



CE LVD TEST REPORT

For
BPlus series

Model No.: BPlus-300W, BPlus-600W, BPlus-1000W, BPlus-2000W,
BPlus-3000W, BPlus-5000W

Applicant : Zhejiang BOU New Energy Technology Co.,LTD.
Haichao Road,Houyan Village,Wengyang Street,Yueqing,Wenzhou

Manufacturer : Zhejiang BOU New Energy Technology Co.,LTD.
Haichao Road,Houyan Village,Wengyang Street,Yueqing,Wenzhou

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Report Number : ATT20081200330S

Issued Date : August 17, 2020

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| TEST REPORT EN 62040-1 Uninterruptible power systems (UPS) – Part 1: General and safety requirements for UPS | |
|---|---|
| Report reference No. | ATT20081200330S |
| Testing laboratory | Shenzhen An-Teng Testing Service Co., Ltd. |
| Location..... | Room 402-405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China |
| Applicant..... | Zhejiang BOU New Energy Technology Co.,LTD. |
| Address:..... | Haichao Road, Houyan Village, Wengyang Street, Yueqing, Wenzhou |
| Manufacturer..... | Zhejiang BOU New Energy Technology Co.,LTD. |
| Address:..... | Haichao Road, Houyan Village, Wengyang Street, Yueqing, Wenzhou |
| Standards..... | EN 62040-1:2008+A1:2013 EN 62109-1:2010; EN 62109-2:2011; |
| Procedure deviation..... | N/A |
| Non-standard test method..... | N/A |
| Type of test equipment | BPlus series |
| Trade mark..... |  |
| Model/Type designation..... | BPlus-300W, BPlus-600W, BPlus-1000W, BPlus-2000W, BPlus-3000W, BPlus-5000W |
| Rating..... | Input : 12VDC, 1000W Output : 230VAC, 4.3A |
| Test item particulars: | N/A |
| Equipment mobility | Portable Equipment |
| Operating Condition | Continuous |
| Tested for IT power systems | No |
| IT testing, phase-phase voltage (V) | N.A. |
| Class of equipment | Class I equipment |
| Protection against ingress of water | IP20 |



| | |
|---|--------|
| Possible test case verdicts : | |
| test case does not apply to the test object | N(/A.) |
| test object does meet the requirement | P(ass) |
| test object does not meet the requirement | F(ail) |

Name and address of the testing laboratory :

Shenzhen An-Teng Testing Service Co., Ltd.
Room 402-405, Floor 4th, Building C, Yuxing Technology Industrial
Park, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China

Tested by : Nico Liang August 17, 2020
Signature Date
Nico Liang / Engineer
Name/title

Reviewed by : Ben Li August 17, 2020
Signature Date
Ben Li / Supervisor
Name/title

Approved by : Joseph Yang August 17, 2020
Signature Date
Joseph Yang / Manager
Name/title



General remarks:

“(see remark #)” refers to a remark appended to the report.

“(see appended table)” refers to a table appended to the report.

Throughout this report a comma is used as the decimal separator.

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

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Until otherwise specified, all tests are done under normal ambient condition $25^{\circ}\text{C} \pm 10^{\circ}\text{C}$, Max RH: 75% and air pressure of 860 mbar to 1060 mbar.

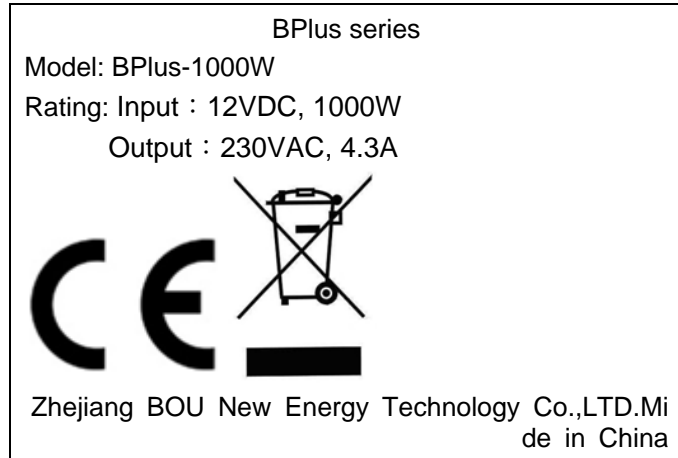
Attached with:
 Attachment - A. Photo Documentation

The test samples were pre-production samples without serial numbers. This report shall not be reproduced except in full without the written approval of the testing laboratory.

The equipment with models BPlus-1000W. are class I Line interactive frequency machine used for used for Uninterruptible power systems (UPS)

The maximum ambient is 40°C .

The test result presented in this report relate only to the object tested. The samples tested comply with the requirements of this standard.



Remark:

- The above copy of marking plate as an example for the BPlus-1000W, All the other models will have the same marking plate except the difference of model number, input connection method and output rating only.
- The above markings are the minimum requirements required by the safety standard. For the final productions samples, the additional markings which do not give rise to misunderstanding may be added.
- The dimension for height of CE mark is at least 5mm height and the height of WEEE directive mark is at least 7mm height.

| EN 62040-1 | | | |
|------------|--|---|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |
| 4 | GENERAL CONDITIONS FOR TESTS | | P |
| 4.5 | Components | | P |
| | Comply with IEC 62040-1 or relevant component standard | Components, which were found to affect safety aspects, comply with the requirements of this standard or within the safety aspects of the relevant IEC component standards (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 | Fan | P |
| 1.5.4/RD | Transformers | | P |
| 1.5.5/RD | Interconnecting cables | No interconnecting cables. | N/A |
| 1.5.6/RD | Capacitors bridging insulation | X-capacitors and Y-capacitors comply with IEC60384-14 | P |
| 1.5.7/RD | Resistors bridging insulation | | P |
| 1.5.7.1/RD | Resistors bridging functional, basic or supplementary insulation | | P |
| 1.5.7.2/RD | Resistors bridging double or reinforced insulation between a.c. mains and other circuits | | N/A |
| 1.5.7.3/RD | Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable | | N/A |
| 1.5.8/RD | Components in equipment for IT power systems | | N/A |
| 4.6 | Power interface | | P |
| 1.6.1/RD | AC power distribution systems | TN | P |



| EN 62040-1 | | | |
|--------------|---|---|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |
| 1.6.2/RD | Input current | (see appended table 4.6) | P |
| 4.6 1.6.4/RD | Neutral conductor | Neutral is insulated from earth with basic insulation throughout the equipment. O/P neutral is not isolated from I/P neutral. | P |
| 4.7 | Marking and instructions | | P |
| 4.7.1 | General | | P |
| 4.7.2 | Power rating | | P |
| | Input rated voltage/range (V) | See marking | P |
| | Input rated current/range (A) | See marking | P |
| | Input symbol for nature of supply (d.c.) | | P |
| | Input rated frequency/range (Hz) | 50 | P |
| 1.7.1/RD | Number of Input phases and neutral | Single phase | P |
| | Output rated voltage/range (V) | | P |
| | Output rated current/range (A) | | N/A |
| | Output rated power factor, (if less than unity, or active power and apparent power or active power and rated current) | See marking | P |
| 1.7.1/RD | Number of output phases and neutral | | P |
| | Output rated active power (W) | See marking | P |
| | Output rated apparent power (VA) | See marking | P |
| | Output symbol for nature of supply (d.c.) | | N/A |
| | Output rated frequency/range (Hz) | 50Hz | P |
| | Ambient operating temperature range (°C) | Max. 40°C | P |
| | Manufacturer's name or trademark or identification mark | | P |
| | Type/model or type reference | BPlus-1000W | P |
| | Symbol for Class II equipment only | | N/A |
| | Other symbols | The additional marking does not give rise to misunderstandings. | P |
| | Certification marks | | N/A |



| EN 62040-1 | | | |
|------------|---|--|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |
| | 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" | Text not required for this UPS | N/A |
| 4.7.3 | Safety instructions | | P |
| 4.7.3.1 | General | | P |
| 4.7.3.2 | Installation | Installation instructions in user manual | P |
| | Location in a restricted access location only ... : | | N/A |
| | Permanent connector UPS | | P |
| | Pluggable type A or Pluggable type B UPS : | | N/A |
| 4.7.3.3 | Operation | The UPS is intended for operation by a layperson except battery connection, safety instruction see user manual | P |

| | | | |
|-------------------|--|--|-----|
| 4.7.3.4 | Maintenance | Stated in user's manual | P |
| 4.7.3.5 | Distribution related backfeed | | P |
| 4.7.4 1.7.4/RD | Main voltage adjustment | No necessary adjustment | P |
| | Methods and means of adjustment; reference to installation instructions | | N/A |
| 4.7.5 1.7.5/RD | Power outlets | Outlets are marked with the maximum load on the rating plate | 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 | The bonding terminal is marked with standard symbol near the terminal. | P |
| 1.7.7.2/RD | Terminals for a.c. mains supply conductors | | P |



| EN 62040-1 | | | |
|----------------------|--|---|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |
| 1.7.7.3/RD | Terminals for d.c. mains supply conductors | | N/A |
| 4.7.8 | Battery terminals | Indicate the polarity according to IEC 60417 | P |
| 4.7.9 1.7.8/RD | Controls and indicators | | P |
| 1.7.8.1/RD | Identification, location and marking | The function of controls affecting safety is obvious without knowledge of language etc. | P |
| 1.7.8.2/RD | Colours | For functional indication LED display panel used, when the equipment is operating. | P |
| 1.7.8.3/RD | Symbols according to IEC 60417 | Marked with "--" near circuit breaker and The functional switch on LED display panel of UPS | P |
| 1.7.8.4/RD | Markings using figures | No figures used | N/A |
| 4.7.10 1.7.9/RD | Isolation of multiple power sources | Warning label provided on the UPS, that both AC and DC sources must be disconnected before service. | P |
| 4.7.11 1.7.2.4/RD | IT power systems | | N/A |
| 4.7.12 | Protection in building installation | The protection does not rely upon building installation. The protection is provided by circuit breaker. | N/A |

| | | | |
|-----------------------------|--|---|-----|
| 4.7.13 5.1/RD | High leakage current (mA) | The leakage current less than 3.5mA | N/A |
| 4.7.14 1.7.10/RD | Thermostats and other regulating devices | | N/A |
| 4.7.15 1.7.2.1/RD and | Language(s) | Instructions and markings shall be in a language acceptable for the country | -- |



| EN 62040-1 | | | |
|----------------------|--|--|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |
| 1.7.8.1/RD | | where the equipment is to be used. | |
| 4.7.16 1.7.11/RD | Durability of markings | The marking withstands required tests. | P |
| 4.7.17 1.7.12/RD | Removable parts | No removable parts provided | N/A |
| 4.7.18 1.7.13/RD | Replaceable batteries | The required warning is in the safety manual | P |
| | Language(s) : | | - |
| 4.7.19 1.7.2.5/RD | Operator access with a tool : | No such operator access | N/A |
| 4.7.20 | Battery | | N/A |
| | Clearly legible information : | | N/A |
| | Battery type : | | N/A |
| | Nominal voltage of total battery (V) : | | N/A |
| | Nominal capacity of total battery (optional) : | | N/A |
| | Warning label : | | N/A |
| | Instructions : | | N/A |



| EN 62040-1 | | | |
|------------|--------------------|-----------------|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |

| | | | |
|------------|-----------------------------------|--|---|
| 2.1.1.5/RD | Protection against energy hazards | | P |
| 4.7.21 | Installation instructions | | P |
| 1.7.2.4/RD | | | |

| | | | |
|------------|---|---|-----|
| 5 | FUNDAMENTAL DESIGN REQUIREMENTS | | P |
| 5.1 | Protection against electric shock and energy hazards | | P |
| 5.1.1 | Protection for UPS intended to be used in operator access areas | No hazards in operator access areas. | P |
| 2.1.1/RD | Access to energized parts | | P |
| | Test by inspection | | P |
| | Test with test finger (Figure 2A) | The test finger can't touch any hazards live parts | P |
| | Test with test pin (Figure 2B) | The test pin can't touch any hazards live parts | P |
| | Test with test probe (Figure 2C) | | N/A |
| 2.1.1.2/RD | Battery compartments | | N/A |
| 2.1.1.3/RD | Access to ELV wiring | No ELV wiring | N/A |
| | Working voltage (V_{peak} or V_{rms}); minimum distance through insulation (mm) | | -- |
| 2.1.1.4/RD | Access to hazardous voltage circuit wiring | No hazardous voltage circuit in operator access area | N/A |
| 2.1.1.5/RD | Energy hazards | No energy hazard in operator access area. Checked by means of the test finger | P |
| 2.1.1.6/RD | Manual controls | No conductive shafts of operating knobs, handles, levers and the like | N/A |



| EN 62040-1 | | | |
|------------|--------------------|-----------------|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |

| | | | |
|----------------------|---|--|-----|
| 2.1.1.7/RD | Discharge of capacitors in equipment | Permanent connection equipment | N/A |
| | Measured voltage (V); time-constant (s) : | | -- |
| 2.1.1.8/RD | Energy hazards – d.c. mains supply | | 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/RD | Audio amplifiers : | | N/A |
| 5.1.2 2.1.1.5 c) /RD | Protection for UPS intended to be used in service access areas | | P |
| | Hazardous energy level | No energy hazard in operator access area. | P |
| 5.1.3 2.1.1.5 c) /RD | Protection for UPS intended to be used in restricted access areas | | N/A |
| | Hazardous energy level | | N/A |
| 5.1.4 | Backfeed protection | | -- |
| | Shock hazard after de-energization of a.c. input for UPS | | P |
| | Measured voltage (V); time-constant (s) : | The voltage drop to 0V after 15s | -- |
| | Description of the construction : | L-N simultaneously disconnected by circuit breaker with gap of 4.4mm | P |
| 5.1.5 | Emergency switching device | | P |

| | | | |
|--------------|--|----------------------------|---|
| 5.2 | Requirements for auxiliary circuits | | P |
| 5.2.1 2.2/RD | Safety extra low voltage circuit - SELV | | P |
| 2.2.1/RD | General requirements | | P |
| 2.2.2/RD | Voltages under normal conditions (V) : | (See appended table 5.2.1) | P |



| EN 62040-1 | | | |
|-----------------|--|----------------------------|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |
| 2.2.3/RD | Voltages under fault conditions (V) | (See appended table 5.2.1) | P |
| 2.2.4/RD | Connection of SELV circuits to other circuits .. | | P |
| 5.2.2 2.3/RD | Telephone network voltage circuits - TNV | | N/A |
| 2.3.1/RD | Limits | | N/A |
| | Type of TNV circuits | | -- |
| 2.3.2/RD | Separation from other circuits and from accessible parts | | N/A |
| 2.3.2.1/RD | General requirements | | N/A |
| 2.3.2.2/RD | Protection by basic insulation | | N/A |
| 2.3.2.3/RD | Protection by earthing | | N/A |
| 2.3.2.4/RD | Protection by other constructions | | N/A |
| 2.3.3/RD | Separation from hazardous voltages | | N/A |
| | Insulation employed | | -- |
| 2.3.4/RD | Connection of TNV circuits to other circuits | | N/A |
| | Insulation employed | | -- |
| 2.3.5/RD | Test for operating voltages generated externally | | N/A |
| | Test with test probe (Figure 2C) | | N/A |
| 5.2.3 2.4/RD | Limited current circuits | | N/A |
| 2.4.1/RD | General requirements | | N/A |



| EN 62040-1 | | | |
|------------|--------------------|-----------------|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |

| | | | |
|-----------------|--|---------------------------------|-----|
| 2.4.2/RD | Limit values | | -- |
| | 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/A |
| 5.2.4 3.5/RD | External signalling circuits | | P |
| 3.5.1/RD | General requirements | | P |
| 3.5.2/RD | Types of interconnection circuits | | P |
| 3.5.3/RD | ELV circuits as interconnection circuits | No ELV interconnection circuits | N/A |
| 3.5.4/RD | Data ports for additional equipment | | N/A |
| 5.2.5 2.5/RD | Limited power source | | P |
| | a) Inherently limited output | | N/A |
| | b) Impedance limited output | | N/A |
| | c) Regulating network limited output under normal operating and single fault condition | | P |
| | d) Overcurrent protective device limited output | | N/A |
| | Max. output voltage (V), max. output current (A), max. apparent power (VA) | | -- |
| | Current rating of overcurrent protective device (A) | | -- |



| 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 | Relevant earthing conductive parts reliably connected to PE Pin of connection terminal | P |
| 2.6.2/RD | Functional earthing | Functional earthing is separated from hazardous voltages by basic insulation and protective earth. | P |
| 2.6.3/RD | Protective earthing and protective bonding conductors | | P |
| 2.6.3.1/RD | General | | P |
| 2.6.3.2/RD | Size of protective earthing conductors | Power supply cord not provided with the equipment. | N/A |
| | Rated current (A), cross-sectional area (mm ²), AWG | | -- |
| 2.6.3.3/RD | Size of protective bonding conductors | See below | P |
| | Rated current (A), cross-sectional area (mm ²), AWG | Rated current: 100A Cross-sectional area: 8AWG | -- |
| | Protective current rating (A), cross-sectional area (mm ²), AWG | | -- |
| 2.6.3.4/RD | Resistance of earthing conductors and their terminations; resistance (), voltage drop (V), test current (A), duration (min) | (See appended table 5.3.1) | P |
| 2.6.3.5/RD | Colour of insulation | Green/Yellow insulated protective bonding conductors are provided. | P |



| EN 62040-1 | | | |
|------------|--------------------|-----------------|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |

| | | | |
|------------|--|---|-----|
| 2.6.4/RD | Terminals | | P |
| 2.6.4.1/RD | General | | P |
| 2.6.4.2/RD | Protective earthing and bonding terminals | The equipment is provided with a connection terminal and the test of sub-clause 2.6.3.4/RD was performed for protective bonding conductor and their 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 | The equipment is provided with a connection terminal | P |
| 2.6.5/RD | Integrity of protective earthing | | P |
| 2.6.5.1/RD | Interconnection of equipment | | N/A |
| 2.6.5.2/RD | Components in protective earthing conductors and protective bonding conductors | There are no switches or overcurrent protective devices in the protective earthing / bonding conductors. | P |
| 2.6.5.3/RD | Disconnection of protective earth | It is not possible to disconnect protective earth without disconnecting mains | P |
| 2.6.5.4/RD | Parts that can be removed by an operator | | N/A |
| 2.6.5.5/RD | Parts removed during servicing | | P |
| 2.6.5.6/RD | Corrosion resistance | No risk of corrosion. | P |
| 2.6.5.7/RD | Screws for protective bonding | Adequate connection of protective bonding. | P |
| 2.6.5.8/RD | Reliance on telecommunication network or cable distribution system | Protective earthing does not rely on a telecommunication network. | N/A |

EN 62040-1

| Clause | Requirement – Test | Result - Remark | Verdict |
|-------------------|---|---|---------|
| 5.3.2 2.6.1/RD | Protective earthing | Accessible conductive parts are reliably connected to protective earth terminal | 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 | Circuit breaker used for disconnection AC mains supply. User instruction require the DC supply disconnection device shall be provided in the battery cabinet | P |
| 3.4.1/RD | General requirement | | P |
| 3.4.2/RD | Disconnect devices | Circuit breaker used for disconnection AC mains supply. User instruction require the DC supply disconnection device shall be provided in the battery cabinet | P |
| 3.4.3/RD | Permanently connected equipment | Circuit breaker incorporated in the equipment | P |
| 3.4.4/RD | Parts which remain energized | | P |
| 3.4.5/RD | Switches in flexible cords | | N/A |
| 3.4.6/RD | Number of poles - single-phase and d.c. equipment | Disconnect device disconnects all poles simultaneously | P |



EN 62040-1

| Clause | Requirement – Test | Result - Remark | Verdict |
|-----------|---|---|---------|
| 3.4.7/RD | Number of poles - three-phase equipment | | N/A |
| 3.4.8/RD | Switches as disconnect devices | There is no switch acting as disconnect devices | N/A |
| 3.4.9/RD | Plugs as disconnect devices | | N/A |
| 3.4.10/RD | Interconnected equipment | | N/A |
| 3.4.11/RD | Multiple power sources | | P |
| 5.4.2 | Disconnect devices | Instructions at each disconnect device | P |

| | | | |
|----------|--|---|-----|
| 5.5 | Overcurrent and earth fault protection | | P |
| 5.5.1 | General | | P |
| 2.7.3/RD | Short-circuit backup protection | Adequate protective device | P |
| 2.7.4/RD | Number and location of protective devices : | The UPS is protected with two circuit breaker and three current fuse | P |
| 2.7.5/RD | Protection by several devices | | N/A |
| 2.7.6/RD | Warning to service personnel : | | N/A |
| 5.5.2 | Basic requirements | Protective devices are integrated in the equipment | P |
| 5.5.3 | Battery circuit protection | | P |
| 5.5.3.1 | Overcurrent and earth fault protection | | P |
| 5.5.3.2 | Location of protective device | External battery cabinet is not delivered with the UPS. Additional fuses for battery circuit is provided on the UPS | 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 |



EN 62040-1

| Clause | Requirement – Test | Result - Remark | Verdict |
|------------|---|---|---------|
| 5.6 | Protection of personnel – Safety interlocks | | P |
| 5.6.1 | Operator protection | | N/A |
| 2.8/RD | Safety interlocks | | N/A |
| 2.8.1/RD | General principles | | N/A |
| 2.8.2/RD | Protection requirements | | N/A |
| 2.8.3/RD | Inadvertent reactivation | | N/A |
| 2.8.4/RD | Fail-safe operation | | N/A |
| 2.8.5/RD | Moving parts | | N/A |
| 2.8.6/RD | Overriding | | N/A |
| 2.8.7/RD | Switches and relays | | N/A |
| 2.8.7.1/RD | Contact gaps (mm) | | N/A |
| 2.8.7.2/RD | Overload test | | N/A |
| 2.8.7.3/RD | Endurance test | | N/A |
| 2.8.7.4/RD | Electric strength test | | N/A |
| 2.8.8/RD | Mechanical actuators | | N/A |
| 5.6.2 | Service person protection | No adjustment or measurement inside the equipment is necessary while the unit is energized. | P |
| 5.6.2.1 | Introduction | | N/A |
| 5.6.2.2 | Covers | | N/A |
| 5.6.2.3 | Location and guarding of parts | | N/A |
| 5.6.2.4 | Parts on doors | | N/A |
| 5.6.2.5 | Component access | | N/A |
| 2.8.3/RD | Inadvertent reactivation | | N/A |
| 5.6.2.6 | Moving parts | | N/A |
| 5.6.2.7 | Capacitor banks | Capacitor discharge less than 1s | N/A |
| 5.6.2.8 | Internal batteries | No internal battery | N/A |



EN 62040-1

| Clause | Requirement – Test | Result - Remark | Verdict |
|-----------------|---|--|---------|
| 5.7 2.10/RD | Clearances, creepage distances and distances through insulation | | P |
| 2.10.1/RD | General | | P |
| 2.10.1.1/R D | Frequency : | 50Hz | P |
| 2.10.1.2/R D | Pollution degrees : | Pollution degrees II | P |
| 2.10.1.3/R D | Reduced values for functional insulation | According to the requirements of 5.3.4 c/RD) | P |
| 2.10.1.4/R D | Intervening unconnected conductive parts | No unconnected conductive parts | N/A |
| 2.10.1.5/R D | Insulation with varying dimensions | | N/A |
| 2.10.1.6/R D | Special separation requirements | | N/A |
| 2.10.1.7/R D | Insulation in circuits generating starting pulses | | N/A |
| 2.10.2/RD | Determination of working voltage | The rms and the peak voltages were measured for the equipment. The equipment was connected to TN power system (See appended table 5.7) | P |
| 2.10.2.1/R D | General | | P |
| 2.10.2.2/R D | RMS working voltage | Max. V _{rms} =150V | P |
| 2.10.2.3/R D | Peak working voltage | Max. V _{peak} =242V | P |



| EN 62040-1 | | | |
|-------------|---|--|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |
| 2.10.3/RD | Clearances | See below, Annex G/RD was not considered | P |
| 2.10.3.1/RD | General | | P |
| 2.10.3.2/RD | Mains transient voltages | | P |
| | a) AC mains supply | 230V | P |
| | b) Earthed d.c. mains supplies | | N/A |
| | c) Unearthed d.c. mains supplies | | N/A |
| | d) Battery operation | | P |
| 2.10.3.3/RD | Clearances in primary circuits | (see appended table 5.7) | P |
| 2.10.3.4/RD | Clearances in secondary circuits | | P |
| 2.10.3.5/RD | Clearances in circuits having starting pulses | | N/A |
| 2.10.3.6/RD | Transients from a.c. mains supply | | P |
| 2.10.3.7/RD | Transients from d.c. mains supply | | N/A |
| 2.10.3.8/RD | Transients from telecommunication networks and cable distribution systems | | N/A |
| 2.10.3.9/RD | Measurement of transient voltage levels | | 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 |



EN 62040-1

| Clause | Requirement – Test | Result - Remark | Verdict |
|------------------|--|------------------------------|---------|
| 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 | Material group IIIa and IIIb | -- |
| 2.10.4.3/R D | Minimum creepage distances | (see appended table 5.7) | P |
| 2.10.5 /RD | Solid insulation | See bleow | P |
| 2.10.5.1/R D | General | | P |
| 2.10.5.2/R D | Distances through insulation | (see appended table 5.8) | P |
| 2.10.5.3/R D | Insulating compound as solid insulation | | N/A |
| 2.10.5.4/R D | Semiconductor devices | | N/A |
| 2.10.5.5/R D | Cemented joints | | N/A |
| 2.10.5.6/R D | Thin sheet material – General | | N/A |
| 2.10.5.7/R D | Separable thin sheet material | | N/A |
| | Number of layers (pcs) | | -- |
| 2.10.5.8/R D | Non-separable thin sheet material | | N/A |
| 2.10.5.9/R D | Thin sheet material – standard test procedure | | N/A |
| | Electric strength test | | -- |
| 2.10.5.10 /RD | Thin sheet material – alternative test procedure | | N/A |
| | Electric strength test | | -- |
| 2.10.5.11 /RD | Insulation in wound components | No wound components provided | N/A |
| 2.10.5.12 | Wire in wound components | No wound components | N/A |



| EN 62040-1 | | | |
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| Clause | Requirement – Test | Result - Remark | Verdict |

| | | | |
|-------------|--|----------|-----|
| /RD | | provided | |
| | Working voltage | | -- |
| | 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 | | N/A |
| /RD | | | |
| | Electric strength test | | -- |
| | Routine test | | N/A |
| 2.10.5.14 | Additional insulation in wound components | | N/A |
| /RD | | | |
| | Working voltage | | -- |
| | - Basic insulation not under stress | | N/A |
| | - Supplementary, reinforced insulation | | N/A |
| 2.10.6/RD | Construction of printed boards | | P |
| 2.10.6.1/RD | Uncoated printed boards | | P |
| 2.10.6.2/RD | Coated printed boards | | N/A |
| 2.10.6.3/RD | Insulation between conductors on the same inner surface of a printed board | | N/A |
| 2.10.6.4/RD | 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/RD | Component external terminations | | N/A |
| 2.10.8/RD | Tests on coated printed boards and coated components | | N/A |
| 2.10.8.1/RD | Sample preparation and preliminary inspection | | N/A |
| D | | | |
| 2.10.8.2/R | Thermal conditioning | | N/A |



| EN 62040-1 | | | |
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| Clause | Requirement – Test | Result - Remark | Verdict |

| | | | |
|-----------------|---|--|-----|
| D | | | |
| 2.10.8.3/R D | Electric strength test | | -- |
| 2.10.8.4/R D | Abrasion resistance test | | N/A |
| 2.10.9/RD | Thermal cycling | | N/A |
| 2.10.10/RD | Test for Pollution Degree 1 environment and insulating compound | | N/A |
| 2.10.11/RD | Tests for semiconductor devices and cemented joints | | N/A |
| 2.10.12/RD | Enclosed and sealed parts | | N/A |

| | | | |
|----------|---|---|---|
| 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 | All internal wires and interconnecting cables possess adequate cross-sectional areas for their intended application and all internal wirings are adequately insulated | P |
| 3.1.2/RD | Protection against mechanical damage | Wires do not touch sharp edges and heatsinks which could damage the insulation and cause hazards | P |
| 3.1.3/RD | Securing of internal wiring | Internal wires are secured reliably by solder-pin, hooking-in, soldering and heat shrinkable tubing so that a loosening of the terminal connection is unlikely. | P |



EN 62040-1

| Clause | Requirement – Test | Result - Remark | Verdict |
|-----------|---|---|---------|
| 3.1.4/RD | Insulation of conductors | The insulation of the individual conductors is suitable for the application and the working voltage | P |
| 3.1.5/RD | Beads and ceramic insulators | The equipment does not have any beads or similar insulators | N/A |
| 3.1.6/RD | Screws for electrical contact pressure | | P |
| 3.1.7/RD | Insulating materials in electrical connections | No contact pressure through insulating material | P |
| 3.1.8/RD | Self-tapping and spaced thread screws | | N/A |
| 3.1.9/RD | Termination of conductors | Terminations cannot become displaced so that clearances and creepage distances can be reduced | P |
| | 10 N pull test | Considered | P |
| 3.1.10/RD | Sleeving on wiring | | P |
| 6.1.2 | Dimensions and rating of busbars and insulated conductors | | P |

| | | | |
|------------|---|------------------------------|-----|
| 6.2 | Connection to power | | P |
| 6.2.1 | General provisions for connection to power | | P |
| 3.2.2/RD | Multiple supply connections | | P |
| 3.2.3/RD | Permanently connected equipment | | P |
| | Number of conductors, diameter of cable and conduits (mm) | | -- |
| 3.2.4/RD | Appliance inlets | | N/A |
| 3.2.5/RD | Power supply cords | | N/A |
| 3.2.5.1/RD | AC power supply cords | Connection terminal was used | N/A |
| | Type | | -- |
| | Rated current (A), cross-sectional area (mm ²), AWG | | -- |
| 3.2.5.2/RD | DC power supply cords | | N/A |
| 3.2.6/RD | Cord anchorages and strain relief | | N/A |



| EN 62040-1 | | | |
|------------|--------------------|-----------------|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |

| | | | |
|----------|---|--|-----|
| | Mass of equipment (kg), pull (N) | | -- |
| | Longitudinal displacement (mm) | | -- |
| 3.2.7/RD | Protection against mechanical damage | | N/A |
| 3.2.8/RD | Cord guards | | N/A |
| | Diameter or minor dimension D (mm); test mass (g) | | -- |
| | Radius of curvature of cord (mm) | | -- |
| 6.2.2 | Means of connection | | P |
| | More than one supply connection | | P |

| | | | |
|----------|---|---------------------|-----|
| 6.3 | Wiring terminals for external power conductors | | P |
| 3.3/RD | Wiring terminals for connection of external conductors | Connection terminal | P |
| 3.3.1/RD | Wiring terminals | | P |
| 3.3.2/RD | Connection of non-detachable power supply cords | | N/A |
| 3.3.3/RD | Screw terminals | | P |
| 3.3.4/RD | Conductor sizes to be connected | | P |
| | 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 | | P |
| 3.3.8/RD | Stranded wire | | P |

| | | | |
|------------|-----------------------|---|---|
| 7 | Physical requirements | | P |
| 7.1 | Enclosure | The enclosure is not used to carry current, no any part serves as functional part | P |
| 7.2 4.1/RD | Stability | | P |
| | Angle of 10 | | P |



EN 62040-1

| Clause | Requirement – Test | Result - Remark | Verdict |
|------------|--|---|---------|
| | Test force (N) | The floor-standing unit does not tip over when a force of 75N is applied respectively in any direction except upwards and do not overbalance when a downward force of 800N is applied | P |
| 7.3 4.2/RD | Mechanical strength | | P |
| 4.2.1/RD | General | | P |
| 4.2.2/RD | Steady force test, 10 N | 10 N were applied to components. No any hazards | -- |
| 4.2.3/RD | Steady force test, 30 N | | N/A |
| 4.2.4/RD | Steady force test, 250 N | No hazard. The test is performed at all sides of enclosure | P |
| 4.2.5/RD | Impact test | 500g steel ball falls freely from 1.3m on back enclosure, no access to hazardous parts. | P |
| | Fall test | | P |
| | Swing test | | P |
| 4.2.6/RD | Drop test; height (mm) | | N/A |
| 4.2.7/RD | Stress relief test | Metal enclosure | -- |
| 4.2.8/RD | Cathode ray tubes | | N/A |
| | Picture tube separately certified | | -- |
| 4.2.9/RD | High pressure lamps | | N/A |
| 4.2.10/RD | Wall or ceiling mounted equipment; force (N) . : | | N/A |
| 7.4 | Construction details | | P |



Shenzhen An-Teng Testing Service Co., Ltd
Report No.: ATT20081200330S

EN 62040-1

| Clause | Requirement – Test | Result - Remark | Verdict |
|----------|--|--|---------|
| 7.4.1 | Introduction | | P |
| 4.3.1/RD | Edges and corners | The outer surface of the apparatus is smoothed | P |
| 4.3.2/RD | Handles and manual controls; force (N) : | | N/A |
| 4.3.3/RD | Adjustable controls | | N/A |



| EN 62040-1 | | | |
|------------|---|--|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |
| 4.3.4/RD | Securing of parts | Electrical and mechanical connections can be expected to withstand usual mechanical stress. No loosening or clearance and creepage impairing distances likely to occur | P |
| 4.3.5/RD | Connection by plugs and sockets | input: Terminal provided output: Approved AC socket outlet provided | P |
| 4.3.7/RD | Heating elements in earthed equipment | No heating elements provided | N/A |
| 4.3.11/RD | Containers for liquids or gases | | N/A |
| 4.4/RD | Protection against hazardous moving parts | No hazardous moving parts within the equipment | N/A |
| 4.4.1/RD | General | | N/A |
| 4.4.2/RD | Protection in operator access areas : | | N/A |
| 4.4.3/RD | Protection in restricted access locations : | | N/A |
| 4.4.4/RD | Protection in service access areas | | N/A |
| 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 | (see appended table 7.7) | P |

| EN 62040-1 | | | |
|------------|--|---|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |
| 4.5.4/RD | Touch temperature limits | (see appended table 7.7) | P |
| 4.5.5/RD | Resistance to abnormal heat | (see appended table 7.4) | P |
| 7.4.2 | Openings | No top and bottom openings. Openings of front on metal chassis: - round holes, each opening is 3.0mm in diameter The opening area is 260mm by 100mm Openings of side on metal chassis: - round holes, each opening is 3.0mm in diameter The opening area is 260mm by 100mm Hazardous parts are not located within 5° vertical projection of openings | P |
| 7.4.3 | Gas Concentration | | N/A |
| 7.4.4 | Equipment movement | 75N applied, the unit does not move | P |
| 7.5 4.7/RD | Resistance to fire | | P |
| 4.7.1/RD | Reducing the risk of ignition and spread of flame | Method 1 | P |
| | Method 1, selection and application of components wiring and materials | Selection and application of components, wiring and materials which reduce the possibility of ignition and spread of flame by the use of fire enclosure (see appended table 7.5) | P |
| | Method 2, application of all of simulated fault condition tests | | N/A |
| 4.7.2/RD | Conditions for a fire enclosure | | P |

| EN 62040-1 | | | |
|------------|--|--|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |
| 4.7.2.1/RD | Parts requiring a fire enclosure | A fire enclosure covers all parts | P |
| 4.7.2.2/RD | Parts not requiring a fire enclosure | | N/A |
| 4.7.3/RD | Materials | | P |
| 4.7.3.1/RD | General | Components and materials have adequate flammability classification. See appended table 1.5.1 | P |
| 4.7.3.2/RD | Materials for fire enclosures | Fire enclosure materials is 5VB and metal | P |
| 4.7.3.3/RD | Materials for components and other parts outside fire enclosures | | N/A |
| 4.7.3.4/RD | Materials for components and other parts inside fire enclosures | PCB are rated V-0. Other materials inside fire enclosure are minimum V-2 material or better | P |
| 4.7.3.5/RD | Materials for air filter assemblies | No air filters in the equipment | N/A |
| 4.7.3.6/RD | Materials used in high-voltage components | No parts exceeding 4kV | N/A |
| 7.6 | Battery location | | P |
| 7.6.1 | Battery location and installation | External battery cabinet not delivered with the UPS, 7.6.1-7.6.7 not evaluated | N/A |
| 7.6.2 | Accessibility and maintainability | | N/A |
| 7.6.3 | Distance | | N/A |
| 7.6.4 | Case insulation | | N/A |
| 7.6.5 | Wiring | | N/A |
| 7.6.6 | Electrolyte spillage | | N/A |
| 7.6.7 | Ventilation | | N/A |
| 7.6.8 | Charging voltage | See fault condition tests | P |
| 7.7 | Temperature rise | | P |



| EN 62040-1 | | | |
|------------|---|--|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |
| 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 : | (see appended table 7.7) | P |
| 4.5.3/RD | Temperature limits for materials | (see appended table 7.7) | P |
| 4.5.4/RD | Touch temperature limits | (see appended table 7.7) | P |
| 4.5.5/RD | Resistance to abnormal heat : | (see appended table 7.4) | 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 | Less than 3.5mA | N/A |
| 8.2 | Electric strength | | P |
| 5.2/RD | | | |
| 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 | | P |
| 5.3.1/RD | Protection against overload and abnormal operation | (see appended table 8.3) | P |
| 5.3.2/RD | Motors | (see appended Annex B) | P |
| 5.3.3/RD | Transformers | (see appended Annex C) | P |
| 5.3.4/RD | Functional insulation : | Complies with a) and c). | P |
| 5.3.5/RD | Electromechanical components | No electromechanical components in secondary circuits. | N/A |



| EN 62040-1 | | | |
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| Clause | Requirement – Test | Result - Remark | Verdict |
| 5.3.9/RD | Compliance criteria for abnormal operating and fault conditions | No fire or molten metal occurred and no deformation of enclosure during the tests. No reduction of clearance and creepage distances. Electric strength test is made on basic, supplementary and reinforced insulation. | P |
| 8.3.2 | Simulation of faults | | P |
| 8.3.3 | Conditions for tests | | P |
| 9 6/RD | Connection to telecommunication networks | | N/A |
| 6.1/RD | 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/RD | Protection from hazardous voltages | | N/A |
| 6.1.2/RD | Separation of the telecommunication network from earth | | N/A |
| 6.1.2.1/RD | Requirements | | N/A |
| | Supply voltage (V) | | -- |
| | Current in the test circuit (mA) | | -- |
| 6.1.2.2/RD | Exclusions | | N/A |
| 6.2/RD | Protection of equipment users from overvoltages on telecommunication networks | | N/A |
| 6.2.1/RD | Separation requirements | | N/A |
| 6.2.2/RD | Electric strength test procedure | | N/A |
| 6.2.2.1/RD | Impulse test | (see appended table 9) | N/A |
| 6.2.2.2/RD | Steady-state test | (see appended table 9) | N/A |
| 6.2.2.3/RD | Compliance criteria | | N/A |



| EN 62040-1 | | | |
|------------|--|-----------------|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |
| 6.3/RD | Protection of the telecommunication wiring system from overheating | | N/A |
| | Max. output current (A) : | | -- |
| 3.5/RD | Interconnection of equipment | | N/A |
| 3.5.1/RD | General requirements | | N/A |
| 3.5.2/RD | Types of interconnection circuits : | | N/A |
| 3.5.3/RD | ELV circuits as interconnection circuits | | N/A |
| 3.5.4/RD | Data ports for additional equipment | | N/A |
| 2.1.3/RD | Protection in restricted access locations | | N/A |
| 2.3.1/RD | Limits | | N/A |
| | Type of TNV circuits : | | -- |
| 2.3.2/RD | Separation from other circuits and from accessible parts | | N/A |
| 2.3.2.1/RD | General requirements | | N/A |
| 2.3.2.2/RD | Protection by basic insulation | | N/A |
| 2.3.2.3/RD | Protection by earthing | | N/A |
| 2.3.2.4/RD | Protection by other constructions : | | N/A |
| 2.3.3/RD | Separation from hazardous voltages | | N/A |
| | Insulation employed : | | -- |
| 2.3.4/RD | Connection of TNV circuits to other circuits | | N/A |
| | Insulation employed : | | |
| 2.3.5/RD | Test for operating voltages generated externally | | N/A |
| 2.6.5.8/RD | Reliance on telecommunication network or cable distribution system | | N/A |



| EN 62040-1 | | | |
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| Clause | Requirement – Test | Result - Remark | Verdict |

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| 2.10.3.3/R D | Clearances in primary circuits | | N/A |
| 2.10.3.4/R D | Clearances in secondary circuits | | N/A |
| 2.10.4/RD | Creepage distances | | N/A |
| 2.10.4.1/R D | General | | N/A |
| 2.10.4.2/R D | Material group and comparative tracking index | | N/A |
| | CTI tests | | -- |
| 2.10.4.3/R D | Minimum creepage distances | | N/A |

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



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| EN 62040-1 |
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| A/RD | Annex A, Tests for resistance to heat and fire | N/A |
| 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 |
| A.1.1/RD | Samples | -- |
| | Wall thickness (mm) | -- |
| A.1.2/RD | Conditioning of samples; temperature (C) | N/A |
| A.1.3/RD | Mounting of samples | N/A |
| A.1.4/RD | Test flame (see IEC 60695-11-3) | N/A |
| | Flame A, B, C or D | -- |
| A.1.5/RD | Test procedure | N/A |
| A.1.6/RD | Compliance criteria | N/A |
| | Sample 1 burning time (s) | -- |
| | Sample 2 burning time (s) | -- |
| | Sample 3 burning time (s) | -- |
| 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 |
| A.2.1/RD | Samples, material | -- |
| | Wall thickness (mm) | -- |
| A.2.2/RD | Conditioning of samples; temperature (°C) | N/A |
| A.2.3/RD | Mounting of samples | N/A |
| A.2.4/RD | Test flame (see IEC 60695-11-4) | N/A |
| | Flame A, B or C | -- |
| A.2.5/RD | Test procedure | N/A |
| A.2.6/RD | Compliance criteria | N/A |



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| EN 62040-1 |
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| | Sample 1 burning time (s) | | -- |
| | Sample 2 burning time (s) | | -- |
| | Sample 3 burning time (s) | | -- |
| A.2.7/RD | 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/RD | Hot flaming oil test (see 4.6.2/RD) | | N/A |
| A.3.1/RD | Mounting of samples | | N/A |

| | | | |
|----------|----------------------|--|-----|
| A.3.2/RD | Test procedure | | N/A |
| A.3.3/RD | Compliance criterion | | N/A |

| | | | |
|----------|--|--|-----|
| B/RD | Annex B, Motor tests under abnormal conditions (see 4.7.2.2/RD and 5.3.2/RD) | | N/A |
| B.1/RD | General requirements | | N/A |
| | Position | | -- |
| | Manufacturer | | -- |
| | Type | | -- |
| | Rated values | | -- |
| B.2/RD | Test conditions | | N/A |
| B.3/RD | Maximum temperatures | | N/A |
| B.4/RD | Running overload test | | N/A |
| B.5/RD | Locked-rotor overload test | | N/A |
| | Test duration (days) | | -- |
| | Electric strength test: test voltage (V) | | -- |
| B.6/RD | Running overload test for d.c. motors in secondary circuits | | N/A |
| B.6.1/RD | General | | N/A |
| B.6.2/RD | Test procedure | | N/A |
| B.6.3/RD | Alternative test procedure | | N/A |

EN 62040-1

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

| | | | |
|--------|---|---------------------------------|----|
| C/RD | Annex C, Transformers (see 1.5.4/RD and 5.3.3/RD) | | P |
| | Position | Primary to SELV | -- |
| | Manufacturer | FOSHAN OULI ELECTRONIC CO., LTD | -- |
| | Type | H141*78 QL100J48 | -- |
| | Rated values | CLASS F | -- |
| | Method of protection | By protective circuit | -- |
| C.1/RD | Overload test | | P |
| C.2/RD | Insulation | | P |
| | Protection from displacement of windings | Secured by tubing and bobbin. | P |

| | | | |
|--------|---|--------------------|-----|
| D/RD | Annex D, Measuring instruments for touch current tests (see 5.1.4/RD) | | P |
| D.1/RD | Measuring instrument | Figure D.1/RD used | P |
| D.2/RD | Alternative measuring instrument | | N/A |

| | | | |
|------|--|--|-----|
| E/RD | Annex E, Temperature rise of a winding (see 1.4.13/RD) | | N/A |
|------|--|--|-----|

| | | | |
|------|--|--|---|
| F/RD | Annex F, Measurements of clearances and creepage distance (see 2.10/RD and Annex G/RD) | | P |
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EN 62040-1

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| G/RD | Annex G, Alternative method for determining minimum clearances | N/A |
| G.1/RD | Clearances | N/A |
| G.1.1/RD | General | N/A |
| G.1.2/RD | Summary of the procedure for determining minimum clearances | N/A |
| G.2/RD | Determination of mains transient voltage (V) | N/A |
| G.2.1/RD | AC mains supply | N/A |
| G.2.2/RD | Earthed d.c. mains supplies | N/A |
| G.2.3/RD | Unearthed d.c. mains supplies | N/A |
| G.2.4/RD | Battery operation | N/A |

| | | |
|----------|--|-----|
| G.3/RD | Determination of telecommunication network transient voltage (V) | N/A |
| G.4/RD | Determination of required withstand voltage (V) | N/A |
| G.4.1/RD | Mains transients and internal repetitive peaks : | N/A |
| G.4.2/RD | Transients from telecommunication networks . : | N/A |
| G.4.3/RD | Combination of transients | N/A |
| G.4.4/RD | Transients from cable distribution systems | N/A |
| G.5/RD | 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/RD | Determination of minimum clearances | N/A |

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

| | | |
|-----|--|-----|
| I | Annex I, Backfeed protection test | P |
| I.1 | General | P |
| I.2 | Test for pluggable UPS | N/A |
| I.3 | Test for permanently connected UPS | P |
| I.4 | Load-induced change of reference potential | P |

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| EN 62040-1 |
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|-----|---|--|-----|
| 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/A |
|-----|---|--|-----|

| | | | |
|------|---|--|-----|
| J/RD | Annex J, Table of electrochemical potentials (see 2.6.5.6/RD) | | N/A |
| | Metal(s) used | | -- |

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

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

| | | | |
|-----|--|--|-----|
| M | Annex M, Ventilation of battery compartments | | N/A |
| M.1 | General | | N/A |
| M.2 | Normal conditions | | N/A |

| | | | |
|-----|-----------------------|--|-----|
| M.3 | Blocked conditions | | N/A |
| M.4 | Overcharge conditions | | N/A |

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| EN 62040-1 |
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|---|--|---|
| 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/A |
|------|---|-----|

| | | | |
|--------|---|---|---|
| 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 | Single-phase TN power system considered and used for the testing. | P |

| 4.5 | TABLE: List of critical components | | | | P |
|-------------------|--|------------|---|-------------|--|
| Object/part no. | Manufacturer/ trademark | Type/model | Technical data | Standard | Mark(s) of conformity 1. |
| Breaker | Ls | BKN | 230/400V, 50A | IEC 60898-1 | Intertek CB cert.: SE-46083 CB report: 608914-1, -2, -3 and -4 |
| Input wire | Zhong Shan Yong Roi Electric Factory Co Ltd | 1015 | 105°C, 10AWG | UL 758 | UL E20489 |
| Relay | Ningbo Forward Relay Co., Ltd | JQX-53F | 250V, 30A, 28VDC , 10E3 | EN 61810-1 | TUV R |
| Filter Inductor 1 | Kai Tai Ind.,Co. | TAP0504 | Input: 220Vac Output: 15Vac Class B | IEC 62040-1 | Test with appliance |
| -Winding | Dong Guan Xin You Lian Copper Co Ltd | 2UEW | 130°C | UL 1446 | UL E222363 |
| -Alternative | Qing Yuan Shi Changfa Enamelled Wires Material Of Copper Co Ltd | 2UEW-130 | 130°C | UL 1446 | UL E241437 |
| -Bobbin | E I Dupont De Nemours & Co Inc | PET-FR530 | V-0,155°C | UL 746D | UL E41938 |

EN 62040-1

| | | | | | |
|-------------------|--|-----------|--|-----------|------------------------|
| -Tape | Jingjiang Yahua Pressure Sensitive Glue Co Ltd | 280(380) | 130°C | UL 510 | UL E165111 |
| -Varnish | Hang Cheung Petrochemical Ltd | 8562(a) | 155°C | UL 1446 | UL E200154 |
| Filter Inductor 2 | Kai Tai Ind.,Co. | TC-800 | Input:220Vac Output: 20Vac Class B | IEC 62040 | Test with appliance |
| -Winding | Dong Guan Xin You Lian Copper Co Ltd | 2UEW | 130°C | UL 1446, | UL E222363 |
| -Alternative | Qing Yuan Shi Changfa Enamelled Wires Material Of Copper Co Ltd | 2UEW-130 | 130°C | UL 1446, | UL E241437 |
| -Bobbin | E I Dupont De Nemours & Co Inc | PET-FR530 | V-0,155°C | UL 746D | UL E41938 |
| -Tape | Jingjiang Yahua Pressure Sensitive Glue Co Ltd | 280(380) | 130°C | UL 510 | UL E165111 |
| -Varnish | Hang Cheung Petrochemical Ltd | 8562(a) | 155°C | UL 1446 | UL E200154 |
| Filter Inductor 3 | Shenzhen Ferrocoil Electronics Technology Co.,Ltd | TC-802 | Input:220V Class B | IEC 62040 | Test with appliance |
| -Winding | Pacific Electric Wire & Cable (Shenzhen) Co Ltd | UEW/U | 130°C | UL 1446 | UL E201757 |
| -Bobbin | Chang Chun Plastics Co Ltd | T375J | 94 V-0, 150°C | UL 746D | UL E59481 |
| -Case | E I Dupont De Nemours & Co Inc | PA66 | 94V-0, 130°C | UL 746D | UL E41938 |
| -Tape | Jingjiang Yahua Pressure Sensitive Glue Co Ltd | PZ | 130°C | UL 510 | UL E165111 |
| -Varnish | Hang Cheung Petrochemical Ltd | 8562(a) | 155°C | UL 1446 | UL E200154 |
| -Tube | Fluo Tech Industries | TEFLON | 200°C | UL 224 | UL E175982 |

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| EN 62040-1 |
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| | Co Ltd | | | | |
| X-capacitor | Shantou High-New Technology Development Zone Songtian Enterprise Co., Ltd. | MPX | AC275V, Max. 2.2uF, X2, 85°C | IEC 60384-14 | TUV R50136379 0001 |
| X-capacitor (Alternative) | Shenzhen Chuangshuoda Electronics Co., Ltd | MPX, HQX, UTX | AC275V, Max. 2.2uF, X2, 110°C | IEC 60384-14 | VDE 40028274 |
| X-capacitor | Sheng Ye Electrical Co., Ltd. | CBB65 | AC450V, Max.30uF, 85°C | EN 60252-1 | VDE 101392 |
| Varistor | Shantou High-New Technology Dev. Zone Songtian Enterprise Co., Ltd. | STE-14D511K | 50A | IEC 61051-1 IEC 61051-2 IEC 61051-2-2 | VDE 40023049 |
| Varistor (Alternative) | Joyin Company Ltd | 14N820K | 50A | IEC 61051-1 IEC 61051-2 IEC 61051-2-2 | VDE 5937 |
| L1 (in power board) | Kai Tai Ind.,Co. | TC804 | 126uH±12% | IEC 62040 | Test with appliance |
| -Winding | Dong Guan Xin You Lian Copper Co Ltd | 2UEW | 130°C | UL 1446 | UL E222363 |
| -Alternative | Qing Yuan Shi Changfa Enamelled Wires Material Of Copper Co Ltd | 2UEW-130 | 130°C | UL 1446 | UL E241437 |
| -Bobbin | E I Dupont De Nemours & Co Inc | PET-FR530 | V-0,155°C | UL 746D | UL E41938 |
| -Tape | Jingjiang Yahua Pressure Sensitive Glue Co Ltd | 280(380) | 130°C | UL 510 | UL E165111 |
| -Varnish | Hang Cheung Petrochemical Ltd | 8562(a) | 155°C | UL 1446 | UL E200154 |

EN 62040-1

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|--------------------------------|---|----------------------|--|-----------|---------------------|
| Connection terminal (material) | Sabic Innovative Plastics B V | 945(GG) | V-0,120°C | UL 746D | UL E45329 |
| AC Fan | Sunonwealth Electric Machine Industry Co Ltd | DP201A 2123HBT.GN | Input: 220V, 50Hz CFM: 107 Speed: 3050 | UL 507 | UL E77551 |
| Transformer | Foshan Ouli Electronic Co.,Ltd | C03QL220/96 | Input: 0-96V Output: 0-220V 6000W, Class F | IEC 62040 | Test with appliance |
| -Primary lead wire | Zhong Shan Yong Roi Electric Factory Co Ltd | 1015 | 105°C, 8AWG | UL 758 | UL E204893 |
| -Alternative | Sanshui City Hengda Electrical Co Ltd | 1015 | 105°C, 8AWG | UL 758 | UL E229361 |
| -Heat-shrinkable tube | Guangzhou Kaiheng K & S Co. Ltd | K-2 | 125°C | UL 224 | UL E214175 |
| -Winding | Sunten Electric Equipment Co Ltd Panyu Branch | TS MW35-C | 200°C | UL 1446 | UL E210986 |
| -Bobbin | Guangzhou Better New Materials Co Ltd | DMD | 155 (F) | UL 1446 | UL E316816 |
| -Varnish | Qualipoly Chemical Corp | 1032 DOH | 130°C | UL 1446 | UL E213437 |
| -Secondary lead wire | Zhong Shan Yong Roi Electric Factory Co Ltd | 1015 | 105°C, 8AWG | UL 758 | UL E204893 |
| -Alternative | Sanshui City Hengda Electrical Co Ltd | 1015 | 105°C, 8AWG | UL 758 | UL E229361 |
| -Silicon tube | Shenzhen Wahchangwei Industrial Co Ltd | SGS | VW-1 | UL 1441 | UL E233804 |

EN 62040-1

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|------------------------------------|--|-------------------|--|------------------------------|---------------------|
| DC Fuse | Possing Electronic Co., Ltd. | ATP-40 | 660Vdc, 35A | UL 275 | UL AU2646 |
| Current fuse (fuse1) | Zhongshan Lanbao Electrical Appliances Co., Ltd. | RTI-20 series | T5AL250V | IEC 60127-1 IEC 60127-2 | VDE 40012120 |
| Current fuse (fuse1) (Alternative) | Shenzhen Lanson Electronics Co., Ltd | TxxxL250V | T5AL250V | IEC 60127-1 IEC 60127-2 | VDE 40010746 |
| Thermal control | Xc Electronics (Shenzhen) Corp, Ltd | KSD301-xyz series | 250V, 10A, 55°C | EN 60730-1 EN 60730-2 | TUV R 50035898 |
| Thermal control (Alternative) | Foshan Gaoming Xi Te Electrical Co., Ltd | KSD301 | 250V, 10A, 55°C | EN 60730-1 EN 60730-2 | TUV R 50219396 |
| Capacitor | Sheng Ye Electrical Co Ltd | C61 | 300VAC 50Hz,30uF | | UI E185116 |
| PCB | Zhangjiagang Sincere Electronic Co Ltd | SEL-01 | V-0,130°C | UL 746 UL 94 | UL E338826 |
| PCB | Various | Various | V-0,130°C | UL 746 UL 94 | UL |
| LED Display | Shenzhen Kasun Electronic Co., Ltd | ZCM1602ESL | +5V, 20mA Module Size: 72mm by 26.8mm by 8.1mm | IEC 62040 | Test with appliance |
| Plastic material for display | Guangzhou Gangyangda Plastics Co Ltd | PC-B110F-CB2 950 | 5VB, 80°C | UL 746 UL 94 | UL E347936 |
| -Alternative | Shanghai 5elem Material Scientific Co Ltd | A370F(a) | 5VB, 80°C | UL 746 UL 94 | UL E340425 |
| Socket outlet | Zhe Jiang Bei Er Jia Electronic Co., Ltd | ST-A02 | 250V, 10A | IEC 80320-1 IEC 80320-2-2 | VDE 40007930 |
| Socket outlet (Alternative) | Rich Bay Co., Ltd. | RG-02 | 250V, 10A | VDE 0620-1 | VDE 82796 |



Shenzhen An-Teng Testing Service Co., Ltd
Report No.: ATT20081200330S

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| EN 62040-1 |
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| IGBT | International Rectifier | 2MB1150N-060 | 600V, 150A | IEC 62040 | Test with appliance |
| Electrolytic capacitor | Aluminum Electrolytic Capacitors | SR series | 400V, 3300uF | IEC 62040 | Test with appliance |

Supplementary information:
1. An asterisk indicates a mark that assures the agreed level of surveillance.

| | | | | | | |
|---------------|-------|---|-------|--------|-----------------------|------------------|
| 4.6, 1.6.2/RD | | TABLE: Electrical data (in normal conditions) | | | | N/A |
| U (V) | I (A) | I _{rated} (A) | P (W) | Fuse # | I _{fuse} (A) | Condition/status |
| | | | | | | |
| | | | | | | |

Supplementary information:
The measured consumption at rated supply voltage shall not exceed the marked value by more than 10%.



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| EN 62040-1 |
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|----------------------|----------------|---|--|------------|----------|
| 5.1.1 and 2.1.1.7/RD | | TABLE: discharge of capacitors in the primary circuit | | N/A | |
| Condition | calculated (s) | measured (s) | | t u 0V (s) | Comments |
| | | | | | |
| Note(s): | | | | | |

| | | | | | |
|----------------------------|----------|---|--------|------------------------------|--|
| 5.2.1 and 2.2.2/RD | | TABLE: SELV measurement (under normal conditions) | | P | |
| Transformer | Location | Voltage (max.) (V) | | Voltage Limitation Component | |
| | | V peak | V d.c. | | |
| Tap0504 (A) | (Pin1-2) | 40.5 | -- | Tap0504 (A) | |
| | (Pin1-4) | 40.5 | | | |
| | (Pin2-3) | 40.5 | -- | | |
| | (Pin2-4) | 40.5 | | | |
| Tap0504(B) | (Pin1-2) | 40.5 | -- | Tap0504(B) | |
| | (Pin1-4) | 40.5 | -- | | |
| | (Pin2-3) | 40.5 | -- | | |
| | (Pin2-4) | 40.5 | | | |
| Supplementary information: | | | | | |

| | | | | | |
|----------------------------|-------------|--|-------------|------------|----------|
| 5.2.3 and 2.4.2/RD | | TABLE: Limited current circuit measurement | | N/A | |
| Location | Voltage (V) | Current (mA) | Freq. (kHz) | Limit (mA) | Comments |
| | | | | | |
| Supplementary information: | | | | | |

| | | | | | |
|---|--|---|----------|---------|--|
| 5.2.5 and 2.5/RD | | TABLE: Limited power source measurement | | P | |
| | | Limits | Measured | Verdict | |
| According to Table 2B/2C (normal condition) | | | | | |
| current (in A) | | 8 | 7.5 | | |



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| EN 62040-1 |
|------------|

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|---|-----|----|--|
| apparent power (in VA) | 100 | 75 | |
| According to Table 2B/2C (single fault condition) | | | |
| current (in A) | 8 | 0 | |
| apparent power (in VA) | 100 | 0 | |
| Supplementary information: the test conducted on RS 232 port, single fault the UPS shutdown, RS 232 port shutdown | | | |

| | | |
|--|---|----------|
| 5.3.1 and 2.6.3.4/RD | TABLE: Resistance of earthing measurement | P |
| Location | Resistance measured (mΩ) | Comments |
| Between I/P earth and far away metal enclosure | 65 | -- |
| Between I/P earth and O/P earth | 79 | -- |
| Supplementary information: | | |

| 5.5 and 8.3 | | TABLE: Abnormal operating and fault conditions | | | | 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 |
| Fan (front) | Locked | Battery 48Vdc | 3H | FUSE | 108.7 | Unit work continuously, No hazards. Max. temperature: not exceed the limited. |
| Output | OL | Battery 48Vdc | 4H | FUSE | 228.7 | Unit work continuously, No hazards. Max. temperature: not exceed the limited. |
| Output | Shorted | 230V | 1s | Circuit breaker | 0 | Output Shutdown, output circuit breaker operation, no hazards |
| Output | Shorted | Battery 48Vdc | 1s | Circuit breaker | 0 | Output Shutdown, output circuit breaker operation, no hazards |

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| EN 62040-1 |
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|---------------------------|---------|------------------|--------|-----------------|-------|--|
| | | | | r | | |
| Opening | Blocked | Battery 48Vdc | 3H | FUSE | 208.7 | Unit work continuously, No hazards. Max. temperature: not exceed the limited. |
| Transformer output (75V) | Shorted | 230V | 10mins | Circuit breaker | 0.8 | The input decrease to 0.8A, output is shutdown, recoverable when the fault removed. No hazards |
| Transformer output (85V) | Shorted | 230V | 10mins | Circuit breaker | 0.8 | The input decrease to 0.8A, output is shutdown, recoverable when the fault removed. No hazards |
| Transformer output (100V) | Shorted | 230V | 10mins | Circuit breaker | 0.8 | The input decrease to 0.8A, output is shutdown, recoverable when the fault removed. No hazards |
| Transformer output (115V) | Shorted | 230V | 10mins | Circuit breaker | 0.8 | The input decrease to 0.8A, output is shutdown, recoverable when the fault removed. No hazards |

Supplementary information:

| 5.7 and 2.10.4/RD | 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) |
| L and N of connection terminal | 242 | 150 | 1.0 | 7.5 | 1.5 | 7.5 |
| L/N and PE of connection terminal | 242 | 150 | 1.0 | 7.5 | 1.5 | 7.5 |
| Primary live parts and metal enclosure | 242 | 150 | 1.0 | 8.0 | 1.5 | 8.0 |
| Primary live parts and | 242 | 150 | 1.0 | 3.5 | 1.5 | 3.5 |

EN 62040-1

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|---|-----|-----|-----|-----|-----|-----|
| earthed trace (on power board) | | | | | | |
| Primary live parts and secondary SELV, on trace | 242 | 150 | 1.0 | 3.5 | 3.0 | 3.5 |
| Transformer primary and secondary | 242 | 150 | 1.0 | 4.8 | 3.0 | 4.8 |
| Transformer primary and core | 242 | 150 | 1.0 | 4.8 | 1.6 | 4.8 |
| Transformer secondary and core | 242 | 150 | 1.0 | 4.8 | 1.6 | 4.8 |
| Output live parts and metal enclosure | 242 | 150 | 1.0 | 6.4 | 3.0 | 6.4 |
| Output live parts and accessible parts | 242 | 150 | 1.0 | 6.4 | 3.0 | 6.4 |
| Output live parts and SELV circuit | 242 | 150 | 1.0 | 4.8 | 3.0 | 4.8 |
| Supplementary information: | | | | | | |

| | | | | | |
|--|------------|---|------------------|-------------------|----------|
| 5.8, 2.1.1.3/RD and 2.10.5.1/RD | | TABLE: Distance through insulation measurements | | P | |
| Distance through insulation (DTI) at/of: | U peak (V) | U r.m.s. (V) | Test voltage (V) | Required DTI (mm) | DTI (mm) |
| Bobbin of transformer | 173 | 125 | 2000 | 0.4 | 2.0 |
| Bobbin of inductance | 168 | 143 | 2000 | 0.4 | 1.2 |
| Supplementary information: | | | | | |

| | | |
|--------------|---|---|
| 6, 8.2 and 9 | TABLE: Electric strength tests, impulse tests and voltage surge tests | P |
|--------------|---|---|



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| EN 62040-1 |
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| Test voltage applied between: | Voltage shape (AC, DC, impulse, surge) | Test voltage (V) | Breakdown Yes / No |
|---|--|------------------|--------------------|
| Primary and secondary SELV circuit | AC | 2000 | No |
| Primary and PE | AC | 1000 | No |
| Transformer T1 primary and secondary | AC | 2000 | No |
| Transformer T1 primary and core | AC | 1000 | No |
| Transformer T1 secondary core | AC | 1000 | No |
| Output and metal enclosure | AC | 1000 | No |
| Output and other secondary SELV circuit | AC | 2000 | No |
| Supplementary information: | | | |

| 7.4, 4.5.5/RD | TABLE: Ball pressure test of thermoplastic parts | P |
|--|--|--------------------------|
| Allowed impression diameter (mm) | 2 mm | |
| Part | Test temperature (°C) | Impression diameter (mm) |
| Bobbin of transformer | 125 | 0.8 |
| Bobbin of inductance | 125 | 1.6 |
| Material of connection terminal | 125 | 1.0 |
| PCB | 125 | 0.75 |
| Supplementary information: | | |

| 7.4.2, | Table: Enclosure opening measurements | P |
|----------------------------|---------------------------------------|--------------------------------|
| Location | Size (mm) | Comments |
| Side metal enclosure | 3 | Opening area is 260mm by 100mm |
| Supplementary information: | | |



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| EN 62040-1 |
|------------|

| 7.5 | | Table: Resistance to fire | | P | |
|-----------------|--------------------------------------|---------------------------|----------------|--------------------|----------|
| Part | Manufacturer of material | Type of material | Thickness (mm) | Flammability class | Evidence |
| Metal enclosure | Various | Various | Min. 1.0 | -- | -- |
| PCB | Various | Various | Min. 1.5mm | V-0 | -- |
| Display plastic | Guangzhou Gangyangda Plastics Co Ltd | PC-B110F-CB2950 | Min. 0.8mm | 5VB | -- |

Supplementary information:

| 7.7 TABLE: Temperature test | | | P |
|--|------------|------------|----------------------------------|
| Supply voltage (V) | 207V/ 60Hz | 253V/ 60Hz | |
| Ambient T _{min} (°C) | 25.1 | 25.1 | |
| Ambient T _{max} (°C) | 25.2 | 25.2 | |
| Maximum measured temperature T of part/at: T (°C) | | | Allowed T _{max} (°C) |
| Input wire | 99.9 | 103.7 | 105 |
| Fan (front) | 60.1 | 63.6 | 90 |
| Fan (back) | 59.4 | 66.6 | 90 |
| Breaker (inside) | 82.7 | 86.2 | 85 |
| Breaker (outside) | 59.9 | 63.6 | 85 |
| Transformer primary coil | 67.1 | 70.6 | 130 |
| Transformer secondary coil | 66.5 | 69.9 | 130 |
| Enclosure outside near transformer | 58.2 | 57.2 | 70 |
| Panel | 51.1 | 56.6 | 60 |
| Electrolytic capacitor (CBB65) | 48.8 | 53.5 | 105 |
| PCB near R2 | 60.4 | 69.9 | 130 |
| Inductance coil | 73.8 | 76.1 | 130 |
| Inductance bobbin | 75.4 | 77.1 | 130 |
| Electrolytic capacitor (C8) | 67.1 | 69.5 | 105 |
| Battery wire | 53.5 | 56.5 | 105 |
| PCB near U2 | 67.8 | 70.9 | 130 |
| On control board | | | |



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| EN 62040-1 |
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| | | | |
|-------------------|-------|-------|-----|
| Inductance coil 1 | 111.4 | 113.6 | 120 |
| Inductance bobbin | 107.7 | 109.3 | 120 |
| Inductance coil 2 | 78.9 | 81.4 | 120 |
| Inductance bobbin | 77.1 | 79.5 | 120 |
| Inductance coil 3 | 69.2 | 72.2 | 120 |
| Inductance bobbin | 66.1 | 69.1 | 120 |
| PCB under L3 | 105.3 | 107.5 | 130 |
| X-capacitor (C6) | 87.4 | 89.9 | 100 |
| X-capacitor (C8) | 94.4 | 97.7 | 100 |
| RELAY1 | 84.2 | 87.7 | 130 |
| RELAY3 | 71.3 | 76.3 | 130 |

Supplementary information:

| Temperature T of winding: | t ₁ (°C) | R ₁ () | t ₂ (°C) | R ₂ () | T (°C) | Allowed T _{max} (°C) | Insulation class |
|--|---------------------|--------------------|---------------------|--------------------|--------|-------------------------------|------------------|
| Supplementary information: Temperature test of transformer winding is determined by thermocouples, the limited values are reduced by 10°C | | | | | | | |

| | | | | | |
|--|----|--------|----|-------------------------------|----|
| 7.7 TABLE: Temperature test | | | | | N |
| Supply voltage (V) | | -- | -- | -- | |
| Ambient T _{min} (°C) | | -- | -- | -- | |
| Ambient T _{max} (°C) | | -- | -- | -- | |
| Maximum measured temperature T of part/at: | | T (°C) | | Allowed T _{max} (°C) | |
| -- | -- | -- | -- | -- | -- |

Supplementary information:

| Temperature T of winding: | t ₁ (°C) | R ₁ () | t ₂ (°C) | R ₂ () | T (°C) | Allowed T _{max} (°C) | Insulation class |
|--|---------------------|--------------------|---------------------|--------------------|--------|-------------------------------|------------------|
| Supplementary information: Temperature test of transformer winding is determined by thermocouples, the limited values are reduced by 10°C | | | | | | | |

| | |
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| 8.1 TABLE: earth leakage current | P |
|----------------------------------|---|

EN 62040-1

| Condition | L terminal A (mA) | N terminal A (mA) | Limit (mA) | Comments |
|--|-------------------|-------------------|------------|-------------------|
| Input L/N and metal enclosure | 0.56 | 0.56 | 3.5 | Switch "E" opened |
| Output L/N and metal enclosure | 0.56 | 0.56 | 3.5 | Switch "E" opened |
| Input L/N and RS 232 port | 0.15 | 0.15 | 0.25 | Switch "E" closed |
| Output L/N and RS 232 port | 0.15 | 0.15 | 0.25 | Switch "E" closed |
| Input L/N and panel (with metal foil) | 0.005 | 0.005 | 0.25 | Switch "E" closed |
| Output L/N and panel (with metal foil) | 0.005 | 0.005 | 0.25 | Switch "E" closed |
| Output L/N and metal enclosure (supplied by battery) | 0.56 | 0.56 | 3.5 | Switch "E" opened |
| Output L/N and panel with metal foil (supplied by battery) | 0.005 | 0.005 | 0.25 | Switch "E" closed |
| Output L/N and RS 232 port (supplied by battery) | 0.15 | 0.15 | 0.25 | Switch "E" closed |
| Supplementary information: | | | | |

| C.2/RD | Safety isolation transformer | P |
|--|------------------------------|--------------|
| | Construction details: | |
| Transformer part name: T1 | | |
| Manufacturer: See appended table 4.3 | | |
| Type: See appended table 4.3 | | |
| Recurring peak voltage | 242Vpk | |
| Required clearance for reinforced insulation (from table 2H and 2J) | 2.0mm | |
| Effective voltage rms | 150Vrms | |
| Required creepage distance for reinforced insulation (from table 2N) | 3.0mm | |
| Measured min. creepage distance | | |
| Location | inside (mm) | outside (mm) |
| Primary and secondary | 4.6 | 4.6 |
| Primary and core | 4.6 | 4.6 |



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| EN 62040-1 |
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| | | |
|--|-------------|--------------|
| Secondary and core | 4.6 | 4.6 |
| Measured min. clearances | | |
| Location | inside (mm) | outside (mm) |
| Primary and secondary | 4.6 | 4.6 |
| Primary and core | 4.6 | 4.6 |
| Secondary and core | 4.6 | 4.6 |
| Construction: | | |
| Pin numbers | | |
| Prim. | Pin 1-4 | |
| Sec. | Pin 5-9 | |
| Bobbin | | |
| Material | Phenolic | |
| Thickness | 2.0mm | |
| Electric strength test | | |
| With AC 2000V after humidity treatment | | |
| Result | Pass | |

| | | |
|---|--|-----|
| M | Ventilation of battery compartments | N/A |
| | The required dimension for the ventilation openings will be calculated with the following formula: | |
| | $A > K1 * Q$ | |
| | with $Q = (0.054 \text{ m}^3/\text{Ah}) * n * I * C$ | |
| | where: K1 : constant factor of $28 \text{ h} * \text{cm}^2/\text{m}^3$ Q : airflow in m^3/h n : number of battery cells I : constant factor ($0,2\text{A}/100\text{Ah}$ for valve regulated lead acid batteries) C : nominal capacity of the battery | |
| | With the specific data for the UPS the following dimension for the ventilation openings is required: | |
| | $A > 28 \text{ h} * \text{cm}^2/\text{m}^3 * (0.054 \text{ m}^3/\text{Ah}) * n * 0.2 \text{ A}/100 \text{ Ah} * C$ | |
| | Verdict | |



Shenzhen An-Teng Testing Service Co., Ltd
Report No.: ATT20081200330S

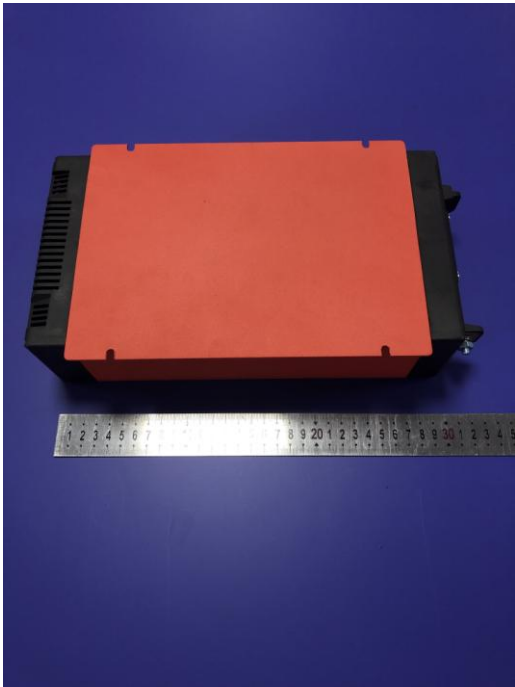
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| EN 62040-1 |
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| | | |
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| | The size of ventilation openings in battery cabinet exceeds the required airflow by far (as well as the UPS). | |
|--|---|--|

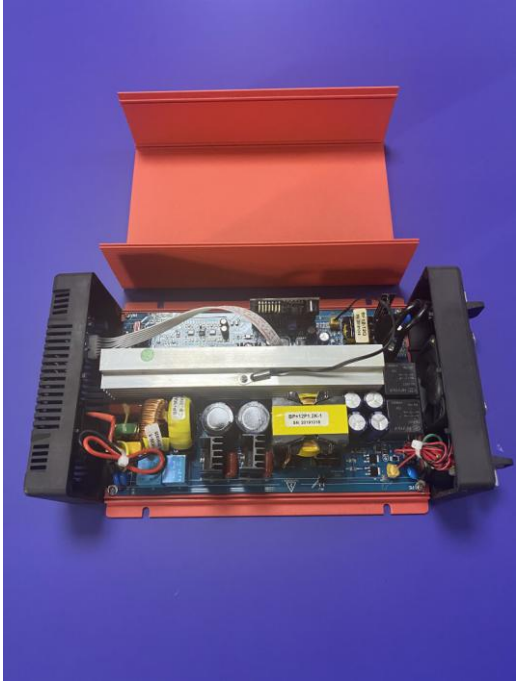
Attachment – A

Photo Documentation

| | |
|--|---|
| <p>Photo 1</p> <p>View:</p> <p><input checked="" type="checkbox"/> Front</p> <p><input type="checkbox"/> Rear</p> <p><input type="checkbox"/> Right side</p> <p><input type="checkbox"/> Left side</p> <p><input type="checkbox"/> Top</p> <p><input type="checkbox"/> Bottom</p> <p><input type="checkbox"/> Internal</p> |  |
|--|---|

| | |
|--|--|
| <p>Photo 2</p> <p>View:</p> <p><input type="checkbox"/> Front</p> <p><input checked="" type="checkbox"/> Rear</p> <p><input type="checkbox"/> Right side</p> <p><input type="checkbox"/> Left side</p> <p><input type="checkbox"/> Top</p> <p><input type="checkbox"/> Bottom</p> <p><input type="checkbox"/> Internal</p> |  |
|--|--|

| | |
|--|--|
| <p>Photo 3</p> <p>View:</p> <p><input type="checkbox"/> Front</p> <p><input type="checkbox"/> Rear</p> <p><input checked="" type="checkbox"/> Right side</p> <p><input type="checkbox"/> Left side</p> <p><input type="checkbox"/> Top</p> <p><input type="checkbox"/> Bottom</p> <p><input type="checkbox"/> Internal</p> |  <p>The image shows the right side of a power supply unit. The top half is orange with a vertical silver stripe containing the text 'BPlus Series' and '1000W'. The bottom half is black with ventilation grilles. The unit is set against a blue background.</p> |
|--|--|

| | |
|--|---|
| <p>Photo 4</p> <p>View:</p> <p><input type="checkbox"/> Front</p> <p><input type="checkbox"/> Rear</p> <p><input type="checkbox"/> Right side</p> <p><input type="checkbox"/> Left side</p> <p><input type="checkbox"/> Top</p> <p><input type="checkbox"/> Bottom</p> <p><input checked="" type="checkbox"/> Internal</p> |  <p>The image shows the internal components of the power supply unit with the top cover removed. It features a blue PCB with various electronic components including capacitors, resistors, and a transformer. The unit is set against a blue background.</p> |
|--|---|

END.