clause 707.4) TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for PERMANENTLY CONNECTED EQUIPMENT and PLUGGABLE EQUIPMENT TYPE B.	--	N/A