



TEST REPORT EN 62040-1 Uninterruptible power systems (UPS) – Part 1: General and safety requirements for UPS	
Report Number.....:	AOC250617003S-R1
Date of issue.....:	2025-07-15
Total number of pages.....:	45 pages
Name of Testing Laboratory preparing the Report.....:	Shenzhen AOCE Electronic Technology Service Co., Ltd Room 202, 2nd Floor, No.12th Building of Xinhe Tongfuyu Industrial Park, Fuhai Street, Baoan District, Shenzhen, Guangdong, China
Applicant's name.....:	Zhengxin (Dongguan) Energy Technology Co., Ltd.
Address.....:	Building 3, No. 7, Binnong 1st Road, Huangjiang Town, Dongguan City, Guangdong Province, China
Test specification:	
Standard.....:	EN 62040-1:2019+A1:2023+A2:2025
Test procedure.....:	Test report
Non-standard test method.....:	N/A
Test Report Form No.....:	IEC62040_1D
Test Report Form(s) Originator.....:	TÜV Rheinland Japan Ltd.
Master TRF.....:	Dated 2021-05
Copyright © 2016 IEC System of Conformity Assessment Schemes for Electrotechnical Equipment and Components (IECEE System). All rights reserved. This publication may be reproduced in whole or in part for non-commercial purposes as long as the IECEE is acknowledged as copyright owner and source of the material. IECEE takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context. If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed. 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. This report shall not be reproduced, except in full, without the written approval of the Issuing Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the Testing Laboratory, responsible for this Test Report.	

Test item description.....:	Uninterrupted Power Supply			
Trade Mark.....:				
Manufacturer.....:	Zhengxin (Dongguan) Energy Technology Co., Ltd. Building 3, No. 7, Binnong 1st Road, Huangjiang Town, Dongguan City, Guangdong Province, China			
Model/Type reference.....:	3C3 10KL, 3C3 15K (R)L, 3C3 20K (R)L, 3C3 30K (R)L, 3C3 40K (R)L, 3C3 60KL, 3C3 80KL, 3C3 100KL, 3C3 120KL, 3C3 160KL, 3C3 180K, 3C3 200KL, 3C3 300KL, 3C3 400KL, 3C3 500KL, 3C3 600KL, 3C3 800KL, 3C 10K (R)L, 3C 15K (R)L, 3C 20K (R)L, 3C 30K (R)L, 3C 40K (R)L, 3C 60KL, 3C 80KL			
Ratings.....:	Input: 305-478V~, 50/60Hz, 45A output: 380V~, 50/60Hz, 36A			
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):				
☒	Testing Laboratory:	Shenzhen AOCE Electronic Technology Service Co., Ltd		
	Testing location/ address.....:	Room 202, 2nd Floor, No.12th Building of Xinhe Tongfuyu Industrial Park, Fuhai Street, Baoan District, Shenzhen, Guangdong, China		
	Tested by (name, function, signature).....:	<table border="1"> <tr> <td>Bill Hu Technical Engineer</td> <td><i>Bill Hu</i></td> </tr> </table>	Bill Hu Technical Engineer	<i>Bill Hu</i>
Bill Hu Technical Engineer	<i>Bill Hu</i>			
	Approved by (name, function, signature)...:	<table border="1"> <tr> <td>Robin Liu Technical Manager</td> <td><i>Robin Liu</i></td> </tr> </table>	Robin Liu Technical Manager	<i>Robin Liu</i>
Robin Liu Technical Manager	<i>Robin Liu</i>			
☐	Testing procedure: CTF Stage 1:			
	Testing location/ address.....:			
	Tested by (name, function, signature).....:			
	Approved by (name, function, signature)...:			
☐	Testing procedure: CTF Stage 2:			
	Testing location/ address.....:			
	Tested by (name + signature).....:			
	Witnessed by (name, function, signature)..:			
	Approved by (name, function, signature)...:			
☐	Testing procedure: CTF Stage 3:			
☐	Testing procedure: CTF Stage 4:			

Testing location/ address..... :		
Tested by (name, function, signature)..... :		
Witnessed by (name, function, signature).. :		
Approved by (name, function, signature)... :		
Supervised by (name, function, signature) :		

List of Attachments (including a total number of pages in each attachment):
Attachment No.1: Photo document.

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

- EN 62040-1:2019+A1:2023+A2:2025

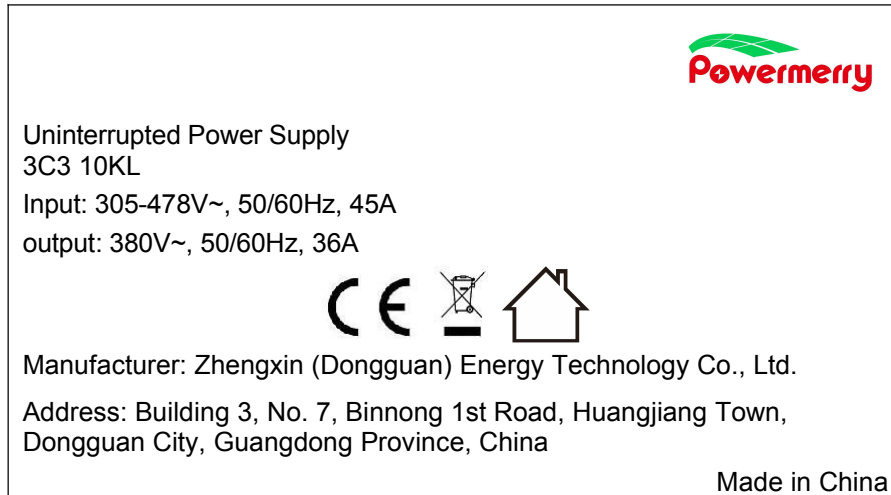
Testing location:

 Shenzhen AOCE Electronic Technology Service Co., Ltd
 Room 202, 2nd Floor, No.12th Building of Xinhe Tongfuyu Industrial Park, Fuhai Street, Baoan District, Shenzhen, Guangdong, China

Summary of compliance with National Differences (List of countries addressed): None

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.



Test item particulars..... :	
Classification of installation and use.....:	☒ User ☐ Service Personal
Supply Connection.....:	☐ pluggable equipment ☐ type A ☐ type B ☐ permanent connection ☐ detachable power supply cord ☒ non-detachable power supply cord
Equipment mobility..... :	☒ movable ☐ transportable ☐ stationary ☐ for building-in
Operation condition..... :	☒ continuous ☐ rated operating / resting time:
Access location.....:	☒ operator accessible ☐ restricted access location
Over voltage category (OVC)..... :	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV
Mains supply tolerance (%) or absolute mains supply values.....:	±10%
Tested for IT power systems.....:	☐ Yes ☒ No
IT testing, phase-phase voltage (V)..... :	
Class of equipment..... :	☒ Class I ☐ Class II ☐ Not classified
Considered current rating of protective device as part of the building installation (A)..... :	
Pollution degree (PD).....:	☐ PD 1 ☒ PD 2 ☐ PD 3
IP protection class.....:	IP20
Elevation during operation (m).....:	--
Elevation of test laboratory (m).....:	--
Mass of equipment (kg).....:	Approx 53.9 kg
Possible test case verdicts:	
- test case does not apply to the test object..... : N/A	
- test object does meet the requirement..... : P (Pass)	
- test object does not meet the requirement..... : F (Fail)	
Testing..... :	
Date of receipt of test item..... :	2025-06-03
Date (s) of performance of tests..... :	2025-06-03 to 2025-07-15
General remarks:	
"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. Throughout this report a ☐ 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 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)..... : Zhengxin (Dongguan) Energy Technology Co., Ltd. Building 3, No. 7, Binnong 1st Road, Huangjiang Town, Dongguan City, Guangdong Province, China	
General product information: 1. Maximum ambient temperature is 25°C. 2. All models are same except for model name and colors.	

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict

4	GENERAL CONDITIONS FOR TESTS		P
4.5	Components		
	Comply with IEC 62040-1 or relevant component standard	(see appended table 4.5)	P
1.5.2/RD	Evaluation and testing of components	Components that 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/RD	Thermal controls	No thermal controls	N
1.5.4/RD	Transformers	See annex C	P
1.5.5/RD	Interconnecting cables		N
1.5.6/RD	Capacitors bridging insulation	X2 and Y1 comply with IEC 60384-14	P
1.5.7/RD	Resistors bridging insulation	No such resistors	N
1.5.7.1/RD	Resistors bridging functional, basic or supplementary insulation		N
1.5.7.2/RD	Resistors bridging double or reinforced insulation between a.c. mains and other circuits		N
1.5.7.3/RD	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable		N
1.5.8/RD	Components in equipment for IT power systems		P
4.6	Power interface		
1.6.1/RD	AC power distribution systems	Considered	P
1.6.2/RD	Input current	(see appended table 4.6)	P
4.6 1.6.4/RD	Neutral conductor		N
4.7	Marking and instructions		P
4.7.1	General		P
4.7.2 1.7.1/RD	Power rating		P
	Input rated voltage/range (V).....:	305-478V~	P
	Input rated current/range (A).....:	45A	P
	Input symbol for nature of supply (d.c.).....:		N
	Input rated frequency/range (Hz).....:	50/60Hz	P

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Number of Input phases and neutral..... :		N
	Output rated voltage/range (V)..... :	380V~	P
	Output rated current/range (A)..... :	36A	P
	Output rated power factor, if less than unity, or active power and apparent power or active power and rated current..... :		N
	Number of output phases and neutral..... :		N
	Output rated active power (W or kW)..... :		N
	Output rated apparent power (VA or kVA)..... :		N
	Output symbol for nature of supply (d.c.)..... :		N
	Output rated frequency/range (Hz)..... :	50/60Hz	P
	Ambient operating temperature range (°C)..... :		N
	Rated short-time withstand current (I_{cw}) or rated conditional short-circuit current (I_{cc})..... :		N
	Manufacturer's name or trademark or identification mark..... :	(see marking plate)	P
	Type/model or type reference..... :	(see marking plate)	P
	Symbol for Class II equipment only..... :		N
	Other symbols..... :		N
	Certification marks..... :		N
	Instructions for units with automatic bypass/maintenance bypass, additional input a.c. supply, or external batteries, having text "See installation instructions before connecting to the supply"..... :		N
4.7.3	Safety instructions	See user manual	P
4.7.3.1	General		N
4.7.3.2	Installation..... :		N
	Location in a restricted access location only..... :		N
	Permanent connector UPS..... :		P
	Pluggable type A or Pluggable type B UPS..... :		P
4.7.3.3	Operation..... :		P
4.7.3.4	Maintenance..... :	No such devices	N
4.7.3.5	Distribution related backfeed..... :	See user manual	P
4.7.4 1.7.4/RD	Main voltage adjustment..... :		N

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Methods and means of adjustment; reference to installation instructions.....:		N
4.7.5 1.7.5/RD	Power outlets.....:	Marked	P
4.7.6 1.7.6/RD	Fuse identification (marking, special fusing characteristics, cross-reference).....:		P
4.7.7 1.7.7/RD	Wiring terminals		P
1.7.7.1/RD	Protective earthing and bonding terminals.....:	Marked	P
1.7.7.2/RD	Terminals for a.c. mains supply conductors.....:		P
1.7.7.3/RD	Terminals for d.c. mains supply conductors.....:		N
4.7.8	Battery terminals.....:		N
4.7.9 1.7.8/RD	Controls and indicators		P
1.7.8.1/RD	Identification, location and marking.....:		P
1.7.8.2/RD	Colours.....:		P
1.7.8.3/RD	Symbols.....:	 used	P
1.7.8.4/RD	Markings using figures.....:		N
4.7.10 1.7.9/RD	Isolation of multiple power sources.....:		N
4.7.11 1.7.2.4/RD	IT power systems		N
4.7.12	Protection in building installation		N
	Rated short-time withstand current (I_{cw}).....:		N
	Rated conditional short circuit current (I_{cc}).....:		N
	a) If higher I_{cp} stated ≤ 10 kA		N
	a) If higher I_{cp} stated > 10 kA		N
4.7.13 5.1/RD	High leakage current (mA).....:	Not exceed	N
4.7.14 1.7.10/RD	Thermostats and other regulating devices	No such devices	N
4.7.15 1.7.2.1/RD and 1.7.8.1/RD	Language(s).....:	English or local language	–
4.7.16 1.7.11/RD	Durability of markings	Legible and no curling	P

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.7.17 1.7.12/RD	Removable parts	No such devices	N
4.7.18 1.7.13/RD	Replaceable batteries		N
	Language(s).....:		–
4.7.19 1.7.2.5/RD	Operator access with a tool.....:	No operator access with a tool	N
4.7.20	Battery		N
	Clearly legible information.....:		N
	Battery type (lead-acid, NiCd, etc.) and number of blocks or cells.....:		N
	Nominal voltage of total battery (V).....:		N
	Nominal capacity of total battery (optional).....:		N
	Warning label.....:		N
	Instructions.....:		N
2.1.1.5/RD	Protection against energy hazards		N
4.7.21 1.7.2.4/RD	Installation instructions		N

5	FUNDAMENTAL DESIGN REQUIREMENTS		P
5.1	Protection against electric shock and energy hazards		P
5.1.1 2.1.1/RD	Protection for UPS intended to be used in operator access areas		P
2.1.1.1/RD	Access to energized parts		P
	Test by inspection.....:		P
	Test with test finger (Figure 2A).....:		P
	Test with test pin (Figure 2B).....:		P
	Test with test probe (Figure 2C).....:		N
2.1.1.2/RD	Battery compartments		N
2.1.1.3/RD	Access to ELV wiring		P
	Working voltage (V_{peak} or V_{rms}); minimum distance through insulation (mm)	(see appended table 5.7)	–
2.1.1.4/RD	Access to hazardous voltage circuit wiring		P
2.1.1.5/RD	Energy hazards.....:		N
2.1.1.6/RD	Manual controls	No such controls	N

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.1.1.7/RD	Discharge of capacitors in equipment	After 1s voltage: 16V Limit: 365Vx38%=138.7V	P
	Measured voltage (V); time-constant (s).....:		–
2.1.1.8/RD	Energy hazards – d.c. mains supply		N
	a) Capacitor connected to the d.c. mains supply.....:		N
	b) Internal battery connected to the d.c. mains supply.....:		N
2.1.1.9/RD	Audio amplifiers in information technology equipment.....:	No audio amplifiers	N
5.1.2 2.1.1.5 c) /RD	Protection for UPS intended to be used in service access areas	No such areas	N
	Hazardous energy level.....:		N
5.1.3 2.1.1.5 c) /RD	Protection for UPS intended to be used in restricted access areas		N
	Hazardous energy level.....:		N
5.1.4	Backfeed protection	(see appended table 5.7)	–
	Shock hazard after de-energization of a.c. input for UPS		
	Measured voltage (V); time-constant (s).....:	0V after 4ms	–
	Description of the construction.....:	In the UPS	P
	Air gap is employed for backfeed protection		N
5.1.5	Emergency switching (disconnect) device	No such device	N
5.2	Requirements for auxiliary circuits		
5.2.1 2.2/RD	Safety extra low voltage circuit - SELV	No SELV circuits	N
2.2.1/RD	General requirements		N
2.2.2/RD	Voltages under normal conditions (V).....:	(See appended table 5.2.1)	N
2.2.3/RD	Voltages under fault conditions (V).....:	(See appended table 5.2.1)	N
2.2.4/RD	Connection of SELV circuits to other circuits.....:		N
5.2.2 2.3/RD	Telephone network voltage circuits - TNV		N
2.3.1/RD	Limits		N
	Type of TNV circuits.....:		–
2.3.2/RD	Separation of TNV circuits from other circuits and from accessible parts		N

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.3.2.1/RD	General requirements		N
2.3.2.2/RD	Protection by basic insulation		N
2.3.2.3/RD	Protection by earthing		N
2.3.2.4/RD	Protection by other constructions.....:		N
2.3.3/RD	Separation from hazardous voltages		N
	Insulation employed.....:		–
2.3.4/RD	Connection of TNV circuits to other circuits		N
	Insulation employed.....:		–
2.3.5/RD	Test for operating voltages generated externally		N
5.2.3 2.4/RD	Limited current circuits	No limited current circuits	N
2.4.1/RD	General requirements		N
2.4.2/RD	Limit values	(See appended table 5.2.3)	–
	Frequency (Hz).....:		–
	Measured current (mA).....:		–
	Measured voltage (V).....:		–
	Measured circuit capacitance (nF or μ F).....:		–
2.4.3/RD	Connection of limited current circuits to other circuits		N
5.2.4 3.5/RD	External signaling circuits	No interconnections circuits	N
3.5.1/RD	General requirements		N
3.5.2/RD	Types of interconnection circuits.....:		N
3.5.3/RD	ELV circuits as interconnection circuits		N
3.5.4/RD	Data ports for additional equipment		N
5.2.5 2.5/RD	Limited power source		N
	a) Inherently limited output		N
	b) Impedance limited output		N
	c) Regulating network limited output under normal operating and single fault condition		N
	d) Overcurrent protective device limited output		N
	Max. output voltage (V), max. output current (A), max. apparent power (VA).....:		–
	Current rating of overcurrent protective device (A).:		–
	Use of integrated circuit (IC) current limiters		N

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.3	Protective earthing and bonding		P
5.3.1	General		P
2.6/RD	Provisions for earthing and bonding		P
2.6.1/RD	Protective earthing		P
2.6.2/RD	Functional earthing		N
2.6.3/RD	Protective earthing conductors and protective bonding conductors		P
2.6.3.1/RD	General		P
2.6.3.2/RD	Size of protective earthing conductors		P
	Rated current (A), cross-sectional area (mm ²), AWG.....:	<10A, 1mm ²	–
2.6.3.3/RD	Size of protective bonding conductors		P
	Rated current (A), cross-sectional area (mm ²), AWG.....:	<10A, 1mm ²	–
	Protective current rating (A), cross-sectional area (mm ²), AWG.....:		–
2.6.3.4/RD	Resistance of earthing conductors and their terminations; resistance (Ω), voltage drop (V), test current (A), duration (min).....:	(See appended table 5.3.1)	P
2.6.3.5/RD	Colour of insulation.....:	Yellow-and-green	P
2.6.4/RD	Terminals		P
2.6.4.1/RD	General		P
2.6.4.2/RD	Protective earthing and bonding terminals		P
	Rated current (A), type, nominal thread diameter (mm).....:		–
2.6.4.3/RD	Separation of the protective earthing conductor from protective bonding conductors		N
2.6.5/RD	Integrity of protective earthing		P
2.6.5.1/RD	Interconnection of equipment	No interconnection circuit	N
2.6.5.2/RD	Components in protective earthing conductors and protective bonding conductors	No such components used	P
2.6.5.3/RD	Disconnection of protective earth		P
2.6.5.4/RD	Parts that can be removed by an operator	Protective earthing connection shall make earlier and break later than the supply connections	P
2.6.5.5/RD	Parts removed during servicing		N
2.6.5.6/RD	Corrosion resistance		P
2.6.5.7/RD	Screws for protective bonding		P

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.6.5.8/RD	Reliance on telecommunication network or cable distribution system		N
5.3.2 2.6.1/RD	Protective earthing		P
2.10/RD	Clearances, creepage distances and distances through insulation		P
4.2/RD	Mechanical strength		P
5.2/RD	Electric strength		P
5.3.3	Protective bonding		P
5.4	AC and d.c. power isolation		P
5.4.1	General		P
3.4/RD	Disconnection from the mains supply		P
3.4.1/RD	General requirement		P
3.4.2/RD	Disconnect devices	Mains plug, AC inlet	P
3.4.3/RD	Permanently connected equipment		N
3.4.4/RD	Parts which remain energized	No such hazard	N
3.4.5/RD	Switches in flexible cords		N
3.4.6/RD	Number of poles - single-phase and d.c. equipment	Disconnect both poles simultaneously	P
3.4.7/RD	Number of poles - three-phase equipment		N
3.4.8/RD	Switches as disconnect devices		N
3.4.9/RD	Plugs as disconnect devices		P
3.4.10/RD	Interconnected equipment		N
3.4.11/RD	Multiple power sources		N
5.4.2	Disconnect devices		P
5.5	Overcurrent and earth fault protection		P
5.5.1	General		P
2.7.3/RD	Short-circuit backup protection	the building installation is considered as providing shortcircuit backup protection	P
2.7.4/RD	Number and location of protective devices.....:		P
2.7.5/RD	Protection by several devices		N
2.7.6/RD	Warning to service personnel..... :		N
5.5.2	Basic requirements		N
5.5.3	Battery circuit protection		N
5.5.3.1	Overcurrent and earth fault protection		P

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.5.3.2	Location of protective device		P
5.5.3.3	Rating of protective device		P
5.3.1/RD	Protection against overload and abnormal operation	(see appended table 8.3)	P
5.5.4	Short-time withstand current		N
5.5.4.1	General		N
5.5.4.2	Modes of operation		N
5.5.4.3	Test procedure		N
5.5.4.3.1	General application		N
	Rated UPS output current/(r.m.s) (A)..... :		N
	Prospective test current/(r.m.s) (A)..... :		N
	Typical power factor..... :		N
	Initial asymmetric peak current ration (I_{pk} / I_{cw})..... :		N
	Minimum duration of prospective test current (cycles 50/60 Hz)..... :		N
5.5.4.3.2	Exemption from testing		N
5.6	Protection of personnel – Safety interlocks		N
5.6.1	Operator protection		N
2.8/RD	General principles		N
2.8.1/RD	Protection requirements		N
2.8.2/RD	Inadvertent reactivation		N
2.8.3/RD	Fail-safe operation		N
2.8.4/RD	Protection against extreme hazard		N
2.8.5/RD	Moving parts		N
2.8.6/RD	Overriding		N
2.8.7/RD	Switches, relays and their related circuits		N
2.8.7.1/RD	Separation distances for contact gaps and their related circuits..... :		N
2.8.7.2/RD	Overload test		N
2.8.7.3/RD	Endurance test		N
2.8.7.4/RD	Electric strength test	(see appended table 8.2)	N
2.8.8/RD	Mechanical actuators		N
5.6.2	Service person protection		N
5.6.2.1	Introduction		N

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.6.2.2	Covers		N
5.6.2.3	Location and guarding of parts		N
5.6.2.4	Parts on doors		N
5.6.2.5	Component access		N
2.8.3/RD	Fail-safe operation		N
5.6.2.6	Moving parts		N
5.6.2.7	Capacitor banks		N
5.6.2.8	Internal batteries		N
5.7 2.10/RD	Clearances, creepage distances and distances through insulation		P
2.10.1/RD	General		P
2.10.1.1/RD	Frequency..... : < 30KHz		N
2.10.1.2/RD	Pollution degrees..... : Pollution degree II assumed		P
2.10.1.3/RD	Reduced values for functional insulation		N
2.10.1.4/RD	Intervening unconnected conductive parts		N
2.10.1.5/RD	Insulation with varying dimensions		N
2.10.1.6/RD	Special separation requirements		N
2.10.1.7/RD	Insulation in circuits generating starting pulses		N
2.10.2/RD	Determination of working voltage	(See appended table 5.7)	P
2.10.2.1/RD	General		P
2.10.2.2/RD	RMS working voltage		P
2.10.2.3/RD	Peak working voltage		P
2.10.3/RD	Clearances		P
2.10.3.1/RD	General		P
2.10.3.2/RD	Mains transient voltages		N
	a) AC mains supply..... : 2500V		P
	b) Earthed d.c. mains supplies..... :		N

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict
	c) Unearthed d.c. mains supplies.....:		N
	d) Battery operation.....:		P
2.10.3.3/R D	Clearances in primary circuits	(see appended table 5.7)	P
2.10.3.4/R D	Clearances in secondary circuits	(see appended table 5.7)	N
2.10.3.5/R D	Clearances in circuits having starting pulses		N
2.10.3.6/R D	Transients from a.c. mains supply.....:		P
2.10.3.7/R D	Transients from d.c. mains supply.....:		N
2.10.3.8/R D	Transients from telecommunication networks and cable distribution systems.....:		N
2.10.3.9/R D	Measurement of transient voltage levels		N
	a) Transients from a mains supply		N
	For an a.c. mains supply.....:		N
	For a d.c. mains supply.....:		N
	b) Transients from a telecommunication network.....:		N
2.10.4/RD	Creepage distances	(see appended table 5.7)	P
2.10.4.1/R D	General		P
2.10.4.2/R D	Material group and comparative tracking index		P
	CTI tests.....:		—
2.10.4.3/R D	Minimum creepage distances		N
2.10.5 /RD	Solid insulation		P
2.10.5.1/R D	General		P
2.10.5.2/R D	Distances through insulation	(see appended table 5.7)	P
2.10.5.3/R D	Insulating compound as solid insulation		N
2.10.5.4/R D	Semiconductor devices		N
2.10.5.5/R D	Cemented joints		N

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.10.5.6/R D	Thin sheet material – General		N
2.10.5.7/R D	Separable thin sheet material		N
	Number of layers (pcs).....:		–
2.10.5.8/R D	Non-separable thin sheet material		N
2.10.5.9/R D	Thin sheet material – standard test procedure		N
	Electric strength test		–
2.10.5.10 /RD	Thin sheet material – alternative test procedure		N
	Electric strength test		–
2.10.5.11 /RD	Insulation in wound components		N
2.10.5.12 /RD	Wire in wound components		N
	Working voltage.....:		–
	a) Basic insulation not under stress.....:		N
	b) Basic, supplementary, reinforced insulation.....:		N
	c) Compliance with Annex U.....:		N
	Two wires in contact inside wound component; angle between 45° and 90°.....:		N
2.10.5.13 /RD	Wire with solvent-based enamel in wound components		N
	Electric strength test		–
	Routine test		N
2.10.5.14 /RD	Additional insulation in wound components		N
	Working voltage.....:		–
	- Basic insulation not under stress.....:		N
	- Supplementary, reinforced insulation.....:		N
2.10.6/RD	Construction of printed boards		N
2.10.6.1/R D	Uncoated printed boards		N
2.10.6.2/R D	Coated printed boards		N
2.10.6.3/R D	Insulation between conductors on the same inner surface of a printed board		N

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.10.6.4/R D	Insulation between conductors on different layers of a printed board		N
	Distance through insulation		N
	Number of insulation layers (pcs).....:		N
2.10.7/RD	Component external terminations		N
2.10.8/RD	Tests on coated printed boards and coated components		N
2.10.8.1/R D	Sample preparation and preliminary inspection		N
2.10.8.2/R D	Thermal conditioning		N
2.10.8.3/R D	Electric strength test		–
2.10.8.4/R D	Abrasion resistance test		N
2.10.9/RD	Thermal cycling		N
2.10.10/R D	Test for Pollution Degree 1 environment and insulating compound		N
2.10.11/R D	Tests for semiconductor devices and cemented joints		N
2.10.12/R D	Enclosed and sealed parts		N

6	Wiring, connections and supply		P
6.1	General		P
6.1.1	Introduction		P
3.1/RD	General		P
3.1.1/RD	Current rating and overcurrent protection	Internal wires are adequate for the current they are intended to carry	P
3.1.2/RD	Protection against mechanical damage	smooth and free from sharp edges	P
3.1.3/RD	Securing of internal wiring	No damage	P
3.1.4/RD	Insulation of conductors	Comply with the test requirements	P
3.1.5/RD	Beads and ceramic insulators	No such parts	N
3.1.6/RD	Screws for electrical contact pressure	Earthing screws complied	P
3.1.7/RD	Insulating materials in electrical connections	No such contact pressure used	N
3.1.8/RD	Self-tapping and spaced thread screws		P

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.1.9/RD	Termination of conductors		P
	10 N pull test	No hazard	P
3.1.10/RD	Sleeving on wiring	No such sleeving	N
6.1.2	Dimensions and rating of busbars and insulated conductors		N
6.2	Connection to power		P
6.2.1	General provisions for connection to power	Plug with detachable power cord	P
3.2.2/RD	Multiple supply connections		N
3.2.3/RD	Permanently connected equipment	Not such equipment	N
	Number of conductors, diameter of cable and conduits (mm)..... :		–
3.2.4/RD	Appliance inlets		N
3.2.5/RD	Power supply cords		P
3.2.5.1/RD	AC power supply cords		P
	Type..... :	H05VV-F	–
	Rated current (A), cross-sectional area (mm ²), AWG..... :	<10A, 1.0mm ²	–
3.2.5.2/RD	DC power supply cords		N
3.2.6/RD	Cord anchorages and strain relief		N
	Mass of equipment (kg), pull (N)..... :		–
	Longitudinal displacement (mm)..... :		–
3.2.7/RD	Protection against mechanical damage		P
3.2.8/RD	Cord guards	Not such equipments	N
	Diameter or minor dimension D (mm); test mass (g)..... :		–
	Radius of curvature of cord (mm)..... :		–
6.2.2	Means of connection..... :	AC inlet	P
	More than one supply connection..... :		N
6.3	Wiring terminals for external power conductors		P
3.3/RD	Wiring terminals for connection of external conductors		P
3.3.1/RD	Wiring terminals		P
3.3.2/RD	Connection of non-detachable power supply cords		P
3.3.3/RD	Screw terminals		P
3.3.4/RD	Conductor sizes to be connected		P

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict

	Rated current (A), cord/cable type, cross-sectional area (mm ²)..... :		–
3.3.5/RD	Wiring terminal sizes		P
	Rated current (A), type, nominal thread diameter (mm)..... :		–
3.3.6/RD	Wiring terminal design		P
3.3.7/RD	Grouping of wiring terminals		N
3.3.8/RD	Stranded wire		N

7	Physical requirements		P
7.1	Enclosure		P
7.2	Stability		P
4.1/RD			
	Angle of 10°		P
	Test force (N)..... :		P
7.3	Mechanical strength		P
4.2/RD			
4.2.1/RD	General		P
4.2.2/RD	Steady force test, 10 N		–
4.2.3/RD	Steady force test, 30 N		N
4.2.4/RD	Steady force test, 250 N		P
4.2.5/RD	Impact test		P
	Fall test	1.3m, no damage	P
	Swing test		P
4.2.6/RD	Drop test; height (mm)..... :		N
4.2.7/RD	Stress relief test		–
4.2.8/RD	Cathode ray tubes	No such tubes	N
	Picture tube separately certified..... :		–
4.2.9/RD	High pressure lamps		N
4.2.10/RD	Wall or ceiling mounted equipment; force (N)..... :	Not such equipment	N
7.4	Construction details		P
7.4.1	Introduction		P
4.3.1/RD	Edges and corners	No hazard	P
4.3.2/RD	Handles and manual controls; force (N)..... :		N
4.3.3/RD	Adjustable controls	No such controls	N

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.3.4/RD	Securing of parts		P
4.3.5/RD	Connection by plugs and sockets		N
4.3.7/RD	Heating elements in earthed equipment	No such heating elements	N
4.3.11/RD	Containers for liquids or gases		N
4.4/RD	Protection against hazardous moving parts	No moving parts	N
4.4.1/RD	General		N
4.4.2/RD	Protection in operator access areas..... :		N
4.4.3/RD	Protection in restricted access locations..... :		N
4.4.4/RD	Protection in service access areas		N
4.4.5/RD	Protection against moving fan blades		P
4.4.5.1/RD	General		P
	Not considered to cause pain or injury. a)..... :	(See appended table)	P
	Is considered to cause pain, not injury. b)..... :		P
	Considered to cause injury. c)..... :		P
4.4.5.2	Protection for users		P
	Use of symbol or warning..... :	(see appended table 7.4)	P
4.4.5.3	Protection for service persons	No opening in the top enclosure	P
	Use of symbol or warning..... :		P
4.5/RD	Thermal requirements	Not such equipment	N
4.5.1/RD	General		P
4.5.2/RD	Temperature tests		P
	Normal load condition per Annex L..... :		P
4.5.3/RD	Temperature limits for materials		P
4.5.4/RD	Touch temperature limits		P
4.5.5/RD	Resistance to abnormal heat..... :	(see appended table 7.4)	P
7.4.2	Openings		P
7.4.3	Gas Concentration		P
7.4.4	Equipment movement		N
7.5 4.7/RD	Resistance to fire		P
4.7.1/RD	Reducing the risk of ignition and spread of flame		P
	Method 1, selection and application of components wiring and materials	(see appended table 7.5)	P
	Method 2, application of all of simulated fault condition tests	(see appended table 7.5)	N

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict

4.7.2/RD	Conditions for a fire enclosure	Metal enclosure	P
4.7.2.1/RD	Parts requiring a fire enclosure		P
4.7.2.2/RD	Parts not requiring a fire enclosure		N
4.7.3/RD	Materials		P
4.7.3.1/RD	General		P
4.7.3.2/RD	Materials for fire enclosures		P
4.7.3.3/RD	Materials for components and other parts outside fire enclosures		N
4.7.3.4/RD	Materials for components and other parts inside fire enclosures		P
4.7.3.5/RD	Materials for air filter assemblies		N
4.7.3.6/RD	Materials used in high-voltage components		N
7.6	Battery location		P
7.6.1	Battery location and installation		P
7.6.2	Accessibility and maintainability		P
7.6.3	Distance		P
7.6.4	Case insulation		P
7.6.5	Wiring		P
7.6.6	Electrolyte spillage		P
7.6.7	Ventilation		P
7.6.8	Charging voltage		P
7.7	Temperature rise		P
4.5/RD	Thermal requirements		P
4.5.1/RD	General		P
4.5.2/RD	Temperature tests	(see appended table 7.7)	P
	Normal load condition per Annex L.....:		P
4.5.3/RD	Temperature limits for materials		P
4.5.4/RD	Touch temperature limits		P
4.5.5/RD	Resistance to abnormal heat.....:		P

8	Electrical requirements and simulated abnormal conditions		P
8.1	General provisions for earth leakage		P
5.1.1/RD	General		P
5.1.7/RD	Equipment with touch current exceeding 3,5 mA		N

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict

8.2 5.2/RD	Electric strength		P
5.2.1/RD	General	(see appended table 8.2)	P
5.2.2/RD	Test procedure	(see appended table 8.2)	P
8.3	Abnormal operating and fault conditions		P
8.3.1	General		
5.3.1/RD	Protection against overload and abnormal operation		P
5.3.2/RD	Motors	(see appended table 8.3)	P
5.3.3/RD	Transformers	(see appended Annex B)	N
5.3.4/RD	Functional insulation.....:	(see appended Annex C)	P
5.3.5/RD	Electromechanical components		P
5.3.9/RD	Compliance criteria for abnormal operating and fault conditions		N
5.3.9.1/RD	During the tests		P
5.3.9.2/RD	After the tests		P
8.3.2	Simulation of faults		P
8.3.3	Conditions for tests		P

9 6/RD	Connection to telecommunication networks		N
6.1/RD	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		N
6.1.1/RD	Protection from hazardous voltages		N
6.1.2/RD	Separation of the telecommunication network from earth		N
6.1.2.1/RD	Requirements		N
	Supply voltage (V).....:		—
	Current in the test circuit (mA).....:		—
6.1.2.2/RD	Exclusions.....:		N
6.2/RD	Protection of equipment users from overvoltages on telecommunication networks		N
6.2.1/RD	Separation requirements		N
6.2.2/RD	Electric strength test procedure		N
6.2.2.1/RD	Impulse test	(see appended table 9)	N
6.2.2.2/RD	Steady-state test	(see appended table 9)	N

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.2.2.3/RD	Compliance criteria		N
6.3/RD	Protection of the telecommunication wiring system from overheating		N
	Max. output current (A)..... :		–
3.5/RD	Interconnection of equipment		N
3.5.1/RD	General requirements		N
3.5.2/RD	Types of interconnection circuits..... :		N
3.5.3/RD	ELV circuits as interconnection circuits		N
3.5.4/RD	Data ports for additional equipment		N
2.1.3/RD	Protection in restricted access locations		N
2.3.1/RD	Limits		–
	Type of TNV circuits..... :		N
2.3.2/RD	Separation from other circuits and from accessible parts		N
2.3.2.1/RD	General requirements		N
2.3.2.2/RD	Protection by basic insulation		N
2.3.2.3/RD	Protection by earthing		N
2.3.2.4/RD	Protection by other constructions..... :		N
2.3.3/RD	Separation from hazardous voltages		–
	Insulation employed..... :		N
2.3.4/RD	Connection of TNV circuits to other circuits		–
	Insulation employed..... :		N
2.3.5/RD	Test for operating voltages generated externally		N
2.6.5.8/RD	Reliance on telecommunication network or cable distribution system	(see appended table 5.7)	N
2.10.3.3/RD	Clearances in primary circuits	(see appended table 5.7)	N
2.10.3.4/RD	Clearances in secondary circuits		N
2.10.4/RD	Creepage distances		N
2.10.4.1/RD	General		N
2.10.4.2/RD	Material group and comparative tracking index		–
	CTI tests..... :		N
2.10.4.3/RD	Minimum creepage distances		N

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict

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

A/RD	Annex A, Tests for resistance to heat and fire		N
A.1/RD	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2/RD)		N
A.1.1/RD	Samples.....:		N
	Wall thickness (mm).....:		N
A.1.2/RD	Conditioning of samples; temperature (°C).....:		N
A.1.3/RD	Mounting of samples.....:		N
A.1.4/RD	Test flame (see IEC 60695-11-3)		N
	Flame A, B, C or D.....:		N
A.1.5/RD	Test procedure		N
A.1.6/RD	Compliance criteria		N
	Sample 1 burning time (s).....:		N
	Sample 2 burning time (s).....:		N
	Sample 3 burning time (s).....:		N

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict

A.2/RD	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/RD and 4.7.3.4/RD)		N
A.2.1/RD	Samples, material..... :		N
	Wall thickness (mm)..... :		N
A.2.2/RD	Conditioning of samples; temperature (°C)..... :		N
A.2.3/RD	Mounting of samples..... :		N
A.2.4/RD	Test flame (see IEC 60695-11-4)		N
	Flame A, B or C..... :		N
A.2.5/RD	Test procedure		N
A.2.6/RD	Compliance criteria		N
	Sample 1 burning time (s)..... :		N
	Sample 2 burning time (s)..... :		N
	Sample 3 burning time (s)..... :		N
A.2.7/RD	Alternative test acc. to IEC 60695-11-5, cl. 5 and 9		N
	Sample 1 burning time (s)..... :		N
	Sample 2 burning time (s)..... :		N
	Sample 3 burning time (s)..... :		N
A.3/RD	Hot flaming oil test (see 4.6.2/RD)		N
A.3.1/RD	Mounting of samples		N
A.3.2/RD	Test procedure		N
A.3.3/RD	Compliance criterion		N

B/RD	Annex B, Motor tests under abnormal conditions (see 4.7.2.2/RD and 5.3.2/RD)		N
B.1/RD	General requirements		N
	Position..... :		N
	Manufacturer..... :		N
	Type..... :		N
	Rated values..... :		N
B.2/RD	Test conditions		N
B.3/RD	Maximum temperatures		N
B.4/RD	Running overload test		N
B.5/RD	Locked-rotor overload test		N

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict

	Test duration (days).....:		N
	Electric strength test: test voltage (V).....:		N
B.6/RD	Running overload test for d.c. motors in secondary circuits		N
B.6.1/RD	General		N
B.6.2/RD	Test procedure		N
B.6.3/RD	Alternative test procedure		N
B.6.4/RD	Electric strength test; test voltage (V).....:		N
B.7/RD	Locked-rotor overload test for d.c. motors in secondary circuits		N
B.7.1/RD	General		N
B.7.2/RD	Test procedure		N
B.7.3/RD	Alternative test procedure		N
B.7.4/RD	Electric strength test; test voltage (V).....:		N
B.8/RD	Test for motors with capacitors		N
B.9/RD	Test for three-phase motors		N
B.10/RD	Test for series motors		N
	Operating voltage (V).....:		N

C/RD	Annex C, Transformers (see 1.5.4/RD and 5.3.3/RD)		P
	Position.....:	TX1	—
	Manufacturer.....:	Sunshine & Cell Power System Equipment Co., Ltd. Foshan	—
	Type.....:	T10-1105040-89	—
	Rated values.....:		—
	Method of protection.....:		—
C.1/RD	Overload test		P
C.2/RD	Insulation		P
	Protection from displacement of windings.....:		P

D/RD	Annex D, Measuring instruments for touch current tests (see 5.1.4/RD)		P
D.1/RD	Measuring instrument		P
D.2/RD	Alternative measuring instrument		P

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict

E/RD	Annex E, Temperature rise of a winding (see Annex E/RD)	P
-------------	--	----------

F/RD	Annex F, Measurements of clearances and creepage distance (see 2.10/RD and Annex G/RD)	P
-------------	---	----------

G/RD	Annex G, Alternative method for determining minimum clearances	N
G.1/RD	Clearances	N
G.1.1/RD	General	N
G.1.2/RD	Summary of the procedure for determining minimum clearances	N
G.2/RD	Determination of mains transient voltage (V)	N
G.2.1/RD	AC mains supply.....:	N
G.2.2/RD	Earthed d.c. mains supplies.....:	N
G.2.3/RD	Unearthed d.c. mains supplies.....:	N
G.2.4/RD	Battery operation.....:	N
G.3/RD	Determination of telecommunication network transient voltage (V).....:	N
G.4/RD	Determination of required withstand voltage (V)	N
G.4.1/RD	Mains transients and internal repetitive peaks.....:	N
G.4.2/RD	Transients from telecommunication networks.....:	N
G.4.3/RD	Combination of transients	N
G.4.4/RD	Transients from cable distribution systems	N
G.5/RD	Measurement of transient voltages (V)	N
	a) Transients from a mains supply	N
	For an a.c. mains supply	N
	For a d.c. mains supply	N
	b) Transients from a telecommunication network	N
G.6/RD	Determination of minimum clearances.....:	N

H	Annex H, Guidance on protection against ingress of water and foreign objects (see IEC 60529)	N
----------	---	----------

I	Annex I, Backfeed protection test	N
----------	--	----------

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict

I.1	General		N
I.2	Test for pluggable UPS		N
I.3	Test for permanently connected UPS		N
I.4	Load-induced change of reference potential		N
I.5	Solid-state backfeed protection (see clause 7.1-7.5 of IEC 62040-2 and clause 7.1-7.2 of IEC 62040-3)		N

J/RD	Annex J, Table of electrochemical potentials (see 2.6.5.6/RD)		N
	Metal(s) used.....:		N

K/RD	Annex K, Thermal controls (see 1.5.3/RD and 5.3.8/RD)		N
K.1/RD	Making and breaking capacity		N
K.2 /RD	Thermostat reliability; operating voltage (V)..... :		N
K.3/RD	Thermostat endurance test; operating voltage (V).....:		N
K.4/RD	Temperature limiter endurance; operating voltage (V).....:		N
K.5/RD	Thermal cut-out reliability		N
K.6/RD	Stability of operation		N

L	Annex L, Reference loads		P
L.1	General		P
L.2	Reference resistive load		P
L.3	Reference inductive-resistive load		N
L.4	Reference capacitive-resistive loads		N
L.5	Reference non-linear load		N
L.5.1	General		N
L.5.2	Test method		N
L.5.3	Connection of the non-linear reference load		N

M	Annex M, Ventilation of battery compartments		N
M.1	General		N

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict
M.2	Normal conditions		N
M.3	Blocked conditions		N
M.4	Overcharge conditions		N
N	Annex N, Minimum and maximum cross-sections of copper conductors suitable for connection (see 6.3)		P
U/RD	Annex U, Insulated winding wires for use without interleaved insulation (see 2.10.5.4/RD)		N
		See separate test report	N
V/RD	Annex V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1/RD)		P
V.1/RD	Introduction		P
V.2/RD	TN power distribution systems		P
V.3/RD	TT power distribution systems		N
V.4/RD	IT power distribution systems		N

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict

4.6, 1.6.2/RD	TABLE: Electrical Data (in normal conditions)					P
fuse #	I rated (A)	U (V)	P (W)	I (A)	I fuse (A)	condition/status
F1	--	275	11515.3	41.5	41.5	MAX.Normal working
F1	--	275	11537.4	42.5	42.5	MAX.Normal working
F1	45	305	11865.2	43.8	43.8	MAX.Normal working
F1	45	305	11998.6	44.1	44.1	MAX.Normal working
F1	45	478	11538.3	42.1	42.1	MAX.Normal working
F1	45	478	11635.2	42.3	42.3	MAX.Normal working
F1	--	526	11758.6	43.6	43.6	MAX.Normal working
F1	--	526	11884.5	40.22	40.22	MAX.Normal working
Supplementary information:						

5.1.1 2.1.1.5/RD	TABLE: Max. V, A, VA Test				N
Voltage (rated) (V)	Current (rated) (A)	Voltage (max.) (V)	Current (max.) (A)	VA (max.) (VA)	
--	--	--	--	--	
Supplementary information:					

5.1.1 2.1.1.5/RD	TABLE: Stored Energy		N
Capacitance C (μF)	Voltage U (V)	Energy E (J)	
--	--	--	
Supplementary information:			

5.1.1 2.1.1.7/ RD	TABLE: discharge of capacitors in the primary circuit			P
Condition	t calculated (s)	t measured (s)	t u® 0V (s)	Comments
L-N	-	0.64s	1.52	38%*365V=138.7
Supplementary information:				

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict

5.2.1 2.2/RD	TABLE: Evaluation Of Voltage Limiting Components In SELV Circuits			N
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:				

5.2.5 2.5/RD	TABLE: Limited Power Sources					N
Circuit output tested:						
Note: Measured Uoc (V) with all load circuits disconnected:						
Components	Test condition (Single fault)	Uoc (V)	Isc (A)		VA	
			Meas.	Limit	Meas.	Limit
--	--	--	--	--	--	--
Supplementary information: Sc=Short circuit, Oc=Open circuit						

5.7 2.10.2/RD	Table: Working Voltage Measurement			P
Location	RMS voltage (V)	Peak voltage (V)	Comments	
T1 pin 2-A	505	623	--	
T1 pin 3-A	551	675	Max RMS and Peak voltage of T1	
T1 pin 4-A	475	625	--	
T1 pin 6-A	485	651	--	
T1 pin 2-B	425	635	--	
T1 pin 3-B	435	642	--	
T1 pin 4-B	495	612	--	
T1 pin 6-B	511	624	--	

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict

T2 pin 2-A	521	651	--
T2 pin 3-A	527	629	--
T2 pin 4-A	521	615	Max RMS and Peak voltage of T2
T2 pin 6-A	511	621	
T2 pin 2-B	521	622	
T2 pin 3-B	521	612	
T2 pin 4-B	524	625	
T2 pin 6-B	511	611	
CY1 pin primary-secondary	468	591	--
Supplementary information:			

5.7, 2.10.3/RD TABLE: Clearance And Creepage Distance Measurements						
clearance cl and creepage distance dcr at/of:	Up (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	required dcr (mm)	dcr (mm)
L to N	675	478	1.5	>3.5	2.5	>5.5
Across fuse F1	675	478	3.0	>3.5	5.0	>5.5
T1 primary pin to secondary pin	675	551	4.6	13.6	7.2	13.6
T1 Core to secondary pin	675	551	4.6	8.5	7.2	8.5
Acess part to live parts	675	551	4.0	7.2	5.8	7.2
Primary trace of T1 to secondary trace of T1 on PCB	675	551	4.6	9.2	7.2	9.2
T2 primary pin to secondary pin	629	527	4.6	11.6	7.2	11.6
T2 Core to secondary pin	629	527	4.6	8.2	7.2	8.1
Primary trace of T2 to secondary trace of T2 on PCB	629	527	4.0	8.1	7.2	8.0
CY1 primary pin to secondary pin	420	290	4.0	8.6	5.6	8.6
Supplementary information:						
1) Only for frequency above 30 kHz						
2) Complete Electric Strength voltage (E.S. (V) when 5.4.2.4 applied)						

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict

5.7, 2.10.5.2/ RD	TABLE: Distance Through Insulation Measurements				N
	Distance through insulation di at/of:	U r.m.s. (V)	Test voltage (V)	Required di (mm)	di (mm)
	--	--	--	--	--
	Supplementary information:				

7.4, 4.5.5/RD	TABLE: Ball Pressure Test of Thermoplastics			P
Allowed impression diameter (mm) :				—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
Terminal block	SUMITOMO	125	1.5	
Output socket	SUMITOMO	125	1.0	
Bobbin of transformer	SUMITOMO	125	1.0	
Supplementary information:				

7.5 4.7/RD	TABLE: Resistance to fire				P
Part	Manufacturer of material	Type of material	Thickness (mm)	Flammability class	Evidence
Plastic of output socket	SUMITOMO	SE1(F1)	2.1	V-1	P
Supplementary information:					

7.7, 4.5/RD	TABLE: Heating Test			
Test voltage (V)..... :		275V 60Hz		—
Ambient (°C)..... :		25		—
Thermocouple Locations		Max. temperature measured, (°C)	Max. temperature limit, (°C)	
Input wire		41.8	85	
Switch		43.7	Ref.	
MOV1		47.3	125	

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict

CX1 body	51.9	100
CY1 body	48	125
LF1	72	130
C1	71.3	105
C2	53.5	105
PCB near BD1	76.9	130
PCB near Q1	71.3	130
T1 winding	81.6	110
T1 core	53.4	110
PCB near U1	73.6	130
Internal secondary wire near CN2	43.2	80
Enclosure, outside	38.3	70
Test voltage (V)..... :	525V 60Hz	—
Ambient (°C)..... :	25	—
Thermocouple Locations	Max. temperature measured, (°C)	Max. temperature limit, (°C)
Input wire	41.3	85
Switch	42.9	Ref.
MOV1	38.2	125
CX1 body	39.5	100
CY1 body	55	125
LF1	62.2	130
C1	67.1	105
C2	67.5	105
PCB near BD1	74.7	130
PCB near Q1	75.5	130
T1 winding	77	110
T1 core	73.3	110
PCB near U1	76.3	130
Internal secondary wire near CN2	45.6	80
Enclosure, outside	37.2	70
Supplementary information:		

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict

7.7, 4.5/RD	TABLE: Heating test, resistance method					N
	Test voltage (V)..... :					—
	Ambient, t ₁ (°C)..... :					—
	Ambient, t ₂ (°C)..... :					—
Temperature rise of winding	R ₁ (Ω)	R ₂ (Ω)	ΔT (K)	Max. dT (K)	Insulation class	
--	--	--	--	--	--	--
Supplementary information:						

8 5.1/RD	TABLE: touch current measurement			P
Measured between:		Measured (mA)	Limit (mA)	Comments/conditions
Earthing		0.062	3.5	--
Supplementary information:				

8.2 5.2/RD	TABLE: Dielectric Strength			N
Test voltage applied between:		Test potential applied (V)	Breakdown / flashover (Yes/No)	
--		--	--	
Supplementary information:				

8.3 5.3/RD	TABLE: Fault condition tests					N
	Ambient temperature (°C) :		--			—
	Power source for EUT: Manufacturer, model/type, output rating :		--			—
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
--	--	--	--	--	--	--
Supplementary information:						

C.2/RD	TABLE: transformers			N
---------------	----------------------------	--	--	----------

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict

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
--	--	--	--	--	--	--	--

Supplementary information:

C.2/RD	TABLE: transformers	N
Transformer		

M	Ventilation of battery compartments	N
	The required dimension for the ventilation openings will be calculated with the following formula:	N
	$A \geq Q/360 \text{ [m}^2\text{]}$ with $Q = 0.054 * n * I * C$	N

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict
	where: Q : airflow in m³/h n : number of battery cells I : constant factor (0,2A/100Ah for valve regulated lead acid batteries) C : is the battery nominal capacity in Ah at the 10h discharge rate		N
	With the specific data for the UPS the following dimension for the ventilation openings is required:		N
	n : ? C : ?		N
	$A \geq (0.054 * n * 0.2 A/100 Ah * C)/360$		N
	$A \geq ? m^2$		N
	Verdict		N
	The size of ventilation openings in battery cabinet exceeds the required airflow by far (as well as the UPS).		N

EN 62040-1			
Clause	Requirement + Test	Result - Remark	Verdict

4.5	TABLE: Critical components information					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾	
Primary lead wire	SHENZHEN WORLDFUL HARDWARE ELECTRIC CO LTD	3135	600V, 20AWG, 200°C, VW-1	UL 758	UL E317806	
Y-cap. (CY1)	PAN OVERSEAS	PC + ABS + Metal	60 °C, Min. HB, Min. 1.0mm	UL 94	UL E162823	
Common choke (LF2)	FS P/SPI	3C3 10KL	Exempt group.	IEC 62471	CE	
-Triple insulation wire	Great Leoflon	TRW(B)	130°C	UL 2353 IEC/EN 60950- 1	UL	
-Alt	TOTOKU	TIW-2X	130°C	UL 2353 IEC/EN 60950- 1	UL	
Common choke (LF1)	FSP/SPI	8LM03146	130°C	IEC/EN 62368- 1	Test with appliance	
Transformer T1	FSP/SPI	PQ262 0- EE1240 -AP	Class B	IEC/EN 62368- 1	Test with appliance	
- Magnet Wire	SHENZHEN CHENGWEI INDUSTRY CO	2UEW-B-(&)- (*) 2UEW-F-(&)- (*)	130°C	UL 1446	UL E227475	
--Bobbin	SUMITOMO	PM-9820	V-0, Phenolic	UL 94	UL	
--Triple	Great Leoflon	TRW(B)	130°C	IEC/EN 60950- 1	VDE	
--Varnish	John C Dolph Co	BB-353	130°C	UL 1446	UL E317427	
--Insulating tape	Jingjiang Yahuapressure S	PZ-WF	130 C	UL 510	UL E165111	
--Insulating tube	ELANTAS ELECTRICAL INSULATION ELANTAS PDG	V1380	130°C	UL1446	UL E75225	
Power plug	Hunan Aomeng Electrical Co., Ltd	AM-007	AC 250 V, 16 A	DIN VDE 0620-1 (VDE 0620- 1):2010-02	VDE (40016388)	

EN 62040-1					
Clause	Requirement + Test		Result - Remark		Verdict
-Alt	Hong Shan Chuan Industry (Shen Zhen) Co., Ltd	HSC-402 HSC403	AC 250 V, 16 A	DIN VDE 0620-2-1 (VDE 0620-2-1):2013-03	VDE 40021749
Power Cable	Hunan Aomeng Electrical Co., Ltd	H05VV-F	3G1.0mm ² , 3G1.5mm ²	DIN EN 50525-2-11 (VDE 0285-525-2-11):2012-01;	VDE (134644)
X capacitor	JYA-NAY CO LTD	JN	X1, 250/400Vac, 25~+125°C	UL 60384-14	UL E201384
Fuse	AUPO ELECTRONICS LTD	BF142X	142°C, 16A, 250V	DIN EN 60691 (VDE 0821):2017-04; EN 60691:2016 IEC 60691:2015	VDE 40005418
Square fuse	ETI Elektroelement d.o.o.	221100x-01	T2A250V	DIN VDE 0636-3 (VDE 0636-3):2013-12; HD 60269-3:2010 + A1 DIN EN 60269-1 (VDE 0636-1):2015-05; EN 60269-1:2007 + A1	VDE 121025

EN 62040-1					
Clause	Requirement + Test		Result - Remark		Verdict
switch	APPROACH TECHNOLOGY INC	SS-006	16A/250V AC	VDE 61058	TUV(B10015 2529008)
PCB	SHANDONG JINBAO ELECTRONICS CO LTD	ZD-90, ZD-90Y	HB, 1.6mm, 130°C	UL 796	UL (E141940)
Varistor MOV1	Shantou High-New Zone Songtian Enterprise Co., Ltd	14D561K	Min. 300Vac, min. 385Vdc, fulfilled 6kV/3kA pul test, 125°C, V-0 coating	IEC 60105-1 IEC 61051-2 IEC 61051-2-2 UL 1449	VDE 40023049 UL E330837
Y-capacitor CY1	Shantou High-New Technology	CD-Series STE	Max.1500pF, 400Vac, 25/125/21 C, Y1 type	IEC/EN 60384-14	VDE 40025754
Plastic enclosure	SABIC INNOVATIVE PLASTICS B V	940(f1)	V-0,130°C, Min. thickness 1.5mm	UL 94 UL 746	UL E45329
Supplementary information:					
1) Provided evidence ensures the agreed level of compliance. See OD-2039.					

Attachment No.1

Product Photos

Details of: Overview for model 3C3 10KL



Details of: Overview for model 3C3 10KL



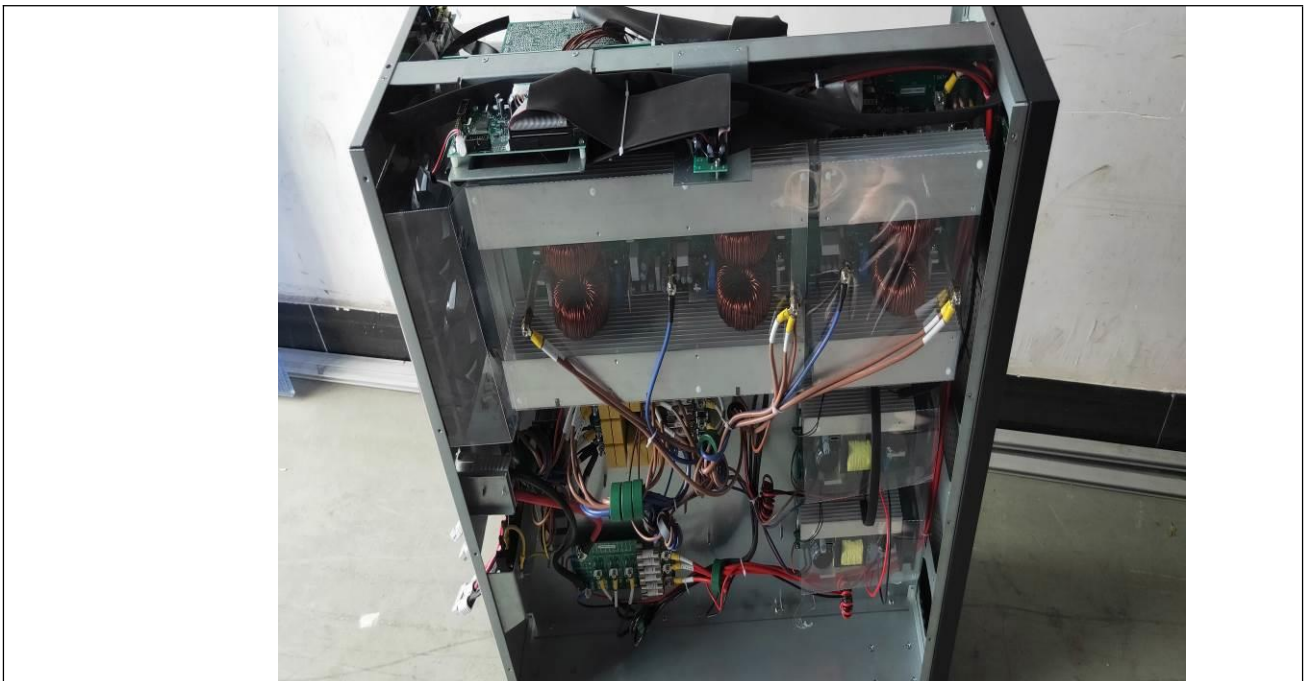
Attachment No.1

Product Photos

Details of: Overview for model 3C3 10KL



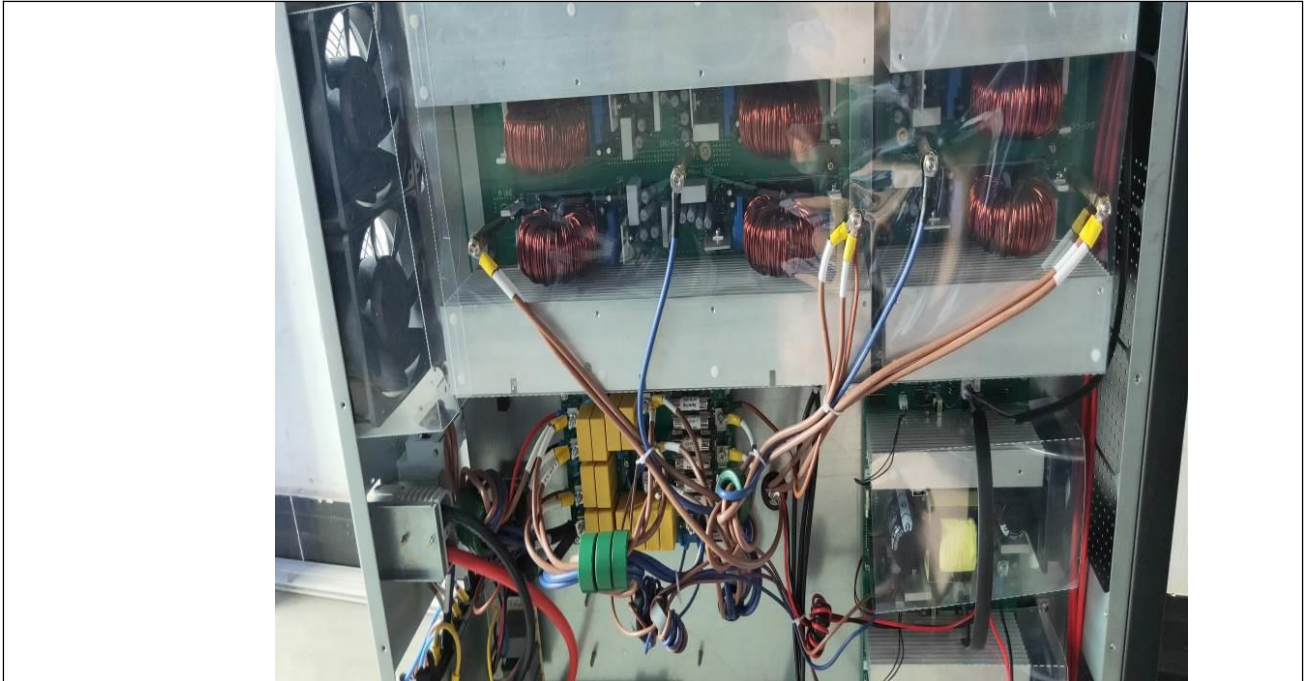
Details of: Overview for model 3C3 10KL



Attachment No.1

Product Photos

Details of: Overview for model 3C3 10KL



Details of: Overview for model 3C3 10KL



- End of report -