TEST REPORT

IEC 60950-1
Information technology equipment – Safety –
Part 1: General requirements

Report Number. .....:	ES190111003S
Date of issue .....:	2019-03-04
Total number of pages.....:	68
Applicant's name.....:	Shen Zhen Sunray Power co.Ltd
Address .....:	B16, Rd No.1, The First Industrial Zone, Bai Hua Dong, Guang Ming New District, Shen Zhen, China
Test specification:	
Standard.....:	IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013
Test procedure .....:	LVD
Non-standard test method .....:	N/A
Test Report Form No.....:	IEC60950_1F
Test Report Form(s) Originator ....:	SGS Fimko Ltd
Master TRF.....:	Dated 2014-02

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

General disclaimer:

The test results presented in this report relate only to the object tested.
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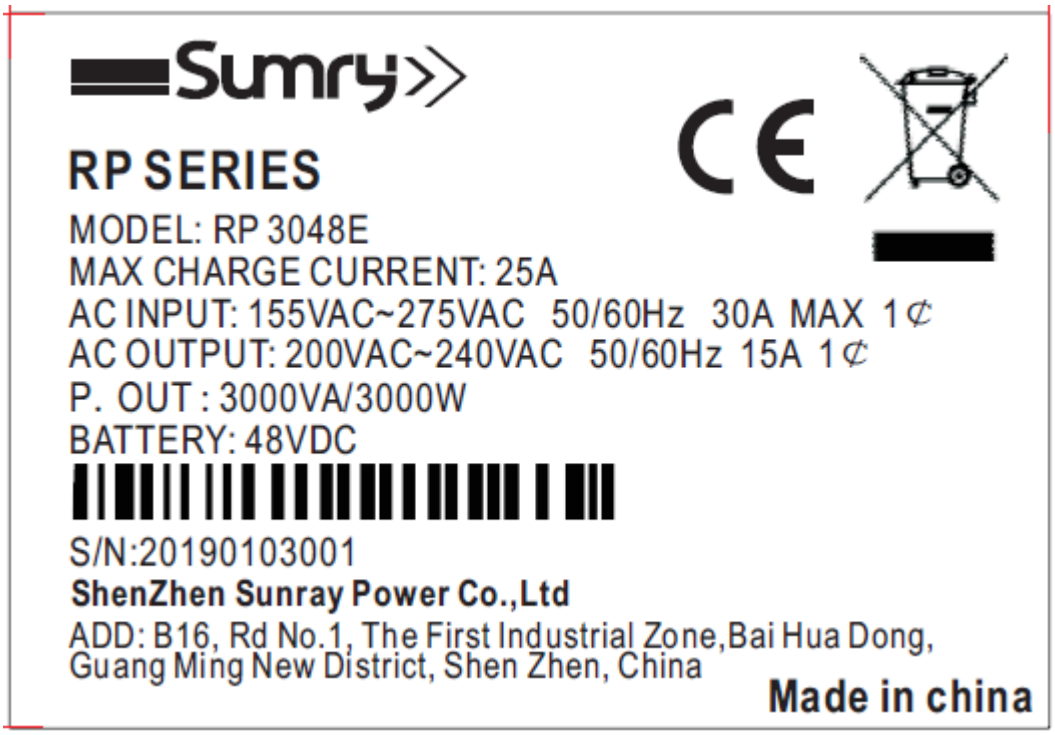
Test item description .....:	RP SERIES
Trade Mark .....:	Sumry
Manufacturer .....:	Same as Applicant
Model/Type reference.....:	RP3012E, RP3024E, RP3048E, RP1012E, RP1024E, RP2012E, RP2024E, RP2048E
Ratings.....:	See pages 4

Testing procedure and testing location:		
☒ CB Testing Laboratory:	EMTEK (Shenzhen) Co., Ltd	
Testing location/ address ..... :	Bldg 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China	
☐ Associated CB Testing Laboratory:		
Testing location/ address ..... :		
Tested by (name + signature) ..... :	Winson Huang / Engineer	
Approved by (name + signature) ..... :	William Guo / Manager	
☐ Testing procedure: TMP/CTF Stage 1:		
Testing location/ address ..... :		
Tested by (name + signature) ..... :		
Approved by (name + signature) ..... :		
☐ Testing procedure: WMT/CTF Stage 2:		
Testing location/ address ..... :		
Tested by (name + signature) ..... :		
Witnessed by (name + signature) ..... :		
Approved by (name + signature) ..... :		
☐ Testing procedure: SMT/CTF Stage 3 or 4:		
Testing location/ address ..... :		
Tested by (name + signature) ..... :		
Witnessed by (name + signature) ..... :		
Approved by (name + signature) ..... :		
Supervised by (name + signature) ..... :		

List of Attachments (including a total number of pages in each attachment): **- National Differences (12 pages)** **- Enclosures (3 pages)**	
Summary of testing: **N/A**	
Tests performed (name of test and test clause): Input: Single-Phase (1.6.2) Durability of Marking (1.7.11) SELV Reliability Test Including Hazardous Voltage Measurements (2.2.2, 2.2.3, 2.2.4, Part 22 6.1) Limited Current Circuit Measurements (2.4.1, 2.4.2) Resistance of earthing conductors (2.6.3.4) Humidity (2.9.1, 2.9.2, 5.2.2) Determination of Working Voltage; Working Voltage Measurement (2.10.2) Clearance and creepage distance measurements (2.10.3 and 2.10.4) Transformer and Wire /Insulation Electric Strength (2.10.5.13) Steady Force (4.2.1 - 4.2.4) Impact test (4.2.5) Heating (4.5.1, 1.4.12, 1.4.13) Touch Current (Single-Phase; TN/TT System) (5.1, Annex D) Electric Strength (5.2.2) Component Failure (5.3.1, 5.3.4, 5.3.7) Power Supply Output Short-Circuit/Overload (5.3.7)	**Testing location:** EMTEK (Shenzhen) Co., Ltd Bldg 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China
Summary of compliance with National Differences: EU Group Differences, EU Special National Conditions, EU A-Deviations ☒ The product fulfils the requirements of: EN 60950-1: 2006 + A11: 2009 + A1: 2010 + A12: 2011+A2: 2013	

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.



Remark:
For the final production samples, the additional markings which do not give rise to misunderstanding may be added. Other models have the same marking, except the model name and ratings.

Test item particulars.....:	
Equipment mobility.....:	[] movable [] hand-held [] transportable [x] stationary [] for building-in [] direct plug-in []To be determined in end system
Connection to the mains.....:	[] pluggable equipment [] type A [] type B [x] permanent connection [] detachable power supply cord [] non-detachable power supply cord [] not directly connected to the mains
Operating condition.....:	[x] continuous [] rated operating / resting time:
Access location .....:	[x] operator accessible [] restricted access location
Over voltage category (OVC) .....:	[] OVC I [x] OVC II [] OVC III [] OVC IV
Mains supply tolerance (%) or absolute mains supply values .....:	+10%, -10% (declared by manufacturer)
Tested for IT power systems .....:	[] Yes [x] No
IT testing, phase-phase voltage (V) .....:	
Class of equipment .....:	[x] Class I [] Class II [] Class III [] Not classified
Considered current rating of protective device as part of the building installation (A) .....:	30A
Pollution degree (PD) .....:	[] PD 1 [x] PD 2 [] PD 3
IP protection class .....:	IP20
Altitude during operation (m) .....:	Up to 2000m
Altitude of test laboratory (m) .....:	Below 2000m
Mass of equipment (kg) .....:	Approx. 27.3kg
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.....:	2019-02-10
Date (s) of performance of tests .....:	2019-02-10 to 2019-03-04
General remarks:	
"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. **Throughout this report a ☐ comma / ☒ point is used as the decimal separator.**	
Manufacturer's Declaration per sub-clause 4.2.5 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) ..... :	Shenzhen Foxpower Technology Co., Ltd R804, Ruijin Building C, Zhongxinbao Low Carbon Technology Industrial Park, Baihua 1st Industrial Park, Guangming New District, Shenzhen, Guangdong, China

General product information:

Product Description
The equipment under test (EUT) is a RP SERIES intended for used in information technology equipment. All electronic components are mounted on PWB and housed in a metal enclosure which secured by screw. Basic insulation is provided between AC input and metal enclosure.

Technical Considerations
The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 40°C
The product is intended for use on the following power systems: TN
All model are identical to each other except for model name and output power load.
The model RP 3048E and RP3012E used for all test

Model	RP3012E	RP3024E	RP1012E	RP1024E	RP2012E	RP2024E	RP2048E	RP3048E
Charge current	75A	50A	35A	15A	65A	35A	15A	25A
Output power	3000W	3000W	1000W	1000W	2000W	2000W	2000W	3000W
Charge voltage	12V	24V	12V	24V	12V	24V	48V	48V
Rating input	155-275VAC, 50/60Hz, 30A Max							
Rating output	200-240VAC, 50/60Hz, 15A Max							

Abbreviations used in the report:

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

Indicate used abbreviations (if any)

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1	**GENERAL**		P
1.5	**Components**		P
1.5.1	General		P
	Comply with IEC 60950-1 or relevant component standard	(see appended tables 1.5.1)	P
1.5.2	Evaluation and testing of components	Components which are certified to IEC and/or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment.	P
1.5.3	Thermal controls	No thermal controls	N/A
1.5.4	Transformers	Functional insulation transformer used only	P
1.5.5	Interconnecting cables		N/A
1.5.6	Capacitors bridging insulation	Basic insulation between primary side and earth side: Y2 capacitor according to IEC 60384-14.	P
1.5.7	Resistors bridging insulation		N/A
1.5.7.1	Resistors bridging functional, basic or supplementary insulation	Functional only	N/A
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits	No such resistors used	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		N/A
1.5.9	Surge suppressors	Comply with Annex Q	P
1.5.9.1	General		P
1.5.9.2	Protection of VDRs		P
1.5.9.3	Bridging of functional insulation by a VDR		N/A
1.5.9.4	Bridging of basic insulation by a VDR	The VDR bridging of basic insulation	P
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR		N/A
1.6	**Power interface**		P
1.6.1	AC power distribution systems	TN power system	P
1.6.2	Input current	(see appended table 1.6.2)	P

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6.3	Voltage limit of hand-held equipment		N/A
1.6.4	Neutral conductor		P
1.7	**Marking and instructions**		P
1.7.1	Power rating and identification markings	Rating marking readily visible to operator	P
1.7.1.1	Power rating marking	See below	P
	Multiple mains supply connections.....:	Single power source	N/A
	Rated voltage(s) or voltage range(s) (V) .....:	155-275VAC	P
	Symbol for nature of supply, for d.c. only.....:	⎓	P
	Rated frequency or rated frequency range (Hz) ....:	50/60Hz	P
	Rated current (mA or A) .....:	30A	P
1.7.1.2	Identification markings		P
	Manufacturer's name or trade-mark or identification mark .....:		P
	Model identification or type reference .....:	See pages 2 for detail	P
	Symbol for Class II equipment only .....:	Class I	N/A
	Other markings and symbols .....:	Other markings and symbols do not give rise to misunderstanding	P
1.7.1.3	Use of graphical symbols		P
1.7.2	Safety instructions and marking	See below	P
1.7.2.1	General	English version provided. (version in other language will be provied when submitted for national approval)	P
1.7.2.2	Disconnect devices		N/A
1.7.2.3	Overcurrent protective device		N/A
1.7.2.4	IT power distribution systems		N/A
1.7.2.5	Operator access with a tool	No operator accessible area that needs to be accessed by the use of a tool.	N/A
1.7.2.6	Ozone	Not such equipment	N/A
1.7.3	Short duty cycles	Equipment is designed for continuous operation	N/A
1.7.4	Supply voltage adjustment .....:	No voltage selector.	N/A
	Methods and means of adjustment; reference to installation instructions .....:		N/A
1.7.5	Power outlets on the equipment .....:	No Power outlets	N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference) ….....:		N/A
1.7.7	Wiring terminals	See below	P
1.7.7.1	Protective earthing and bonding terminals ….....:	Class I equipment	P
1.7.7.2	Terminals for a.c. mains supply conductors		P
1.7.7.3	Terminals for d.c. mains supply conductors		P
1.7.8	Controls and indicators		P
1.7.8.1	Identification, location and marking .....:		P
1.7.8.2	Colours ….....:		P
1.7.8.3	Symbols according to IEC 60417….....:	Symbols ○ and | to indicate the "OFF" and "ON" positions	P
1.7.8.4	Markings using figures ….....:	No indicators for different for positions.	P
1.7.9	Isolation of multiple power sources ….....:	"Devices isolate the equipment completely before access"	P
1.7.10	Thermostats and other regulating devices ….....:	No such devices	N/A
1.7.11	Durability	The label was subjected to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 sec. And then again for 15 sec. With the cloth soaked with petroleum spirit. After this test there was no damage to the label. The marking on the label did not fade.	P
1.7.12	Removable parts	No such parts	N/A
1.7.13	Replaceable batteries .....:	No batteries	N/A
	Language(s) .....:		—
1.7.14	Equipment for restricted access locations.....:		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	No access with test finger to any parts with only basic insulation to ELV or hazardous voltage. The test pin can't touch hazardous voltage. There are no openings within the whole enclosure	P
2.1.1.1	Access to energized parts	Checked	P

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Test by inspection .....:	See above.	P
	Test with test finger (Figure 2A) .....:	See above.	P
	Test with test pin (Figure 2B) .....:	See above.	P
	Test with test probe (Figure 2C) .....:	No TNV	N/A
2.1.1.2	Battery compartments	No battery compartments	N/A
2.1.1.3	Access to ELV wiring	No ELV wiring in operator accessible area	—
	Working voltage (Vpeak or Vrms); minimum distance through insulation (mm)	No such wiring in operator accessible area	N/A
2.1.1.4	Access to hazardous voltage circuit wiring		N/A
2.1.1.5	Energy hazards .....:	Evaluated in final system	N/A
2.1.1.6	Manual controls	No manual controls	N/A
2.1.1.7	Discharge of capacitors in equipment		N/A
	Measured voltage (V); time-constant (s) .....:		—
2.1.1.8	Energy hazards – d.c. mains supply	Evaluated in final system	N/A
	a) Capacitor connected to the d.c. mains supply ..:		N/A
	b) Internal battery connected to the d.c. mains supply:		N/A
2.1.1.9	Audio amplifiers .....:	No audio amplifiers	N/A
2.1.2	Protection in service access areas		N/A
2.1.3	Protection in restricted access locations	Instructions would provided for protection against energy hazards in manual	P

2.2	**SELV circuits**		N/A
2.2.1	General requirements	(see appended table 2.2)	N/A
2.2.2	Voltages under normal conditions (V) ..... :		N/A
2.2.3	Voltages under fault conditions (V) ..... :		N/A
2.2.4	Connection of SELV circuits to other circuits .....:		N/A

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

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Clause	Requirement + Test	Result - Remark	Verdict
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**		N/A
2.4.1	General requirements		N/A
2.4.2	Limit values		N/A
	Frequency (Hz).....:		—
	Measured current (mA).....:		—
	Measured voltage (V) .....:		—
	Measured circuit capacitance (nF or µF).....:		—
2.4.3	Connection of limited current circuits to other circuits		N/A
2.5	**Limited power sources**		N/A
	a) Inherently limited output		N/A
	b) Impedance limited output		N/A
	c) Regulating network or IC current limiter, limits output under normal operating and single fault condition		N/A
	Use of integrated circuit (IC) current limiters		N/A
	d) Overcurrent protective device limited output		N/A
	Max. output voltage (V), max. output current (A), max. apparent power (VA)..... :	(see appended table 2.5)	—
	Current rating of overcurrent protective device (A) .:		—
2.6	**Provisions for earthing and bonding**		P
2.6.1	Protective earthing		P
2.6.2	Functional earthing		N/A
	Use of symbol for functional earthing …..:		N/A
2.6.3	Protective earthing and protective bonding conductors		P
2.6.3.1	General	See below.	P
2.6.3.2	Size of protective earthing conductors		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Rated current (A), cross-sectional area (mm^2), AWG ..... :		—
2.6.3.3	Size of protective bonding conductors	Protective bonding conductor has sufficient current carrying capacity, also see sub-clause 2.6.3.4.	P
	Rated current (A), cross-sectional area (mm^2), AWG ..... :	Refer to appended table 2.6.3.4	—
	Protective current rating (A), cross-sectional area (mm^2), AWG ..... :	See clause 2.6.3.4	
2.6.3.4	Resistance of earthing conductors and their terminations; resistance (Ω), voltage drop (V), test current (A), duration (min) ..... :	0.028Ω, 1.68V, 60A,6 min	P
2.6.3.5	Colour of insulation..... :	Green/yellow wire	P
2.6.4	Terminals	See below.	P
2.6.4.1	General	See below.	P
2.6.4.2	Protective earthing and bonding terminals	Screw terminal on enlcosure surface serves as main PE terminal, The screw connection to metal chassis, as the protective bonding terminal, Φ=5.00mm, spring washer used.	P
	Rated current (A), type, nominal thread diameter (mm) ..... :	60A, 6.00mm min.	—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		N/A
2.6.5	Integrity of protective earthing	See below.	P
2.6.5.1	Interconnection of equipment		P
2.6.5.2	Components in protective earthing conductors and protective bonding conductors	No switch or overcurrent protective device in protective bonding conductor.	P
2.6.5.3	Disconnection of protective earth	It is not possible to disconnect earth.	P
2.6.5.4	Parts that can be removed by an operator	No parts that can be removed by an operator	P
2.6.5.5	Parts removed during servicing	It is not possible to disconnect earthing except for removing the earthed part itself.	P
2.6.5.6	Corrosion resistance	All safety earthing connections in compliance with Annex J.	P

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Clause	Requirement + Test	Result - Remark	Verdict
2.6.5.7	Screws for protective bonding	No self-tapping screws are used. For the earth connection to the metal frame spring washers and screws are used on the green/yellow wire and fixing points on the power board near primary part	P
2.6.5.8	Reliance on telecommunication network or cable distribution system	No TNV.	N/A
2.7	**Overcurrent and earth fault protection in primary circuits**		P
2.7.1	Basic requirements	The equipment relies on Protective device with rated 30A of the building installation in regard to L to N short-circuits(see 5.3).	P
	Instructions when protection relies on building installation		N/A
2.7.2	Faults not simulated in 5.3.7		P
2.7.3	Short-circuit backup protection	The building installation is considered as providing short-circuit backup protection.	P
2.7.4	Number and location of protective devices .....:	Overcurrent protection by three built-in fuse in circuit	P
2.7.5	Protection by several devices	Protection provided by two fuse	P
2.7.6	Warning to service personnel .....:	See marking for detail	P
2.8	**Safety interlocks**		N/A
2.8.1	General principles	No safety interlocks	N/A
2.8.2	Protection requirements		N/A
2.8.3	Inadvertent reactivation		N/A
2.8.4	Fail-safe operation		N/A
	Protection against extreme hazard		N/A
2.8.5	Moving parts		N/A
2.8.6	Overriding		N/A
2.8.7	Switches, relays and their related circuits		N/A
2.8.7.1	Separation distances for contact gaps and their related circuits (mm) .....:		N/A
2.8.7.2	Overload test		N/A
2.8.7.3	Endurance test		N/A
2.8.7.4	Electric strength test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
2.8.8	Mechanical actuators		N/A
2.9	**Electrical insulation**		P
2.9.1	Properties of insulating materials	Natural rubber, materials containing asbestos and hygroscopic materials are not used as insulation.	P
2.9.2	Humidity conditioning	Tested for 120hrs	P
	Relative humidity (%), temperature (°C) .....:	93%, 40°C	—
2.9.3	Grade of insulation	No flash over or breakdown of insulation.	P
2.9.4	Separation from hazardous voltages	See below	P
	Method(s) used .....:	SELV separated from primary by reinforced or double insulation	—
2.10	**Clearances, creepage distances and distances through insulation**		P
2.10.1	General	See 2.10.3, 2.10.4 and 2.10.5.	P
2.10.1.1	Frequency .....:	Considered	P
2.10.1.2	Pollution degrees .....:	2	P
2.10.1.3	Reduced values for functional insulation	Considered	P
2.10.1.4	Intervening unconnected conductive parts	Considered	P
2.10.1.5	Insulation with varying dimensions	Insulation kept homogenous.	N/A
2.10.1.6	Special separation requirements	Not applied.	N/A
2.10.1.7	Insulation in circuits generating starting pulses	No such circuit.	N/A
2.10.2	Determination of working voltage	See below.	P
2.10.2.1	General	The RMS and the peak voltage were measured with unit connected to a 275V TN power system. Pollution Degree 2 and Overvoltage Category II considered.	P
2.10.2.2	RMS working voltage	(See appended table 2.10.2)	P
2.10.2.3	Peak working voltage	(See appended table 2.10.2)	P
2.10.3	Clearances	See below and advantage of annex G is not considered.	P
2.10.3.1	General	Considered.	P
2.10.3.2	Mains transient voltages		P

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Clause	Requirement + Test	Result - Remark	Verdict
	a) AC mains supply .....:	275V a.c. and Overvoltage Category II	P
	b) Earthed d.c. mains supplies .....:		N/A
	c) Unearthed d.c. mains supplies .....:		N/A
	d) Battery operation .....:		N/A
2.10.3.3	Clearances in primary circuits	(see appended table 2.10.3 and 2.10.4)	P
2.10.3.4	Clearances in secondary circuits		N/A
2.10.3.5	Clearances in circuits having starting pulses		N/A
2.10.3.6	Transients from a.c. mains supply .....:	Normal transient voltage considered (overvoltage category II for primary circuit).	N/A
2.10.3.7	Transients from d.c. mains supply .....:		N/A
2.10.3.8	Transients from telecommunication networks and cable distribution systems .....:		N/A
2.10.3.9	Measurement of transient voltage levels	See 2.10.3.6.	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	See appended table 2.10.3 and 2.10.4.	P
2.10.4.1	General	CTI rating for all materials of minimum 100.	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	See below.	P
2.10.5.2	Distances through insulation		P
2.10.5.3	Insulating compound as solid insulation	No such construction used.	N/A
2.10.5.4	Semiconductor devices	No such component used.	N/A
2.10.5.5.	Cemented joints	No such construction.	N/A
2.10.5.6	Thin sheet material – General	See below.	N/A
2.10.5.7	Separable thin sheet material		P
	Number of layers (pcs) .....:	2 layers	—
2.10.5.8	Non-separable thin sheet material	Not such material.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
2.10.5.9	Thin sheet material – standard test procedure		N/A
	Electric strength test		—
2.10.5.10	Thin sheet material – alternative test procedure	(see appended table 5.2)	P
	Electric strength test		—
2.10.5.11	Insulation in wound components	Functional insulation transformer used	N/A
2.10.5.12	Wire in wound components		N/A
	Working voltage .....:		N/A
	a) Basic insulation not under stress .....:		N/A
	b) Basic, supplementary, reinforced insulation .....:		N/A
	c) Compliance with Annex U .....:		N/A
	Two wires in contact inside wound component; angle between 45° and 90° .....:		N/A
2.10.5.13	Wire with solvent-based enamel in wound components	No such construction.	N/A
	Electric strength test		—
	Routine test		N/A
2.10.5.14	Additional insulation in wound components	No such construction.	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	See below.	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	No coated printed boards.	N/A
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	(see appended table 2.10.3 and 2.10.4)	N/A
2.10.8	Tests on coated printed boards and coated components	No such boards and 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

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Clause	Requirement + Test	Result - Remark	Verdict
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	No such components	N/A
2.10.12	Enclosed and sealed parts	No hermetically sealed component.	N/A
3	**WIRING, CONNECTIONS AND SUPPLY**		P
3.1	General		P
3.1.1	Current rating and overcurrent protection		N/A
3.1.2	Protection against mechanical damage	Wires do not touch sharp edges which could damage the insulation and cause hazard.	P
3.1.3	Securing of internal wiring	Internal wires are routed and secured so that adequate insulations are maintained. For wires connected to appliance inlet: The wires are secured by soldring addationally fixed by heat shrinkable tube wrapped around the wire. Output wires with only basic insulation are routed so that they are not close to any live bare components. Wires are secured by soldering method and additionally fixed by cable tie.	P
3.1.4	Insulation of conductors		N/A
3.1.5	Beads and ceramic insulators	Not used	N/A
3.1.6	Screws for electrical contact pressure		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	Not used	N/A
3.1.9	Termination of conductors	All conductors are reliably secured	P
	10 N pull test		P
3.1.10	Sleeving on wiring	No sleeving used on wirings for supplementary insulation.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

3.2	**Connection to a mains supply**		P
3.2.1	Means of connection	See below	P
3.2.1.1	Connection to an a.c. mains supply		N/A
3.2.1.2	Connection to a d.c. mains supply		N/A
3.2.2	Multiple supply connections		N/A
3.2.3	Permanently connected equipment	Unit is not a permanently connected equipment.	P
	Number of conductors, diameter of cable and conduits (mm) ..... :		—
3.2.4	Appliance inlets	No such component used.	N/A
3.2.5	Power supply cords	Not provided.	N/A
3.2.5.1	AC power supply cords		N/A
	Type ..... :		—
	Rated current (A), cross-sectional area (mm^2), AWG ..... :		—
3.2.5.2	DC power supply cords		N/A
3.2.6	Cord anchorages and strain relief		N/A
	Mass of equipment (kg), pull (N) ..... :		—
	Longitudinal displacement (mm) ..... :		—
3.2.7	Protection against mechanical damage		N/A
3.2.8	Cord guards		N/A
	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**		P
3.3.1	Wiring terminals		P
3.3.2	Connection of non-detachable power supply cords		N/A
3.3.3	Screw terminals		P
3.3.4	Conductor sizes to be connected		P
	Rated current (A), cord/cable type, cross-sectional area (mm^2)..... :		—
3.3.5	Wiring terminal sizes		P
	Rated current (A), type, nominal thread diameter (mm) ..... :	30A, 5.0mm	—
3.3.6	Wiring terminal design		P
3.3.7	Grouping of wiring terminals		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
3.3.8	Stranded wire		N/A
3.4	**Disconnection from the mains supply**		P
3.4.1	General requirement	See below	P
3.4.2	Disconnect devices	For permanent connection type, according to installation instruction, suitable circuit breaker external to the inverter will be installed as disconnect device.	P
3.4.3	Permanently connected equipment	External disconnect should be provide	P
3.4.4	Parts which remain energized		P
3.4.5	Switches in flexible cords		N/A
3.4.6	Number of poles – single-phase and d.c. equipment		P
3.4.7	Number of poles – three-phase equipment		N/A
3.4.8	Switches as disconnect devices	Relevant indication provided on the body of disconnection switch	P
3.4.9	Plugs as disconnect devices		N/A
3.4.10	Interconnected equipment		P
3.4.11	Multiple power sources	Instructions provided at every switch, see" Copies of markings and warnings".	P
3.5	**Interconnection of equipment**		P
3.5.1	General requirements		P
3.5.2	Types of interconnection circuits ..... :		N/A
3.5.3	ELV circuits as interconnection circuits	No ELV interconnection	N/A
3.5.4	Data ports for additional equipment	No such ports	N/A
4	**PHYSICAL REQUIREMENTS**		P
4.1	**Stability**		P
	Angle of 10°	The inverter does not overturn when: tilted to an angle of 10° use a constant downward force of 800N a force of 20% of the weight is applied from any direction.	P
	Test force (N) .....:		P

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Clause	Requirement + Test	Result - Remark	Verdict

4.2	**Mechanical strength**		P
4.2.1	General		P
	Rack-mounted equipment.	Not such equipment	N/A
4.2.2	Steady force test, 10 N		P
4.2.3	Steady force test, 30 N	No internal enclosure	N/A
4.2.4	Steady force test, 250 N		P
4.2.5	Impact test		P
	Fall test		P
	Swing test		N/A
4.2.6	Drop test; height (mm) .....:		N/A
4.2.7	Stress relief test		N/A
4.2.8	Cathode ray tubes	No CRT in the unit.	N/A
	Picture tube separately certified .....:		N/A
4.2.9	High pressure lamps	No high pressure lamp provided.	N/A
4.2.10	Wall or ceiling mounted equipment; force (N) .....:		N/A

4.3	**Design and construction**		P
4.3.1	Edges and corners	All edges and corners are rounded and smooth	P
4.3.2	Handles and manual controls; force (N) .....:		N/A
4.3.3	Adjustable controls		N/A
4.3.4	Securing of parts	Electrical and mechanical connections can be expected to withstand usual mechanical stress	P
4.3.5	Connection by plugs and sockets	No mismating of connectors, plugs or sockets possible.	P
4.3.6	Direct plug-in equipment	No direct plug-in equipment	N/A
	Torque ..... :		—
	Compliance with the relevant mains plug standard ..... :		N/A
4.3.7	Heating elements in earthed equipment	No heating elements	N/A
4.3.8	Batteries	No batteries	N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- Excessive discharging rate for any battery		N/A
4.3.9	Oil and grease	No Oil and grease	N/A
4.3.10	Dust, powders, liquids and gases	The equipment does not produce dust or employ powders, liquids or gases.	N/A
4.3.11	Containers for liquids or gases	No container for liquids or gases	N/A
4.3.12	Flammable liquids ..... :	No flammable liquids	N/A
	Quantity of liquid (l) ..... :		N/A
	Flash point (°C) ..... :		N/A
4.3.13	Radiation		P
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	Lasers (including laser diodes) and LEDs		P
4.3.13.5.1	Lasers (including laser diodes)		N/A
	Laser class ..... :		—
4.3.13.5.2	Light emitting diodes (LEDs)	LED indicates	P
4.3.13.6	Other types ..... :		N/A

4.4	**Protection against hazardous moving parts**		P
4.4.1	General	No hazardous moving parts	P
4.4.2	Protection in operator access areas ..... :		N/A
	Household and home/office document/media shredders		N/A
4.4.3	Protection in restricted access locations ..... :		N/A
4.4.4	Protection in service access areas		N/A
4.4.5	Protection against moving fan blades		N/A
4.4.5.1	General		N/A
	Not considered to cause pain or injury. A)……:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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	The equipment and its component parts did not attain excessive temperatures during normal operation. (see appended table 4.5)	P
	Normal load condition per Annex L .:	Operated in the most unfavorable way of operation given in the operating instructions until steady conditions established.	—
4.5.3	Temperature limits for materials	(see appended table 4.5)	P
4.5.4	Touch temperature limits	(see appended table 4.5)	P
4.5.5	Resistance to abnormal heat ..... :	(see appended table 4.5.5)	N/A

4.6	**Openings in enclosures**		P
4.6.1	Top and side openings		P
	Dimensions (mm) ..... :	Max. 1mm	—
4.6.2	Bottoms of fire enclosures	No openings	P
	Construction of the bottomm, dimensions (mm) .. :	No openings	—
4.6.3	Doors or covers in fire enclosures	No doors or covers	N/A
4.6.4	Openings in transportable equipment		N/A
4.6.4.1	Constructional design measures		N/A
	Dimensions (mm) ..... :		—
4.6.4.2	Evaluation measures for larger openings		N/A
4.6.4.3	Use of metallized parts		N/A
4.6.5	Adhesives for constructional purposes		N/A
	Conditioning temperature (°C), time (weeks) ..... :		—

4.7	**Resistance to fire**	P

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Clause	Requirement + Test	Result - Remark	Verdict
4.7.1	Reducing the risk of ignition and spread of flame	No excessive temperatures. No easily burning materials employed. Fire enclosure provided.	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	Metal enclosure used	P
4.7.2.1	Parts requiring a fire enclosure	With having the following parts ▪ Components in primary ▪ Components having unenclosed arcing parts at hazardous voltage or energy level ▪ Insulated wiring The fire enclosure is required.	P
4.7.2.2	Parts not requiring a fire enclosure		N/A
4.7.3	Materials		P
4.7.3.1	General	See below	P
4.7.3.2	Materials for fire enclosures	Metal enclosure used	P
4.7.3.3	Materials for components and other parts outside fire enclosures		N/A
4.7.3.4	Materials for components and other parts inside fire enclosures	PCB rated V-1. See appended table 1.5.1. Internal components except small parts are V-2 or better.	P
4.7.3.5	Materials for air filter assemblies	No air filters provided.	N/A
4.7.3.6	Materials used in high-voltage components	No high voltage components provided.	N/A

5	**ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS**		P
5.1	**Touch current and protective conductor current**		P
5.1.1	General	(see appended Table 5.1)	P
5.1.2	Configuration of equipment under test (EUT)	EUT has only one mains connection.	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

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Clause	Requirement + Test	Result - Remark	Verdict
5.1.3	Test circuit	Test circuit in Figure 5A used	P
5.1.4	Application of measuring instrument	Measuring instruments as in annex D used	P
5.1.5	Test procedure	The touch current was measured only where enclosure is accessible in final system, other parts will be evaluated in the end equipment	P
5.1.6	Test measurements	(see appended table 5.1)	P
	Supply voltage (V) .....:	(see appended table 5.1)	—
	Measured touch current (mA) .....:	(see appended table 5.1)	—
	Max. allowed touch current (mA) .....:	(see appended table 5.1)	—
	Measured protective conductor current (mA) .....:		—
	Max. allowed protective conductor current (mA)...:		—
5.1.7	Equipment with touch current exceeding 3,5 mA	Touch current does not exceed 3.5mA.	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	No TNV	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
	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	(see appended table 5.2)	P

5.3	**Abnormal operating and fault conditions**		P
5.3.1	Protection against overload and abnormal operation	(see appended table 5.3)	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.3.2	Motors	Approved fan used	P
5.3.3	Transformers	(see appended Annex C)	P
5.3.4	Functional insulation.....:	By short-circuited, results see appended table 5.3.	P
5.3.5	Electromechanical components	No Electromechanical components	N/A
5.3.6	Audio amplifiers in ITE .....:	No Audio amplifers	N/A
5.3.7	Simulation of faults		P
5.3.8	Unattended equipment	Equipment is not intended for unattended use.	N/A
5.3.9	Compliance criteria for abnormal operating and fault conditions		P
5.3.9.1	During the tests	No fire or molten metal was emitted. No overheating of the transformer was encountered	P
5.3.9.2	After the tests	Electric Strength tests performed after abnormal and fault tests.	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) .....:		—
	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) .....:		—

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Clause	Requirement + Test	Result - Remark	Verdict
	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)**		N/A
A.1.1	Samples .....:		—
	Wall thickness (mm).....:		—
A.1.2	Conditioning of samples; temperature (°C) .....:		N/A
A.1.3	Mounting of samples .....:		N/A
A.1.4	Test flame (see IEC 60695-11-3)		N/A
	Flame A, B, C or D .....:		—
A.1.5	Test procedure		N/A
A.1.6	Compliance criteria		N/A
	Sample 1 burning time (s).....:		—
	Sample 2 burning time (s).....:		—
	Sample 3 burning time (s).....:		—
A.2	**Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4)**		N/A
A.2.1	Samples, material .....:		—
	Wall thickness (mm).....:		—
A.2.2	Conditioning of samples; temperature (°C) .....:		N/A
A.2.3	Mounting of samples .....:		N/A
A.2.4	Test flame (see IEC 60695-11-4)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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)**		P
B.1	**General requirements**	Approved AC fan used	P
	Position .....:	Approved AC fan used inside	—
	Manufacturer .....:	See table 1.5.1 for detail	—
	Type .....:	See table 1.5.1 for detail	—
	Rated values .....:	See table 1.5.1 for detail	—
B.2	**Test conditions**		P
B.3	**Maximum temperatures**		P
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

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Clause	Requirement + Test	Result - Remark	Verdict
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)**		N/A
	Position .....:	Functional insulation transformer used	—
	Manufacturer .....:		—
	Type .....:		—
	Rated values .....:		—
	Method of protection .....:		—
C.1	**Overload test**		N/A
C.2	**Insulation**		N/A
	Protection from displacement of windings .....:		N/A
D	**ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)**		P
D.1	**Measuring instrument**	Measuring instrument D.1 used	P
D.2	**Alternative measuring instrument**		N/A
E	**ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)**		N/A
F	**ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)**		P
G	**ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES**		N/A
G.1	**Clearances**		N/A
G.1.1	General		N/A
G.1.2	Summary of the procedure for determining minimum clearances		N/A
G.2	**Determination of mains transient voltage (V)**		N/A
G.2.1	AC mains supply .....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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

J	**ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)**		P
	Metal(s) used .....:	All safety earthing connections in compliance with Annex J	—

K	**ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)**		N/A
K.1	Making and breaking capacity		N/A
K.2	Thermostat reliability; operating voltage (V) .....:		N/A
K.3	Thermostat endurance test; operating voltage (V) .....:		N/A
K.4	Temperature limiter endurance; operating voltage (V) .....:		N/A
K.5	Thermal cut-out reliability		N/A
K.6	Stability of operation	(see appended table 5.3)	N/A

L	**ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)**		P
L.1	Typewriters		N/A
L.2	Adding machines and cash registers		N/A
L.3	Erasers		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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		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) .....:		—
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
	- Preferred climatic categories .....:		P
	- Maximum continuous voltage .....:		P
	- Combination pulse current .....:		P
	Body of the VDR Test according to IEC60695-11-5.....:		N/A
	Body of the VDR. Flammability class of material (min V-1).....:	Approved varistors used and coating with V-0	P

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Clause	Requirement + Test	Result - Remark	Verdict

R	**ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES**		N/A
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)		N/A
R.2	Reduced clearances (see 2.10.3)		N/A

S	**ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)**		N/A
S.1	Test equipment		N/A
S.2	Test procedure		N/A
S.3	Examples of waveforms during impulse testing		N/A

T	**ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)**		N/A
			—

U	**ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)**		P
		VDE approved triple insulated wire used.	—

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)**		N/A
X.1	Determination of maximum input current		N/A
X.2	Overload test procedure		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

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)**	P

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

BB	**ANNEX BB, CHANGES IN THE SECOND EDITION**	—

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

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Clause	Requirement + Test	Result - Remark	Verdict
	Test with test finger (Figure 2A) ……..:		N/A
	Test with wedge probe (Figure EE1 and EE2) ……:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: List of critical components				P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1])
Metal enclosure	Interchangeable	Interchangeable	Aluminum, Min.1.0mm	IEC/EN 60950-1	Tested with appliance
Printed Wiring Board	Interchangeable	Interchangeable	Min V-0,130 degree C	UL796	UL
X Cap.(C15)	WH	MKP62	275V, 110°C,2.2 uF	IEC 60384-14	VDE
X Cap.(CY1)	WH	MKP82	350V, 85°C,10uF	IEC 60384-14	VDE
Relay (RY1, RY3)	Song Chuan Precision Co., Ltd.	832HA-1A-F-C	40A,277VAC,85 °C	IEC/EN 61810-1:2015	VDE
Relay (RY2)	GOLDEN	GI-1A-12D	5A,277VAC,85° C	IEC/EN 61810-1:2015	TUV R
Varistor (MOV1)		471KD14	85°C, 195VAC,V-0	UL1449	UL
Line fiftter (T1)	FOSHAN OULI ELECTRONIC CO., LTD.	080-7009-00	130°C	IEC/EN 60950-1	Tested with appliance
-Triple insulated wire	Furukawa Electric Co., Ltd	TEX-E	130°C	UL 2353 IEC/EN60950-1	VDE 006735 UL E206440
-Winding	Interchangeable	Interchangeable	130°C	UL 1446	UL
-Insulation tube	FLUO TECH INDUSTRIAL CO.,LTD	TFL	200°C	UL 224	UL E175982
-Insulation tape	CHYUN YIH TAPE CO LTD OR EQUAL.	P2XXF(b)	Min.130°C	UL 224	UL E81174
-Varnish	CHANG TAI CHEMICAL CO(HUI ZHOU) LTD	C-123A	Min.130°C	UL 1446	UL E335555
-Bobbin	CHANG CHUN PLASTICS CO., LTD.	T375J	Phenolic, V-0,150°C, min. thickness 0.45mm	UL94, UL746C	UL E59481
Line fiftter (CT1)	JS	080-20448-00	130°C	IEC/EN 60950-1	Tested with appliance

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

-Triple insulated wire	Furukawa Electric Co., Ltd	TEX-E	130°C	UL 2353 IEC/EN60950-1	VDE 006735 UL E206440
-Winding	Interchangeable	Interchangeable	130°C	UL 1446	UL
-Insulation tube	FLUO TECH INDUSTRIAL CO.,LTD	TFL	200°C	UL 224	UL E175982
-Insulation tape	CHYUN YIH TAPE CO LTD OR EQUAL.	P2XXF(b)	Min.130°C	UL 224	UL E81174
-Varnish	CHANG TAI CHEMICAL CO(HUI ZHOU) LTD	C-123A	Min.130°C	UL 1446	UL E335555
-Bobbin	CHANG CHUN PLASTICS CO., LTD.	T375J	Phenolic, V-0,150°C, min. thickness 0.45mm	UL94, UL746C	UL E59481
Y-capacitor (C12,C13, C14, C16)	NANJING YUYUE ELECTRONICS CO., LTD.	CT7	Max. 10000pF, Min. 250Vac, 125°C, Y2 type	IEC 60384-14	VDE
Power Switch	TAIHENG	TH1	15A, 250Vac, 120°C	IEC/EN 61058-1	VDE
Internal wire connect to power switch	Interchangeable	Interchangeable	26AWG min,VW-1, 105°C	UL 758	UL
Line Transformer	Shen Zhen Sunray Power co.Ltd	080-70012-006048E	130°C	IEC/EN 60950-1	Tested with appliance
-Winding	Interchangeable	Interchangeable	130°C	UL 1446	UL
DC fan	YATE LOON ELECTRONICS	D90BH-12	DC12V, 0.8A	EN 60950-1	CE
AC fan	HSC	FSV12038HA2BL	220-240vac, 50/60Hz, 0.1A	EN 60950-1	CE
AC input wire	Interchangeable	Interchangeable	10AWG min,VW-1, 105°C	UL 758	UL
AC ground wire	Interchangeable	Interchangeable	10AWG min,VW-1, 105°C green-and -yellow	UL 758	UL

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Clause	Requirement + Test	Result - Remark	Verdict

DC internal wire for output	Interchangeable	Interchangeable	10AWG min,VW-1, 105°C	UL 758	UL
Supplementary information: 1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.					

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Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	**TABLE: Opto Electronic Devices**	N/A

Manufacturer ..... :

Type..... :

Separately tested ..... :

Bridging insulation ..... :

External creepage distance..... :

Internal creepage distance ..... :

Distance through insulation ..... :

Tested under the following conditions..... :

Input..... :

Output..... :

supplementary information

1.6.2	TABLE: Electrical data (in normal conditions)					P
U (V/Hz)	I (A)	Irated (A)	P (W)	Fuse #	Ifuse (A)	Condition/status
Test model:RP3048E						
139.5/50	36.4	--	5160	--	36.4	AC output load 3000W DC BATTETY LOAD 48VDC, 25A
139.5/60	36.4	--	5146	--	36.4	
155/50	32.4	30	5220	--	32.4	
155/60	32.4	30	5223	--	32.4	
275/50	20.2	30	5244	--	20.2	
275/60	20.2	30	5246	--	20.2	
302.5/60	18.0	--	5240	--	18.0	
302.5/50	18.0	--	5243	--	18.0	
Test model:RP3024E						
139.5/50	36.8	--	5212	--	36.8	AC output load 3000W DC BATTETY LOAD 12VDC, 75A
139.5/60	36.8	--	5197	--	36.8	
155/50	32.7	30	5272	--	32.7	
155/60	32.7	30	5275	--	32.7	
275/50	20.4	30	5296	--	20.4	

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Clause	Requirement + Test	Result - Remark	Verdict

275/60	20.4	30	5298	--	20.4	
302.5/60	18.2	--	5292	--	18.2	
302.5/50	18.2	--	5295	--	18.2	
Supplementary information:						

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)
supplementary information:				
Test voltage				

2.1.1.5 c) 2)	**TABLE: stored energy**	N/A

Capacitance C (µF)	Voltage U (V)	Energy E (J)
--	--	--
supplementary information:		

2.2	**TABLE: evaluation of voltage limiting components in SELV circuits**	N/A

Component (measured between)	max. voltage (V) (normal operation)		Voltage Limiting Components
	V peak	V d.c.	
--	--	--	--

Fault test performed on voltage limiting components	Voltage measured (V) in SELV circuits (V peak or V d.c.)
--	--
supplementary information: Test voltage: S-C=Short Circuit	

2.5	**TABLE: Limited power sources**	N/A
Circuit output tested:		

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Clause	Requirement + Test	Result - Remark	Verdict

Note: Measured Uoc (V) with all load circuits disconnected: see below

Components	Test condition (Single fault)	Uoc (V)	I_{sc} (A)		VA	
			Meas.	Limit	Meas.	Limit
--	--	--	--	--	--	--
--	--	--	--	--	--	--
--	--	--	--	--	--	--

supplementary information:

Sc=Short circuit, Oc=Open circuit,
Test voltage:

2.10.2	Table: working voltage measurement	N/A

Location	RMS voltage (V)	Peak voltage (V)	Comments
--	--	--	--
--	--	--	--
--	--	--	--
--	--	--	--

supplementary information:
Test voltage:

2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements	P

Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)
Functional:						
Primary traces of different polarity before fuse RY1(relay)	420	250	1.5	3.4	2.5	3.4
Basic insulation						
L/N pin of AC IN terminal to PE pin of AC IN terminal	420	250	2.0	5.0	2.5	5.0
Primary component (AC L pin) to enclosure outside (BI)	420	250	2.0	4.8	2.5	4.8
Primary trace to Enclosure	420	250	2.0	4.8	2.5	4.8
Reinforced insulation						
L/N pin of AC IN terminal DC battery terminal	420	250	4.0	8.6	5.0	8.6

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:
1, Pollution degree 2 is applicable. Material group IIIb (100<=CTI<=175) is applicable.
2, Separation method between SELV and hazard circuit by double or reinforced insulation.
4. All compoment inside were considered primary part.

2.10.5	**TABLE: Distance through insulation measurements**					N/A
Distance through insulation (DTI) at/of:		U peak (V)	U rms (V)	Test voltage (V)	Required DTI (mm)	DTI (mm)
--		--	--	--	--	--
Supplementary information: See table 1.5.1 for details.						

4.3.8	**TABLE: Batteries**								N/A
The tests of 4.3.8 are applicable only when appropriate battery data is not available									
Is it possible to install the battery in a reverse polarity position?									
	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging	
	Meas. Current	Manuf. Specs.		Meas. Current	Manuf. Specs.	Meas. Current	Manuf. Specs.	Meas. Current	Manuf. Specs.
Max. current during normal condition									
Max. current during fault condition									
Test results:									Verdict
- Chemical leaks									
- Explosion of the battery									
- Emission of flame or expulsion of molten metal									
- Electric strength tests of equipment after completion of tests									
Supplementary information:									

4.3.8	**TABLE: Batteries**	N/A
Battery category ..... : (Lithium, NiMh, NiCad, Lithium Ion …)		

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Clause	Requirement + Test	Result - Remark	Verdict

Manufacturer	:	
Type / model.....	:	
Voltage	:	
Capacity.....	:	mAh
Tested and Certified by (incl. Ref. No.)	:	
Circuit protection diagram:		

MARKINGS AND INSTRUCTIONS (1.7.13)	
Location of replaceable battery	
Language(s) ……..:	
Close to the battery ……..:	
In the servicing instructions ……..:	
In the operating instructions ……..:	

4.5	**TABLE: Thermal requirements**						P
	Supply voltage (V) .....:	139.5V/ 60Hz	302.5/ 60Hz	Invent mode	--	--	—
	Ambient T_{min} (°C) .....:	--	--	--	--	--	—
	Ambient T_{max} (°C) .....:	--	--	--	--	--	—
Maximum measured temperature T of part/at.....:		T (°C)					Allowed T_{max} (°C)
Test model:RP3048E							
AC IN terminal		56.8	52.1	60.4	--	--	85
AC OUT terminal		54.6	53.8	62.4	--	--	85
DC battery terminal		50.6	52.1	60.4	--	--	85
AC input wire		64.8	62.1	72.0	--	--	80
DC output wire		58.6	54.8	63.6	--	--	80
RY1 body		62.1	58.6	68.0	--	--	125
RY2 body		58.6	60.3	69.9	--	--	85
PCB near Q2		72.6	74.4	86.3	--	--	130
PCB near U7		74.1	70.5	81.8	--	--	130
PCB near D3		78.6	76.4	88.6	--	--	130
MOV1 body		73.5	62.8	72.8	--	--	85
T1 winding		81.6	74.5	86.4	--	--	130
CT1 winding		83.5	78.2	90.7	--	--	130

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Clause	Requirement + Test	Result - Remark	Verdict

C15 body	54.4	52.8	61.2	--	--	85
CY1 body	58.1	57.6	66.8	--		110
C14 body	56.4	55.7	64.6	--	--	125
C20 body	52.8	53.4	61.9	--	--	105
DC fan	49.4	47.8	55.4	--	--	85
AC fan	48.6	45.3	52.5	--	--	85
Metal enclosure outside	50.6	51.3	59.5	--	--	70
Button	48.2	47.1	54.6	--	--	85
Screen	46.8	47.2	54.8	--	--	70
Ambient	40.0	40.0	60.4	--	--	--
Test model:RP3024E						
AC IN terminal	62.5	57.3	63.0	--	--	85
AC OUT terminal	60.1	59.2	65.1	--	--	85
DC battery terminal	55.7	57.3	63.0	--	--	85
AC input wire	71.3	68.3	75.1	--	--	80
DC output wire	64.5	60.3	66.3	--	--	80
RY1 body	68.3	64.5	71.0	--	--	125
RY2 body	64.5	66.3	72.9	--	--	85
PCB near Q2	79.9	81.8	90.0	--	--	130
PCB near U7	81.5	77.6	85.4	--	--	130
PCB near D3	86.5	84.0	92.4	--	--	130
MOV1 body	80.9	69.1	76.0	--	--	85
T1 winding	89.8	82.0	90.2	--	--	130
CT1 winding	91.9	86.0	94.6	--	--	130
C15 body	59.8	58.1	63.9	--	--	85
CY1 body	63.9	63.4	69.7	--		110
C14 body	62.0	61.3	67.4	--	--	125
C20 body	58.1	58.7	64.6	--	--	105
DC fan	54.3	52.6	57.9	--	--	85
AC fan	53.5	49.8	54.8	--	--	85
Metal enclosure outside	55.7	56.4	62.0	--	--	70
Button	53.0	51.8	57.0	--	--	85
Screen	51.5	51.9	57.1	--	--	70
Ambient	40.0	40.0	40.0		--	--

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:							
Temperature T of winding:	t_1 (°C)	R_1 (Ω)	t_2 (°C)	R_2 (Ω)	T (°C)	Allowed T_{max} (°C)	Insulation class
--	--	--	--	--	--	--	--
Supplementary information: N/A							

4.5.5	TABLE: Ball pressure test of thermoplastic parts		N/A
	Allowed impression diameter (mm) .....:	≤ 2mm	—
Part		Test temperature (°C)	Impression diameter (mm)
--		--	--
Supplementary information:			

4.7	TABLE: Resistance to fire				P
Part	Manufacturer of material	Type of material	Thickness (mm)	Flammability class	Evidence
--	--	--	--	--	--
Supplementary information: See table 1.5.1 for details.					

5.1	TABLE: touch current measurement		P
Measured between:	Measured (mA)	Limit (mA)	Comments/conditions
AC IN terminal to Metal enclosure	0.62/0.62(Normal/ Reverse)	3.5	System on, switch “e” opened
AC IN terminal to DC Output +	0.18/0.0.18(Normal /Reverse)	0.25	System on, switch “e” close
supplementary information:			
Tested voltage: 302.5V/60Hz			

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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)	Breakdown Yes / No
Functional:				
L to N (Fuse opened)		AC	1500	No
Basic/supplementary:				
L/N input terminal to Metal enclosure		AC	1500	No
L/N output termnal to Metal enclosure		AC	1500	No
Reinforced				
L/N input terminal to L/N output termnal		AC	3000	No
Battery +/- to L/N input terminal(Earth opened)		AC	3000	No
Supplementary information: 1. Above test performed immediately after the humidity test. 2. All materials listed in table 1.5.1 are tested. 3. For the unit, test performed immediately following temperature test in 5.2.2				

5.3	TABLE: Fault condition tests						P
	Ambient temperature (°C) ..... :				See below		—
	Power source for EUT: Manufacturer, model/type, output rating ..... :				--		—
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation	
Test model: RP3048E							
C15	shorted	302.5Vac	10min	--	0.04	RY1 off immediately, no hazards.	
R5010ohm	shorted	302.5Vac	10min.	--	0.04	RY1 off immediately, no hazards..	
Q3 pin D-S	shorted	302.5Vac	10min	--	0.04	RY1 off immediately, no hazards.	
Q3 pin D-G	shorted	302.5Vac	10min.	--	0.04	RY1 off immediately, no hazards..	
Q3 pin G-S	shorted	302.5Vac	10min	--	0.04	Unit shut down immediately, no damage, recoverable, no hazards	
U1 pin 7-4	shorted	302.5Vac	10min.	--	0.04	Unit shut down immediately, no damage, recoverable, no hazards	

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Clause	Requirement + Test	Result - Remark	Verdict

U8 pin 1-2	shorted	302.5Vac	10min	--	0.04	Unit shut down immediately, no damage, recoverable, no hazards
U8 pin 3-4	shorted	302.5Vac	10min.	--	0.04	Unit shut down immediately, no damage, recoverable, no hazards
Q2 pin 1-2	shorted	302.5Vac	10min	--	0.04	Unit shut down immediately, no damage, recoverable, no hazards
Q2 pin 1-3	shorted	302.5Vac	10min.	--	0.04	Unit shut down immediately, no damage, recoverable, no hazards
Q2 pin 2-3	shorted	302.5Vac	10min	--	0.04	Unit shut down immediately, no damage, recoverable, no hazards
AC Output terminal	Overload	302.5Vac	4hrs20mins	--	18.0 to 18.4A to 18.6A to 0.06A	The Output terminal Max. load 12.4A , Unit shut down, no damage, no hazard. AC Output terminal:56.2°C Metal enclsour outside: 57.1°C Screen: 50.2°C Button:48.6°C Ambient:40.0 °C
DC Output terminal	Overload	302.5Vac	4hrs52mins	--	18.0 to 18.2A to 18.4A to 0.06A	The Output terminal Max. load 24.6A , Unit shut down, no damage, no hazard. AC Output terminal:52.8°C Metal enclsour outside: 55.4°C Screen: 47.6°C Button:46.2°C Ambient:40.0 °C
Invent mode						
C15	shorted	302.5Vac	10min	--	0.04	RY1 off immediately, no hazards.
R5010ohm	shorted	302.5Vac	10min.	--	0.04	RY1 off immediately, no hazards..
Q3 pin D-S	shorted	302.5Vac	10min	--	0.04	RY1 off immediately, no hazards.
Q3 pin D-G	shorted	302.5Vac	10min.	--	0.04	RY1 off immediately, no hazards..
Q3 pin G-S	shorted	302.5Vac	10min	--	0.04	Unit shut down immediately, no damage, recoverable, no hazards

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Clause	Requirement + Test	Result - Remark	Verdict

U1 pin 7-4	shorted	302.5Vac	10min.	--	0.04	Unit shut down immediately, no damage, recoverable, no hazards
U8 pin 1-2	shorted	302.5Vac	10min	--	0.04	Unit shut down immediately, no damage, recoverable, no hazards
U8 pin 3-4	shorted	302.5Vac	10min.	--	0.04	Unit shut down immediately, no damage, recoverable, no hazards
Q2 pin 1-2	shorted	302.5Vac	10min	--	0.04	Unit shut down immediately, no damage, recoverable, no hazards
Q2 pin 1-3	shorted	302.5Vac	10min.	--	0.04	Unit shut down immediately, no damage, recoverable, no hazards
Q2 pin 2-3	shorted	302.5Vac	10min	--	0.04	Unit shut down immediately, no damage, recoverable, no hazards
AC Output terminal	Overload	302.5Vac	4hrs20mins	--	18.8 to 19.4A to 19.8A to 0.06A	The Output terminal Max. load 12.0A , Unit shut down, no damage, no hazard. AC Output terminal:55.8°C Metal enclsour outside: 58.6°C Screen: 54.0°C Button:50.2°C Ambient:40.0 °C
Test model: RP3024E						
C15	shorted	302.5Vac	10min	--	0.04	RY1 off immediately, no hazards.
R5010ohm	shorted	302.5Vac	10min.	--	0.04	RY1 off immediately, no hazards..
Q3 pin D-S	shorted	302.5Vac	10min	--	0.04	RY1 off immediately, no hazards.
Q3 pin D-G	shorted	302.5Vac	10min.	--	0.04	RY1 off immediately, no hazards..
Q3 pin G-S	shorted	302.5Vac	10min	--	0.04	Unit shut down immediately, no damage, recoverable, no hazards
U1 pin 7-4	shorted	302.5Vac	10min.	--	0.04	Unit shut down immediately, no damage, recoverable, no hazards
U8 pin 1-2	shorted	302.5Vac	10min	--	0.04	Unit shut down immediately, no damage, recoverable, no hazards

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Clause	Requirement + Test	Result - Remark	Verdict

U8 pin 3-4	shorted	302.5Vac	10min.	--	0.04	Unit shut down immediately, no damage, recoverable, no hazards
Q2 pin 1-2	shorted	302.5Vac	10min	--	0.04	Unit shut down immediately, no damage, recoverable, no hazards
Q2 pin 1-3	shorted	302.5Vac	10min.	--	0.04	Unit shut down immediately, no damage, recoverable, no hazards
Q2 pin 2-3	shorted	302.5Vac	10min	--	0.04	Unit shut down immediately, no damage, recoverable, no hazards
AC Output terminal	Overload	302.5Vac	4hrs20mins	--	18.2 to 18.5A to 18.8A to 0.06A	The Output terminal Max. load 12.6A , Unit shut down, no damage, no hazard. AC Output terminal:54.6°C Metal enclsour outside: 58.9°C Screen: 52.3°C Button:50.4°C Ambient:40.0 °C
DC Output terminal	Overload	302.5Vac	4hrs52mins	--	18.2 to 18.3A to 18.5A to 0.06A	The Output terminal Max. load 82.1A , Unit shut down, no damage, no hazard. AC Output terminal:58.4°C Metal enclsour outside: 56.4°C Screen: 51.8°C Button:48.2°C Ambient:40.0 °C
Invent mode						
C15	shorted	302.5Vac	10min	--	0.04	RY1 off immediately, no hazards.
R5010ohm	shorted	302.5Vac	10min.	--	0.04	RY1 off immediately, no hazards..
Q3 pin D-S	shorted	302.5Vac	10min	--	0.04	RY1 off immediately, no hazards.
Q3 pin D-G	shorted	302.5Vac	10min.	--	0.04	RY1 off immediately, no hazards..
Q3 pin G-S	shorted	302.5Vac	10min	--	0.04	Unit shut down immediately, no damage, recoverable, no hazards
U1 pin 7-4	shorted	302.5Vac	10min.	--	0.04	Unit shut down immediately, no damage, recoverable, no hazards

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

U8 pin 1-2	shorted	302.5Vac	10min	--	0.04	Unit shut down immediately, no damage, recoverable, no hazards
U8 pin 3-4	shorted	302.5Vac	10min.	--	0.04	Unit shut down immediately, no damage, recoverable, no hazards
Q2 pin 1-2	shorted	302.5Vac	10min	--	0.04	Unit shut down immediately, no damage, recoverable, no hazards
Q2 pin 1-3	shorted	302.5Vac	10min.	--	0.04	Unit shut down immediately, no damage, recoverable, no hazards
Q2 pin 2-3	shorted	302.5Vac	10min	--	0.04	Unit shut down immediately, no damage, recoverable, no hazards
AC Output terminal	Overload	302.5Vac	4hrs20mins	--	18.8 to 19.6A to 19.9A to 0.06A	The Output terminal Max. load 12.2A , Unit shut down, no damage, no hazard. AC Output terminal:56.4°C Metal enclsour outside: 61.3°C Screen: 52.2°C Button:48.3°C Ambient:40.0 °C
Supplementary information: 1 After fault condition, output voltage complied with SELV requirement. 2. The unit passed 3000V hi-pot test between primary and accessible output connector after single fault test above.						

C.2	TABLE: transformers						N/A
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)
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. Insul. / mm; number of layers
--	--			--	--	--	--

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

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supplementary information:					

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

Information technology equipment – Safety –

Part 1: General requirements

Differences according to ..... :	EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013
Attachment Form No. ..... :	EU_GD_IEC60950_1F
Attachment Originator..... :	SGS Fimko Ltd
Master Attachment..... :	Date 2014-02

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

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
Contents (A2:2013)	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZD (informative) IEC and CENELEC code designations for flexible cords		P
General	Delete all the “country” notes in the reference document (IEC 60950-1:2005) 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
General (A1:2010)	Delete all the “country” notes in the reference document (IEC 60950-1:2005/A1:2010) according to the following list: 1.5.7.1 Note 6.1.2.1 Note 2 6.2.2.1 Note 2 EE.3 Note		N/A
General (A2:2013)	Delete all the “country” notes in the reference document (IEC 60950-1:2005/A2:2013) according to the following list: 2.7.1 Note * 2.10.3.1 Note 2 6.2.2. Note * Note of secretary: Text of Common Modification remains unchanged.		P

1.1.1 (A1:2010)	**Replace** the text of NOTE 3 by the following. NOTE 3 The requirements of EN 60065 may also be used to meet safety requirements for multimedia equipment. See IEC Guide 112, Guide on the safety of multimedia equipment. For television sets EN 60065 applies.		N/A
1.3.Z1	Add the following subclause: 1.3.Z1 Exposure to excessive sound pressure The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones. NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 1: General method for "one package equipment", and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers.		N/A
(A12:2011)	In EN 60950-1:2006/A12:2011 Delete the addition of 1.3.Z1 / EN 60950-1:2006 Delete the definition 1.2.3.Z1 / EN 60950-1:2006 /A1:2010		N/A
1.5.1	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	Added	P
1.7.2.1 (A1:2010)	In addition, for a PORTABLE SOUND SYSTEM, the instructions shall include a warning that excessive sound pressure from earphones and headphones can cause hearing loss.		N/A
1.7.2.1 (A12.2011)	In EN 60950-1:2006/A12:2011 Delete NOTE Z1 and the addition for Portable Sound System. Add the following clause and annex to the existing standard and amendments.		N/A

	Zx Protection against excessive sound pressure from personal music players		N/A
	Zx.1 General This sub-clause specifies requirements for protection against excessive sound pressure from personal music players that are closely coupled to the ear. It also specifies requirements for earphones and headphones intended for use with		N/A

	personal music players. A personal music player is a portable equipment for personal use, that: ☐☐is designed to allow the user to listen to recorded or broadcast sound or video; and ☐☐primarily uses headphones or earphones that can be worn in or on or around the ears; and ☐☐allows the user to walk around while in use. NOTE 1 Examples are hand-held or body-worn portable CD players, MP3 audio players, mobile phones with MP3 type features, PDA's or similar equipment. A personal music player and earphones or headphones intended to be used with personal music players shall comply with the requirements of this sub-clause. The requirements in this sub-clause are valid for music or video mode only. The requirements do not apply: ☐☐while the personal music player is connected to an external amplifier; or ☐☐while the headphones or earphones are not used. NOTE 2 An external amplifier is an amplifier which is not part of the personal music player or the listening device, but which is intended to play the music as a standalone music player. The requirements do not apply to: ☐☐hearing aid equipment and professional equipment; NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment.		
	☐☐analogue personal music players (personal music players without any kind of digital processing of the sound signal) that are brought to the market before the end of 2015. NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies. For equipment which is clearly designed or intended for use by young children, the limits of EN 71-1 apply.		N/A
	Zx.2 Equipment requirements No safety provision is required for equipment that complies with the following: ☐☐equipment provided as a package (personal music player with its listening device), where the acoustic output $L_{Aeq,T}$ is ≤ 85 dBA measured while playing the fixed "programme simulation		N/A

	noise" as described in EN 50332-1; and □□a personal music player provided with an analogue electrical output socket for a listening device, where the electrical output is ≤ 27 mV measured as described in EN 50332-2, while playing the fixed "programme simulation noise" as described in EN 50332-1. NOTE 1 Wherever the term acoustic output is used in this clause, the 30 s A-weighted equivalent sound pressure level $L_{Aeq,T}$ is meant. See also Zx.5 and Annex Zx. All other equipment shall: a) protect the user from unintentional acoustic outputs exceeding those mentioned above; and b) have a standard acoustic output level not exceeding those mentioned above, and automatically return to an output level not exceeding those mentioned above when the power is switched off; and		
	c) provide a means to actively inform the user of the increased sound pressure when the equipment is operated with an acoustic output exceeding those mentioned above. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an acoustic output exceeding those mentioned above. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time; and NOTE 2 Examples of means include visual or audible signals. Action from the user is always required. NOTE 3 The 20 h listening time is the accumulative listening time, independent how often and how long the personal music player has been switched off. d) have a warning as specified in Zx.3; and e) not exceed the following: 1) equipment provided as a package (player with Its listening device), the acoustic output shall be ≤ 100 dBA measured while playing the fixed "programme simulation noise" described in EN 50332-1; and 2) a personal music player provided with an analogue electrical output socket for a listening device, the electrical output shall be ≤ 150 mV measured as described in EN 50332-2, while playing the fixed "programme simulation noise" described in EN 50332-1. For music where the average sound pressure (long term $L_{Aeq,T}$) measured over the duration of the song is lower than the average produced by the programme simulation noise, the warning does not need to be given as long as the average		N/A

	sound pressure of the song is below the basic limit of 85 dBA. In this case T becomes the duration of the song. NOTE 4 Classical music typically has an average sound pressure (long term $L_{Aeq,T}$) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the song and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA. For example, if the player is set with the programme simulation noise to 85 dBA, but the average music level of the song is only 65 dBA, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dBA.		
	Zx.3 Warning The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following: ☐☐☐the symbol of Figure 1 with a minimum height of 5 mm; and ☐☐☐the following wording, or similar: "To prevent possible hearing damage, do not listen at high volume levels for long periods."  **Figure 1 – Warning label (IEC 60417-6044)** Alternatively, the entire warning may be given through the equipment display during use, when the user is asked to acknowledge activation of the higher level.		N/A

	Zx.4 Requirements for listening devices (headphones and earphones)		N/A
	Zx.4.1 Wired listening devices with analogue input With 94 dBA sound pressure output $L_{Aeq,T}$, the input voltage of the fixed "programme simulation noise" described in EN 50332-2 shall be ≥ 75 mV. This requirement is applicable in any mode where the headphones can operate (active or		N/A

	passive), including any available setting (for example built-in volume level control). NOTE The values of 94 dBA – 75 mV correspond with 85dBA – 27 mV and 100 dBA – 150 mV.		
	Zx.4.2 Wired listening devices with digital input With any playing device playing the fixed "programme simulation noise" described in EN 50332-1 (and respecting the digital interface standards, where a digital interface standard exists that specifies the equivalent acoustic level), the acoustic output $L_{Aeq,T}$ of the listening device shall be ≤ 100 dBA. This requirement is applicable in any mode where the headphones can operate, including any available setting (for example built-in volume level control, additional sound feature like equalization, etc.). NOTE An example of a wired listening device with digital input is a USB headphone.		N/A
	Zx.4.3 Wireless listening devices In wireless mode: ☐☐with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and ☐☐respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and ☐☐with volume and sound settings in the listening device (for example built-in volume level control, additional sound feature like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the abovementioned programme simulation noise, the acoustic output $L_{Aeq,T}$ of the listening device shall be ≤ 100 dBA. NOTE An example of a wireless listening device is a Bluetooth headphone.		N/A
	Zx.5 Measurement methods Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable. Unless stated otherwise, the time interval T shall be 30 s. NOTE Test method for wireless equipment provided without listening device should be defined.		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;		N/A
	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.	Deleted	N/A
3.2.5.1	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". In Table 3B, replace the first four lines by the following: 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 | In the conditions applicable to Table 3B delete the words "in some countries" in condition [a)]. In NOTE 1, applicable to Table 3B, delete the second sentence.	Replaced	N/A
3.2.5.1 (A2:2013)	NOTE Z1 The harmonised code designations corresponding to the IEC cord types are given in Annex ZD		N/A
3.3.4	In Table 3D, delete the fourth line: conductor sizes		N/A

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

ZA	**NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS**	—

ZB	**SPECIAL NATIONAL CONDITIONS (EN)**		—
ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
1.2.4.1	In **Denmark**, certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.		N/A
1.2.13.14 (A11:2009)	In **Norway** and **Sweden**, for requirements see 1.7.2.1 and 7.3 of this annex.		N/A
1.5.7.1 (A11:2009)	In **Finland, Norway** and **Sweden**, resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2.		N/A
1.5.8	In **Norway**, due to the IT power system used (see annex V, Figure V.7), capacitors are required to	Not checked	N/A

	be rated for the applicable line-to-line voltage (230 V).		
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.	No such construction	N/A
1.7.2.1 1.7.2.1 (A11:2009)	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" In Norway: “Apparatet må tilkoples jordet stikkontakt” In Sweden: “Apparaten skall anslutas till jordat uttag” 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. 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. 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: “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).”		N/A
	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.		N/A

	Translation to Norwegian (the Swedish text will also be accepted in Norway): "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." Translation to Swedish: "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."		
1.7.2.1 (A2:2013)	In **Denmark**, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text in **Denmark** shall be as follows: In **Denmark**: "Apparatets stikprop skal tilsluttes en stikkontakt med jord, som giver forbindelse til stikproppens jord."		N/A
1.7.5	In **Denmark**, socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a. For **CLASS II EQUIPMENT** the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.		N/A
1.7.5 1.7.5 (A11:2009)	In **Denmark**, socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a. For **CLASS II EQUIPMENT** the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.		N/A
1.7.5 (A2:2013)	In **Denmark**, socket-outlets for providing power to other equipment shall be in accordance with the DS 60884-2-D1:2011. For class I equipment the following Standard		N/A

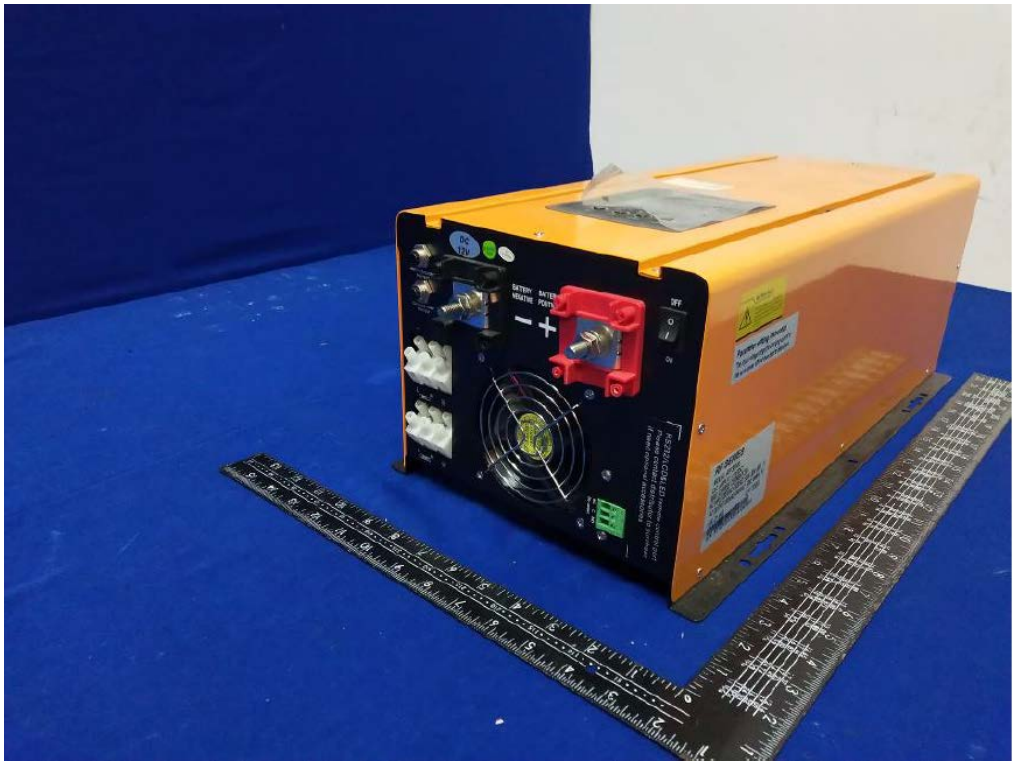
	Sheets are applicable: DK 1-3a, DK 1-1c, DK 1-1d, DK 1-5a or DK 1-7a, with the exception for STATIONARY EQUIPMENT where the socket-outlets shall be in accordance with Standard Sheet DK 1-1b, DK 1-1c, DK 1-1d or DK 1-5a. Socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance with DS 60884-2-D1 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with by DS 60884-2-D1 Standard Sheet DKA 1-3a or DKA 1-3b. Justification the Heavy Current Regulations, 6c		
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.	No TNV	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		N/A

	230/400 V, 16 A SEV 5933-2.1998:Plug Type 21, L+N, 250 V, 16A SEV 5934-2.1998: Plug Type 23, L+N+PE 250 V, 16 A		
3.2.1.1	In **Denmark**, supply cords of single-phase equipment having a rated current not exceeding13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.		N/A
3.2.1.1 (A2:2013)	In **Denmark**, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2. Justification the Heavy Current Regulations, 6c		N/A
3.2.1.1	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. 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. 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. If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance		N/A

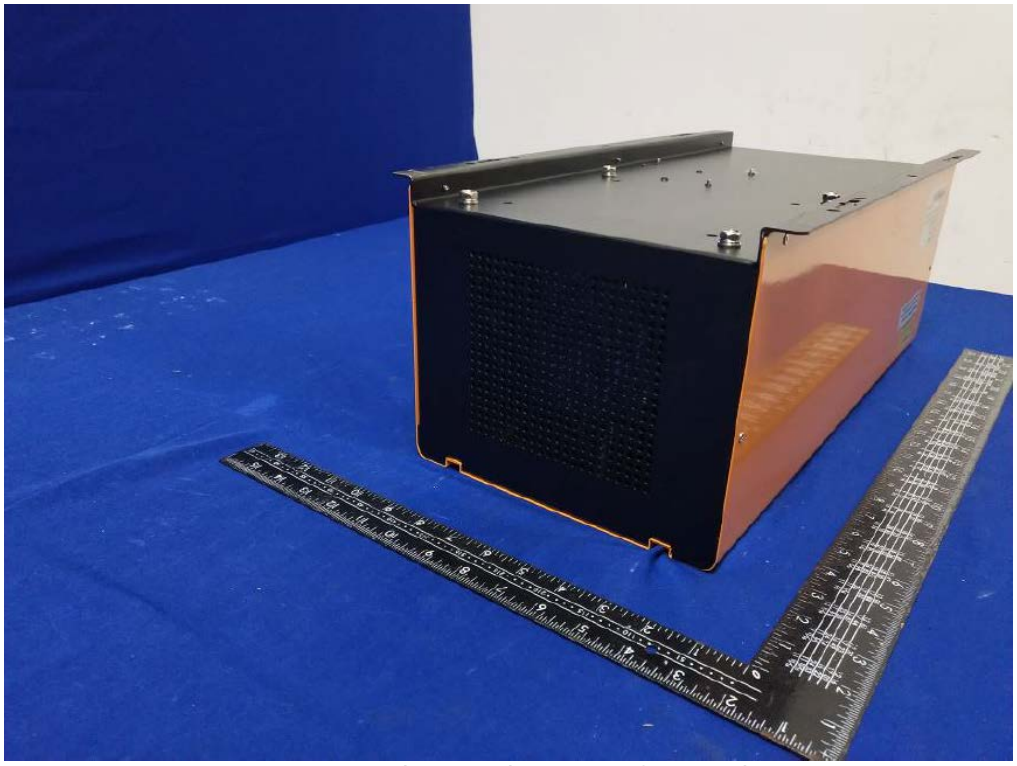
	with UNE-EN 60309-2.		
3.2.1.1	In the **United Kingdom**, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory 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.		N/A
3.2.5.1	In the **United Kingdom**, a power supply cord with conductor of 1,25 mm2 is allowed for equipment with a rated current over 10 A and up to and including 13 A.		N/A
3.3.4	In the **United Kingdom**, the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is: • 1,25 mm^2 to 1,5 mm^2 nominal cross-sectional area.		N/A
4.3.6	In the **United Kingdom**, the torque test is performed using a socket outlet complying with BS 1363 part 1:1995, including Amendment 1:1997 and Amendment 2:2003 and the plug part of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		N/A
4.3.6	In **Ireland**, DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.		N/A
5.1.7.1	In **Finland**, **Norway** and **Sweden** TOUCH		N/A

	CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment: • STATIONARY PLUGGABLE EQUIPMENT TYPE A that is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and is provided with instructions for the installation of that conductor by a SERVICE PERSON; • STATIONARY PLUGGABLE EQUIPMENT TYPE B; • STATIONARY PERMANENTLY CONNECTED EQUIPMENT.		
6.1.2.1 (A1:2010)	In **Finland**, **Norway** and **Sweden**, add the following text between the first and second paragraph of the compliance clause: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either - 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. 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 - 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.	No TNV	N/A
	It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b). It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:		N/A

	- 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.		
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.	No TNV	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.	Not connected to 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.	Not connected to cable distribution system	N/A
7.3	In **Norway**, for installation conditions see EN 60728-11:2005.	Not connected to cable distribution system	N/A



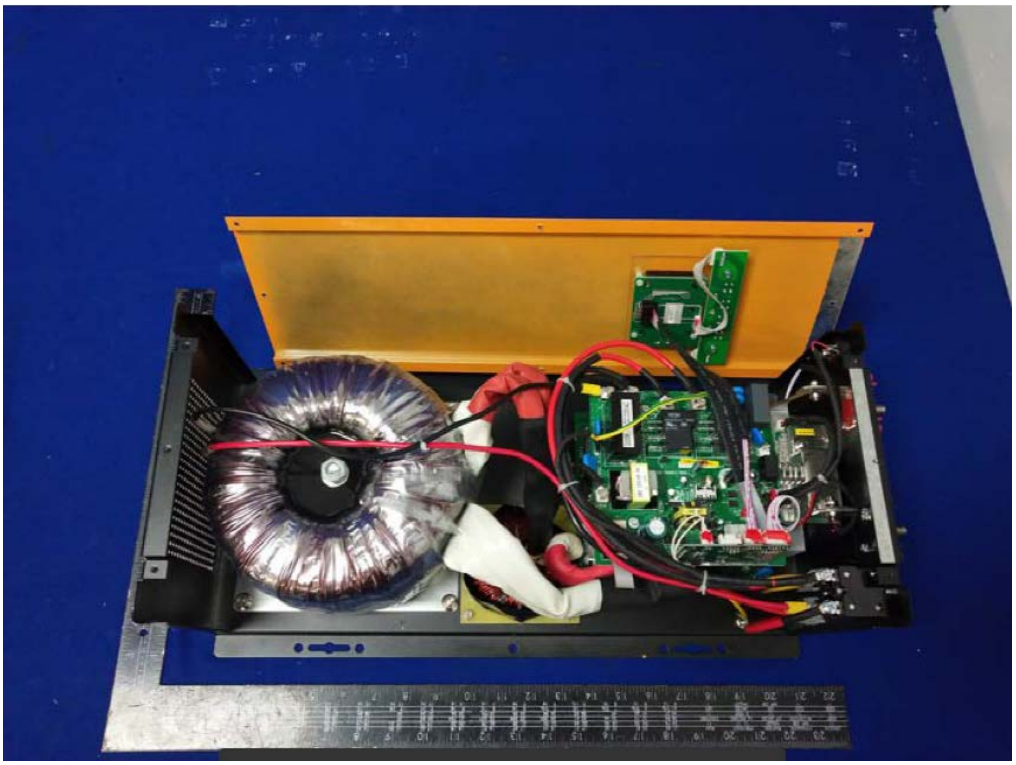
Photographs ID 3-01 for overview 1



Photographs ID 3-02 for overview 2

Photographs ID 3-03 for overview 3

Photographs ID 3-04 for overview 4



Photographs ID 3-05 for internal view

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