# *CERTIFICATE OF COMPLIANCE*

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|---|---|
| **Applicant .....:** | **AAEON TECHNOLOGY INC.** |
| **Address .....:** | **5F, NO135, LANE 235, PAO CHIAO RD., HSIN-TIEN CITY, TAIPEI , TAIWAN, R.O.C.** |
| **Description of EUT....:** | 17” or 15” Panel PC |
| **Model Designation.....:** | APC-8172HTT-A1, APC-8152HTT-A1 |
| **Tested According to ..:** | 73/23/EEC<br>IEC 60950-1: 2001<br>EN 60950-1: 2001 |

*This evaluation was carried out to the best of our knowledge and ability, and our responsibility is limited to the exercise of reasonable care. This certification is not intended to relieve the sellers from their contractual obligations.*

**Issued Date.....:** March 31, 2005

**Issued Agency ..:** **Sporton International Inc.**
14Fl.-2, No. 186, Jianyi Rd.,
Junghe City, Taipei Hsien,
Taiwan

**Tested by .....:** *Moly Chen*

*Moly Chen / Project Engineer*

**Reviewed by .....:** Ryan Chen

*Ryan Chen / Supervisor*

**Approved by ....:** Jason Chuang

*Jason Chuang / Director*

Sporton International Inc. 新寶股份有限公司 SPORTON 安規專用章

# LOW VOLTAGE DIRECTIVE TEST REPORT

## IEC 60950-1 / EN 60950-1, First Edition

## Information technology equipment – Safety – Part 1: General requirements

| | | |
|---|---|---|
| Report Reference No. ..... : | SP0503L1215 | |
| Compiled by (+ signature)..... : | Moly Chen<br>Project Engineer | Moly Chen |
| Reviewed by (+ signature) ..... : | Ryan Chen<br>Supervisor | Ryan Chen |
| Approved by (+ signature) ..... : | Jason Chuang<br>Director | Jason Chuang |
| Date of Issue ..... : | March 31, 2005 | |
| Testing laboratory..... : | **Sporton International Inc.** | |
| Address..... : | 14Fl.-2, No. 186, Jianyi Rd.,<br>Junghe City, Taipei Hsien, | |
| Testing location ..... : | Taiwan | |
| Applicant..... : | **AAEON TECHNOLOGY INC.** | |
| Address..... : | 5F, NO135, LANE 235,<br>PAO CHIAO RD., HSIN-TIEN CITY,<br>TAIPEI , TAIWAN, R.O.C. | |
| Standard ..... : | IEC 60950-1: 2001, First Edition<br>EN 60950-1: 2001, First Edition | |
| Test Report Form No. ..... : | LVD 60950-1 | |
| Test procedure ..... : | Sporton LVD type test approval | |
| Procedure deviation ..... : | N/A | |
| Non-standard test method ..... : | N/A | |
| Type of test object..... : | 17” or 15” Panel PC | |
| Trademark ..... : | AAEON | |
| Model/type reference ..... : | **APC-8172HTT-A1, APC-8152HTT-A1** | |
| Manufacturer ..... : | AAEON TECHNOLOGY INC.<br>5F, NO135, LANE 235,<br>PAO CHIAO RD., HSIN-TIEN CITY,<br>TAIPEI , TAIWAN, R.O.C. | |
| Rating ..... : | 100-240 Vac, 50-60 Hz, 5 A | |

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|---|---|---|
| **Test item particulars:** | | |
| Equipment mobility | : | for building-in |
| Operating condition | : | continuous |
| Tested for IT power systems | : | No |
| IT testing, phase-phase voltage (V) | : | N.A. |
| Class of equipment | : | Class I |
| Mass of equipment (kg) | : | approx. 12.96 kg (model APC-8172HTT-A1)<br>10.88 kg (model APC-8152HTT-A1) |
| Protection against ingress of water | : | IP X0 |
| **Possible test case verdicts:** | | |
| - test case does not apply to the test object | : | N.A. |
| - test object does meet the requirement | : | Pass |
| - test object does not meet the requirement | : | Fail |

**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 point is used as the decimal separator.

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 testing laboratory.

Edition 1: Report No. SP0503L1215. Model APC-8172HTT-A1, APC-8152HTT-A1.

**Comments:**

The test results are true for the test sample(s) only.

A part of this test report or certificate should not be duplicated in any way; however, the duplication of the whole document is allowed.

*This test-report includes the following documents:*

1. Test report - (45 pages)
2. Photo - (10 pages)
3. Circuit diagram & PCB layout – (3 pages)
4. DC to AC inverter specification – (12 pages)
5. Power supply license – (1 page)
6. Test instruments list - (3 pages)

**Brief description of the test sample:**

The equipment is a panel pc, intended for used with information technology equipment.

The output of the keyboard connector was not complied with LPS requirement.

The internal built-in Switching Power Supplies (SPS) is CB approved components, Each of them is completely enclosed by a metal enclosure and directly supplied from the mains through its inlet, for details, see appended table 1.5.1.

Two unit construction, Model APC-8172HTT-A1: overall dimensions of the equipment were approximate 485 by 400 by 147 mm. Model APC-8172HTT-A1: overall 445 by 338 by 147 mm, and metal enclosure were secured together by screws.

The equipment was evaluated for use in a maximum air ambient of 40ºC.

The test sample is pre-production without serial number.

| Clause | Requirement - Test | Result - Remark | Verdict |
|---|---|---|---|
| **1** | **GENERAL** | | **Pass** |
| **1.5** | **Components** | | **Pass** |
| 1.5.1 | Comply with IEC 60950 or relevant component standard | Safety involved components comply with the requirements of this standard or within the safety aspects of the relevant IEC component standards (refer to appended table 1.5.1 below). | Pass |
| 1.5.2 | Evaluation and testing of components | Components which are certified to IEC and/or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment. | Pass |
| 1.5.3 | Thermal controls | No thermal control provided. | N.A. |
| 1.5.4 | Transformers | Part of certified power supply. | N.A. |
| 1.5.5 | Interconnecting cables | Interconnection cable provided with the equipment is carrying signals on energy level below 240VA.<br>Besides for the insulation materials there are not other requirements for the interconnection cables. | Pass |
| 1.5.6 | Capacitors in primary circuits | Part of certified power supply. | N.A. |
| 1.5.7 | Double or reinforced insulation bridged by components | | N.A. |
| 1.5.7.1 | General | | N.A. |
| 1.5.7.2 | Bridging capacitors | | N.A. |
| 1.5.7.3 | Bridging resistors | | N.A. |
| 1.5.7.4 | Accessible parts | | N.A. |
| 1.5.8 | Components in equipment for IT power systems | Part of certified power supply. | N.A. |
| **1.6** | **Power interface** | | **Pass** |
| 1.6.1 | AC power distribution systems ..... | TN power system | Pass |
| 1.6.2 | Input current | The steady state input current of the equipment did not exceed the RATED CURRENT by more than 10% under NORMAL LOAD.<br>(see appended table 1.6.2) | — |
| 1.6.3 | Voltage limit of hand-held equipment | This appliance is not a hand-held equipment. | N.A. |

| | | | |
|---|---|---|---|
| 1.6.4 | Neutral conductor | Part of certified power supply. | Pass |

| **1.7** | **Marking and instructions** | | **Pass** |
|---|---|---|---|
| 1.7.1 | Power rating | See below. | Pass |
| | Rated voltage(s) or voltage range(s) (V) ..... | 100-240V. | Pass |
| | Symbol for nature of supply for d.c. ..... | Mains from AC source. | N.A. |
| | Rated frequency or frequency range (Hz) ..... | 50-60 Hz | Pass |
| | Rated current (mA or A) ..... | 5 A. | Pass |
| | Manufacturer's name/Trademark ..... | See page 1. | Pass |
| | Type/model ..... | See page 1. | Pass |
| | Symbol of Class II ..... | The unit is a Class I equipment. | N.A. |
| | Other symbols ..... | Additional symbols or marking does not give rise to misunderstanding. | Pass |
| | Certification marks ..... | CE mark. | Pass |
| 1.7.2 | Safety instructions | Operation/installation instruction is provided with each unit. | Pass |
| 1.7.3 | Short duty cycles | Equipment is designed for continuous operation. | N.A. |
| 1.7.4 | Supply voltage adjustment ..... | No setting required. | N.A. |
| 1.7.5 | Power outlets on the equipment ..... | No outlet provided. | N.A. |
| 1.7.6 | Fuse identification ..... | Part of certified power supply | N.A. |
| 1.7.7 | Wiring terminals | Ditto. | N.A. |
| 1.7.7.1 | Protective earthing and bonding terminals | Appliance inlet provided. | N.A. |
| 1.7.7.2 | Terminal for a.c. mains supply conductors | The equipment is provided with appliance inlet, which is for connection of a detachable type power supply cord. | N.A. |
| 1.7.8 | Controls and indicators | See below. | Pass |
| 1.7.8.1 | Identification, location and marking ..... | Indicator not affecting safety. | N.A. |
| 1.7.8.2 | Colours ..... | No safety involve indicator used. | N.A. |
| 1.7.8.3 | Symbols according to IEC 60417..... | Marking for push-push button type functional switch. | Pass |
| 1.7.8.4 | Markings using figures ..... | Not used. | N.A. |
| 1.7.9 | Isolation of multiple power sources ..... | Equipment designed for only one connection to the mains. | N.A. |
| 1.7.10 | IT power distribution systems | Equipment is not intended for the IT power system. | N.A. |
| 1.7.11 | Thermostats and other regulating devices | No thermostat provided. | N.A. |
| 1.7.12 | Language ..... | Installation instruction and equipment markings are in English. | — |

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|---|---|---|---|
| 1.7.13 | Durability | The marking plate was subjected to the permanence of marking test. The marking plate was rubbed with cloth soaked with water for 15 s and then again for 15 s with the cloth soaked with petroleum spirit.<br>After this test there was no damage to the marking on the label did not fade. There was no curling of the marking. | Pass |
| 1.7.14 | Removable parts | No removable part. | Pass |
| 1.7.15 | Replaceable batteries | The lithium battery is not user replaceable. | N.A. |
| | Language ..... | English. | — |
| 1.7.16 | Operator access with a tool ..... | No such area. | N.A. |
| 1.7.17 | Equipment for restricted access locations ..... | Equipment not limited for use in restricted access locations | N.A. |

| | | |
|---|---|---|
| **2** | **PROTECTION FROM HAZARDS** | **Pass** |

| | | | |
|---|---|---|---|
| **2.1** | **Protection from electric shock and energy hazards** | | **Pass** |
| 2.1.1 | Protection in operator access areas | Building-in equipment, need to be evaluated in end product | Pass |
| 2.1.1.1 | Access to energized parts | | |
| | Test by inspection ..... | | Pass |
| | Test with test finger ..... | Ditto | Pass |
| | Test with test pin ..... | Ditto | Pass |
| | Test with test probe ..... | No TNV. | Pass |
| 2.1.1.2 | Battery compartments ..... | | N.A. |
| 2.1.1.3 | Access to ELV wiring | Building-in equipment, need to be evaluated in end product | Pass |
| | Working voltage (V); distance (mm) trough insulation | | — |
| 2.1.1.4 | Access to hazardous voltage circuit wiring | Building-in equipment, need to be evaluated in end product | Pass |
| 2.1.1.5 | Energy hazards ..... | Building-in equipment, need to be evaluated in end product | Pass |
| 2.1.1.6 | Manual controls | None. | N.A. |
| 2.1.1.7 | Discharge of capacitors in the primary circuit | Certified power supply used. | N.A. |
| | Time-constant (s); measured voltage (V) ..... | | |
| 2.1.2 | Protection in service access areas | | N.A. |
| 2.1.3 | Protection in restricted access locations | No restricted location. | N.A. |

| | | | |
|---|---|---|---|
| **2.2** | **SELV circuits.** | | **Pass** |
| 2.2.1 | General requirements | See below. | Pass |
| 2.2.2 | Voltages under normal conditions (V)..... | Between any SELV circuits 42.4 Vpeak and 60 Vdc are not exceeded. | Pass |
| 2.2.3 | Voltages under fault conditions (V) ..... | Single fault did not cause excessive voltage in accessible SELV circuits.<br>Limits of 71V peak and 120Vd.c. were not exceeded within 0.2s and limits 42.4V peak and 60Vd.c. were not exceeded for longer than 0.2s. | Pass |
| 2.2.3.1 | Separation by double or reinforced insulation (method 1) | Separation provided by certified power supply | — |
| 2.2.3.2 | Separation by earthed screen (method 2) | | — |
| 2.2.3.3 | Protection by earthing of the SELV circuit (method 3) | | — |
| 2.2.4 | Connection of SELV circuits to other circuits..... | See 2.2.2 and 2.2.3.<br>No direct connection between SELV and any primary circuits. | Pass |

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|---|---|---|---|
| **2.3** | **TNV circuits**<br>***No TNV circuit.*** | | **N.A.** |
| 2.3.1 | Limits | | N.A. |
| | Type of TNV circuits ..... | | — |
| 2.3.2 | Separation from other circuits and from accessible parts | | N.A. |
| | Insulation employed..... | | — |
| 2.3.3 | Separation from hazardous voltages | | N.A. |
| | Insulation employed..... | | — |
| 2.3.4 | Connection of TNV circuits to other circuits | | N.A. |
| | Insulation employed..... | | — |
| 2.3.5 | Test for operating voltages generated externally | | N.A. |

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|---|---|---|---|
| **2.4** | **Limited current circuits** | | **Pass** |
| 2.4.1 | General requirements | Considered. | Pass |

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|---|---|---|---|
| 2.4.2 | Limit values | **Model : APC-8172HTT-A1**<br>28.42 mA<br>(D/A inverter: “P5”- Pin2 to Earth)<br>fault condition: L1 short.<br>**Model : APC-8152HTT-A1**<br>28.63 mA<br>(D/A inverter: “P3”- Pin1 to Pin2)<br>fault condition: Q2 (C-E) short.<br>The above test conditions are the most unfavourable combination (included normal and fault condition). | Pass |
| | Circuit capacitance ..... | | — |
| | Frequency (Hz) ..... | **Model : APC-8172HTT-A1**<br>40.6 kHz (“P5”- Pin2 to Earth)<br>**Model : APC-8152HTT-A1**<br>40.9 kHz (“P3”- Pin1 to Pin2) | — |
| | Measured current (mA)..... | **Model : APC-8172HTT-A1**<br>Max. 8.5 mA peak<br>(“P5”- Pin2 to Earth)<br>**Model : APC-8152HTT-A1**<br>Max. 26.4 mA peak<br>(“P3”- Pin1 to Pin2) | — |
| | Measured voltage (V) : | **Model : APC-8172HTT-A1**<br>Max. 17.0 V peak.<br>(“P5”- Pin2 to Earth)<br>**Model : APC-8152HTT-A1**<br>Max. 52.8 mA peak<br>(“P3”- Pin1 to Pin2) | — |
| | Measured capacitance (μF) ..... | | — |
| 2.4.3 | Connection of limited current circuits to other circuits | Connection of limited current circuit only to SELV circuit. | Pass |

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|---|---|---|---|
| **2.5** | **Limited power sources** | | **N.A.** |
| | Inherently limited output | | N.A. |
| | Impedance limited output | | N.A. |
| | Overcurrent protective device limited output | | N.A. |
| | Regulating network limited output under normal operating and single fault condition | | N.A. |
| | Regulating network limited output under normal operating conditions and overcurrent protective device limited output under single fault condition | | N.A. |

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|---|---|---|---|
| | Output voltage (V), output current (A), apparent power (VA) ..... | | — |
| | Current rating of overcurrent protective device (A) | | — |

| **2.6** | **Provisions for earthing and bonding** | | **Pass** |
|---|---|---|---|
| 2.6.1 | Protective earthing | Part of certified power supply. | Pass |
| 2.6.2 | Functional earthing | Secondary functional earthing is connected to protectively earthed conductive part that separated from primary by basic insulation. | Pass |
| 2.6.3 | Protective earthing and protective bonding conductors | See below. | N.A. |
| 2.6.3.1 | General | No power supply cord provided. | N.A. |
| 2.6.3.2 | Size of protective earthing conductors | Ditto. | N.A. |
| | Rated current (A), cross-sectional area ($mm^2$), AWG..... | | — |
| 2.6.3.3 | Size of protective bonding conductors | Protective bonding conductors evaluated based on 2.6.3.4. | Pass |
| | Rated current (A), cross-sectional area ($mm^2$), AWG..... | | — |
| 2.6.3.4 | Resistance (Ω) of earthing conductors and their terminations, test current (A) ..... | **Model : APC-8172HTT-A1**<br>40A (2 minute) between terminal connector ground pin and chassis, measured resistance 0.007Ω.<br>**Model : APC-8152HTT-A1**<br>40A (2 minute) between terminal connector ground pin and chassis, measured resistance 0.005Ω. | Pass |
| 2.6.3.5 | Colour of insulation ..... | No green/yellow wire used except in approved SPS. | Pass |
| 2.6.4 | Terminals | See 2.6.1. | Pass |
| 2.6.4.1 | General | See below. | Pass |
| 2.6.4.12 | Protective earthing and bonding terminals | Appliance inlet used and the unit meet the test requirement of 2.6.3.4. | Pass |
| | Rated current (A), type and nominal thread diameter (mm)..... | | — |
| 2.6.4.3 | Separation of the protective earthing conductor from protective bonding conductors | Appliance inlet use | Pass |
| 2.6.5 | Integrity of protective earthing | See below. | Pass |
| 2.6.5.1 | Interconnection of equipment | No interconnection of hazardous voltages. | N.A. |

| | | | |
|---|---|---|---|
| 2.6.5.2 | Components in protective earthing conductors and protective bonding conductors | No switches or fuses in earthing conductors. | Pass |
| 2.6.5.3 | Disconnection of protective earth | It is not possible to disconnect protective earth without disconnecting mains; an appliance inlet is used as disconnect device. | Pass |
| 2.6.5.4 | Parts that can be removed by an operator | It is not possible to disconnect earth without disconnecting mains and protective earth makes earlier and breaks later than the supply connectors.<br>No other operator removable parts with safety critical earth connection. | Pass |
| 2.6.5.5 | Parts removed during servicing | Connections to protective earthing cannot be removed unless hazardous voltage is removed from the part simultaneously. | Pass |
| 2.6.5.6 | Corrosion resistance | All safety connections in compliance with Annex J. | Pass |
| 2.6.5.7 | Screws for protective bonding | No such screw used. | Pass |
| 2.6.5.8 | Reliance on telecommunication network or cable distribution system | No reliance on telecommunication network. | N.A. |

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| **2.7** | **Overcurrent and earth fault protection in primary circuits** | | **Pass** |
| 2.7.1 | Basic requirements | Equipment relies on 16A rated fuse or circuit breaker of the wall outlet installation protection of the building installation in regard to L to N short circuit. Over current protection is provided in certified SPS. | Pass |
| | Instructions when protection relies on building installation. | Part of certified SPS. | Pass |
| 2.7.2 | Faults not covered in 5.3 | Pluggable equipment type A, the building installation is considered as providing short circuit protection. | Pass |
| 2.7.3 | Short-circuit backup protection | In certified SPS. | Pass |
| 2.7.4 | Number and location of protective devices ..... | In certified SPS. | Pass |
| 2.7.5 | Protection by several devices | In certified SPS. | N.A. |
| 2.7.6 | Warning to service personnel..... | | N.A. |

| | | | |
|---|---|---|---|
| **2.8** | **Safety interlocks**<br>***No safety interlocks provided.*** | | **N.A.** |
| 2.8.1 | General principles | | N.A. |
| 2.8.2 | Protection requirements | | N.A. |
| 2.8.3 | Inadvertent reactivation | | N.A. |

| | | | |
|---|---|---|---|
| 2.8.4 | Fail-safe operation | | N.A. |
| 2.8.5 | Moving parts | | N.A. |
| 2.8.6 | Overriding | | N.A. |
| 2.8.7 | Switches and relays | | N.A. |
| 2.8.7.1 | Contact gaps (mm) ..... | | N.A. |
| 2.8.7.2 | Overload test | | N.A. |
| 2.8.7.3 | Endurance test | | N.A. |
| 2.8.7.4 | Electric strength test (V) | | N.A. |
| 2.8.8 | Mechanical actuators | | N.A. |

| **2.9** | **Electrical insulation** | | **Pass** |
|---|---|---|---|
| 2.9.1 | Properties of insulating materials | No natural rubber, asbestos or hygroscopic materials are used. | Pass |
| 2.9.2 | Humidity conditioning | Tested for tropical conditions (on applicant's request) for 48 h. | Pass |
| | Humidity (%) | 95 | -- |
| | Temperature (℃) | 25 | -- |
| 2.9.3 | Grade of insulation | Insulation materials comply with sub-clauses 2.10, 4.5.1 and 5.2. | Pass |
| 2.9.4 | Insulation parameters | Both parameters are considered. | Pass |
| 2.9.5 | Categories of insulation | The adequate level of safety insulation is provided and maintained to comply with the requirements of this standard. | Pass |

| **2.10** | **Clearances, creepage distances and distances through insulation*)*** | | **Pass** |
|---|---|---|---|
| 2.10.1 | General | See 2.10.3, 2.10.4 and 2.10.5. | Pass |
| 2.10.2 | Determination of working voltage | The unit was connected to a 240 V TN power system. | Pass |
| 2.10.3 | Clearances | See below, Annex G was not considered. | Pass |
| 2.10.3.1 | General | Annex F and minimum clearances considered. | Pass |
| 2.10.3.2 | Clearances in primary circuit | In the approved power supply. | Pass |
| 2.10.3.3 | Clearances in secondary circuits | See 5.3.4. | N.A. |
| 2.10.3.4 | Measurement of transient voltage levels | No transient voltage across the clearances lower than due or normal. | N.A. |
| 2.10.4 | Creepage distances | In the approved power supply. | Pass |
| | CTI tests..... | The CTI rating is considered min. 100 (Group IIIb) for all insulation materials | — |
| 2.10.5 | Solid insulation | | N.A. |

| | | | |
|---|---|---|---|
| 2.10.5.1 | Minimum distance through insulation | | N.A. |
| 2.10.5.2 | Thin sheet material | Part of certified power supply. | Pass |
| | Number of layers (pcs) ..... | | — |
| | Electric strength test | | — |
| 2.10.5.3 | Printed boards ..... | | N.A. |
| | Distance through insulation | | N.A. |
| | Electric strength test for thin sheet insulating material | | — |
| | Number of layers (pcs) ..... | | N.A. |
| 2.10.5.4 | Wound components..... | No wound components without interleaved insulation. | N.A. |
| | Number of layers (pcs) ..... | | N.A. |
| | Two wires in contact inside wound component; angle between 45° and 90° ..... | | N.A. |
| 2.10.6 | Coated printed boards | No coated printed wiring boards. | N.A. |
| 2.10.6.1 | General | | N.A. |
| 2.10.6.2 | Sample preparation and preliminary inspection ... | | N.A. |
| 2.10.6.3 | Thermal cycling..... | | N.A. |
| 2.10.6.4 | Thermal ageing..... | | N.A. |
| 2.10.6.5 | Electric strength test | | N.A. |
| 2.10.6.6 | Abrasion resistance test ..... | | N.A. |
| | Electric strength test | | N.A. |
| 2.10.7 | Enclosed and sealed parts..... | No hermetically sealed or enclosed components used. | N.A. |
| | Temperature $T_1=T_2 = T_{ma} - T_{amb}$ +10K (°C)..... | | N.A. |
| 2.10.8 | Spacings filled by insulating compound..... | Photocouplers are approved components in the approved power supply. Other components not applied for. | N.A. |
| | Electric strength test | | N.A. |
| 2.10.9 | Component external terminations | | N.A. |
| 2.10.10 | Insulation with varying dimensions | | N.A. |

| | | |
|---|---|---|
| **3** | **WIRING, CONNECTIONS AND SUPPLY** | **Pass** |

| | | | |
|---|---|---|---|
| **3.1** | **General** | | **Pass** |
| 3.1.1 | Current rating and overcurrent protection | All wires/conductors possess adequate cross-sectional areas for their intended application and Internal wiring are adequately insulated. | Pass |

| | | | |
|---|---|---|---|
| 3.1.2 | Protection against mechanical damage | The wires are well routed away from sharp edges, etc. and are adequately fixed to prevent excessive strain on wire and terminals. | Pass |
| 3.1.3 | Securing of internal wiring | The wires are positioned in such a manner that prevents excessive strain, loosening of terminal connections and damage of conductor insulation. | Pass |
| 3.1.4 | Insulation of conductors | Insulation on internal conductors is considered to be of adequate quality and suitable for the application and the working voltages involved. All internal wirings are UL Recognized and rated minimum 300 Vac. | Pass |
| 3.1.5 | Beads and ceramic insulators | Not used. | N.A. |
| 3.1.6 | Screws for electrical contact pressure | Electrical connections screwed two or more complete threads into metal. | Pass |
| 3.1.7 | Insulation materials in electrical connections | All current carrying connections are metal to metal. | Pass |
| 3.1.8 | Self-tapping and spaced thread screws | No self-tapping or spaced thread screws used. | Pass |
| 3.1.9 | Termination of conductors | All conductors are reliably secured. | Pass |
| | 10 N pull test | Ditto. | Pass |
| 3.1.10 | Sleeving on wiring | No sleeving used as supplementary insulation. | N.A. |

| **3.2** | **Connection to a.c. mains supplies or d.c. mains supply** | | **Pass** |
|---|---|---|---|
| 3.2.1 | Means of connection | Provided with an appliance inlet. | Pass |
| 3.2.1.1 | Connection to an a.c. mains supply | | Pass |
| 3.2.1.2 | Connection to a d.c. mains supply | | Pass |
| 3.2.2 | Multiple supply connections | Only one supply connector. | N.A. |
| 3.2.3 | Permanently connected equipment | The unit is not permanently connected equipment. | N.A. |
| | Number of conductors, diameter (mm) of cable and conduits ..... | Ditto. | — |
| 3.2.4 | Appliance inlets | Part of certified power supply | Pass |
| 3.2.5 | Power supply cords | No power supply cord provided. | N.A. |
| 3.2.5.1 | AC Power supply cords | Ditto. | N.A. |
| | Type ..... | | — |
| | Rated current (A), cross-sectional area ($mm^2$), AWG..... | | — |
| 3.2.5.2 | DC power supply cords | Ditto. | N.A. |
| 3.2.6 | Cord anchorages and strain relief | No cord anchorages and strain relief. | N.A. |

| | | | |
|---|---|---|---|
| | Mass of equipment (kg), pull (N) ..... | | — |
| | Longitudinal displacement (mm) ..... | | — |
| 3.2.7 | Protection against mechanical damage | There are no parts of this equipment, which may damage the power supply cord to be provided. | Pass |
| 3.2.8 | Cord guards | No cord guards provided. | N.A. |
| | D (mm); test mass (g) ..... | | — |
| | Radius of curvature of cord (mm)..... | | — |
| 3.2.9 | Supply wiring space | Appliance inlet provided. | N.A. |

| **3.3** | **Wiring terminals for connection of external conductors** | | **N.A.** |
|---|---|---|---|
| 3.3.1 | Wiring terminals | Detachable power supply cord used. | N.A. |
| 3.3.2 | Connection of non-detachable power supply cords | | N.A. |
| 3.3.3 | Screw terminals | | N.A. |
| 3.3.4 | Conductor sizes to be connected | | N.A. |
| | Rated current (A), cord/cable type, cross-sectional area ($mm^2$) ..... | | — |
| 3.3.5 | Wiring terminal sizes | | N.A. |
| | Rated current (A), type and nominal thread diameter (mm)..... | | N.A. |
| 3.3.6 | Wiring terminals design | | N.A. |
| 3.3.7 | Grouping of wiring terminals | | N.A. |
| 3.3.8 | Stranded wire | | N.A. |

| **3.4** | **Disconnection from the a.c. mains supply** | | **Pass** |
|---|---|---|---|
| 3.4.1 | General requirement | | Pass |
| 3.4.2 | Disconnect devices | Appliance inlet is provided as disconnection device. | Pass |
| 3.4.3 | Permanently connected equipment | Not a permanently connected equipment. | N.A. |
| 3.4.4 | Parts which remain energized | When the inlet disconnected there are not remaining parts at hazardous voltage in the equipment. | Pass |
| 3.4.5 | Switches in flexible cords | Not provided. | N.A. |
| 3.4.6 | Single-phase equipment and d.c. equipment | The appliance inlet disconnects both poles simultaneously. | Pass |
| 3.4.7 | Three-phase equipment | Single phase. | N.A. |
| 3.4.8 | Switches as disconnect devices | | N.A. |
| 3.4.9 | Plugs as disconnect devices | | N.A. |

| | | | |
|---|---|---|---|
| 3.4.10 | Interconnected equipment | | N.A. |
| 3.4.11 | Multiple power sources | Single mains supply. | N.A. |

| **3.5** | **Interconnection of equipment** | | **Pass** |
|---|---|---|---|
| 3.5.1 | General requirements | See below. | Pass |
| 3.5.2 | Types of interconnection circuits..... | Interconnection circuit of SELV through the connectors. No ELV interconnection circuit. | Pass |
| 3.5.3 | ELV circuits as interconnection circuits | No ELV interconnection. | N.A. |

| **4** | **PHYSICAL REQUIREMENTS** | **Pass** |
|---|---|---|

| **4.1** | **Stability** | | **N.A.** |
|---|---|---|---|
| | Angle of 10° | Building-in equipment, need to be evaluated in end product | N.A. |
| | Test: force (N)..... | Equipment is not a floor-standing unit. | N.A. |

| **4.2** | **Mechanical strength** | | **Pass** |
|---|---|---|---|
| 4.2.1 | General | See below. After the tests, the equipment complies with the requirements of sub-clause 2.1.1, 2.6.1 and 2.10. | Pass |
| 4.2.2 | Steady force test, 10 N | 10 N force is applied with all components other than enclosure. | Pass |
| 4.2.3 | Steady force test, 30 N | No internal enclosure. | N.A. |
| 4.2.4 | Steady force test, 250 N | 250 N force is applied to outer enclosure. No energy or other hazardous. | Pass |
| 4.2.5 | Impact test | No hazard as result from steel ball impact test. | Pass |
| | Fall test | Ditto. | Pass |
| | Swing test | Ditto. | Pass |
| 4.2.6 | Drop test | | N.A. |
| 4.2.7 | Stress relief test | Metallic enclosure, not applicable. | N.A. |
| 4.2.8 | Cathode ray tubes | No Cathode ray tubes. | — |
| | Picture tube separately certified..... | | N.A. |
| 4.2.9 | High pressure lamps | No high pressure lamps. | N.A. |
| 4.2.10 | Wall or ceiling mounted equipment; force (N) ..... | | N.A. |

| **4.3** | **Design and construction** | **Pass** |
|---|---|---|

| | | | |
|---|---|---|---|
| 4.3.1 | Edges and corners | Edges and corners of the enclosure are rounded. | Pass |
| 4.3.2 | Handles and manual controls; force (N)..... | | N.A. |
| 4.3.3 | Adjustable controls | No setting or adjustment would create a hazard. | N.A. |
| 4.3.4 | Securing of parts | Electrical and mechanical connections can be expected to with standard usual mechanical stress. For the protection solder pins are used. | Pass |
| 4.3.5 | Connection of plugs and sockets | Mismatch of connectors were prevented by incompatible from or location. | Pass |
| 4.3.6 | Direct plug-in equipment | Not direct plug-in equipment. | N.A. |
| | Dimensions (mm) of mains plug for direct plug-in | | N.A. |
| | Torque and pull test of mains plug for direct plug-in; Torque (Nm); pull (N)..... | | — |
| 4.3.7 | Heating elements in earthed equipment | No heating elements. | N.A. |
| 4.3.8 | Batteries | Non-rechargable lithium type RTC battery :<br>- The battery is protected from reverse charging by diode D1 and R208. | Pass |
| 4.3.9 | Oil and grease | No oil and grease. | N.A. |
| 4.3.10 | Dust, powders, liquids and gases | Equipment in intended use not considered to be exposed to these. | Pass |
| 4.3.11 | Containers for liquids or gases | No container for liquid or gas. | N.A. |
| 4.3.12 | Flammable liquids..... | No flammable liquid. | N.A. |
| | Quantity of liquid (l)..... | | N.A. |
| | Flash point (°C)..... | | N.A. |
| 4.3.13 | Radiation; type of radiation ..... | No ionising radiation or laser or flammable liquids presents. LED power is far below LED class 1 unit. | Pass |
| 4.3.13.1 | General | | N.A. |
| 4.3.13.2 | Ionizing radiation | | N.A. |
| | Measured radiation (pA/kg) ..... | | — |
| | Measured high-voltage (kV) ..... | | — |
| | Measured focus voltage (kV) ..... | | — |
| | CRT markings ..... | | — |
| 4.3.13.3 | Effect of ultraviolet (UV) radiation on materials | | N.A. |
| | Part, property, retention after test, flammability classification ..... | | N.A. |
| 4.3.13.4 | Human exposure to ultraviolet (UV) radiation ..... | | N.A. |

| | | | |
|---|---|---|---|
| 4.3.13.5 | Laser (including LEDs) | | N.A. |
| | Laser class ..... | | N.A. |
| 4.3.13.6 | Other types ..... | | — |

| **4.4** | **Protection against hazardous moving parts** | | **N.A.** |
|---|---|---|---|
| 4.4.1 | General | Building-in equipment, need to be evaluated in end product | N.A. |
| 4.4.2 | Protection in operator access areas | | N.A. |
| 4.4.3 | Protection in restricted access locations | | N.A. |
| 4.4.4 | Protection in service access areas | | N.A. |

| **4.5** | **Thermal requirements** | | **Pass** |
|---|---|---|---|
| 4.5.1 | Maximum temperatures | Refer to appended table 4.5.1 below for heating test result. | Pass |
| | Normal load condition per Annex L | Operated in the most unfavourable way of operation given in the operating instructions until steady conditions established. | Pass |
| 4.5.2 | Resistance to abnormal heat | No thermoplastic part at hazard voltage. | N.A. |

| **4.6** | **Openings in enclosures** | | **N.A.** |
|---|---|---|---|
| 4.6.1 | Top and side openings | Building-in equipment, need to be evaluated in end product | N.A. |
| | Dimensions (mm) ..... | | |
| 4.6.2 | Bottoms of fire enclosures | | N.A. |
| | Construction of the bottom ..... | | — |
| 4.6.3 | Doors or covers in fire enclosures | | N.A. |
| 4.6.4 | Openings in transportable equipment | | N.A. |
| 4.6.5 | Adhesives for constructional purposes | | N.A. |
| | Conditioning temperatuire (°C)/time (weeks) | | — |

| **4.7** | **Resistance to fire** | | **Pass** |
|---|---|---|---|
| 4.7.1 | Reducing the risk of ignition and spread of flame | See below. | Pass |
| | Method 1, selection and application of components wiring and materials | Use of materials with the required flammability classes. | Pass |
| | Method 2, application of all of simulated fault condition tests | This method is not used. | N.A. |
| 4.7.2 | Conditions for a fire enclosure | See below. | Pass |

| | | | |
|---|---|---|---|
| 4.7.2.1 | Parts requiring a fire enclosure | With having the following components:<br>Open frame power<br>● Components in primary<br>● Insulated wiring<br>● Components in secondary not supplied by LPS.<br>The fire enclosure is required. | Pass |
| 4.7.2.2 | Parts not requiring a fire enclosure | Ditto. | N.A. |
| 4.7.3 | Materials | See below. | Pass |
| 4.7.3.1 | General | PCB rated V-1 or better. | Pass |
| 4.7.3.2 | Materials for fire enclosures | This equipment is for building-in.<br>Compliance shall be evaluated for the final system. | N.A. |
| 4.7.3.3 | Materials for components and other parts outside fire enclosures | Ditto. | N.A. |
| 4.7.3.4 | Materials for components and other parts inside fire enclosures | Internal components except small parts are V-2 better. | Pass |
| 4.7.3.5 | Materials for air filter assemblies | No air filter provided. | N.A. |
| 4.7.3.6 | Materials used in high-voltage components | No high voltage component provided. | N.A. |

| | | |
|---|---|---|
| **5** | **ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS** | **Pass** |

| | | | |
|---|---|---|---|
| **5.1** | **Touch current and protective conductor current** | | **Pass** |
| 5.1.1 | General | See sub-clause 5.1.2 to 5.1.6. | Pass |
| 5.1.2 | Equipment under test (EUT) | EUT has only one mains connection. | Pass |
| 5.1.3 | Test circuit | Equipment of figure 5A test. | Pass |
| 5.1.4 | Application of measuring instrument | Using measuring instrument in annex D. | Pass |
| 5.1.5 | Test procedure | The touch current was measured from primary to earth. | Pass |
| 5.1.6 | Test measurements | See below. | Pass |
| | Test voltage (V) ..... | 254 Vac, 60 Hz | — |
| | Measured touch current (mA) ..... | 1.35 mA (line to earth),<br>1.35 mA (neutral to earth)<br>→Power Switch On.<br>2.15 mA (line to earth),<br>0.55 mA (neutral to earth)<br>→Power Switch Off.<br>The above test conditions are the most unfavourable combination. | — |
| | Max. allowed touch current (mA) ..... | 3.5 mA | — |

| | | | |
|---|---|---|---|
| | Measured protective conductor current (mA) ..... | | — |
| | Max. allowed protective conductor current (mA).. | | — |
| 5.1.7 | Equipment with touch current exceeding 3.5 mA ..... | Touch current is < 3.5mA. | N.A. |
| 5.1.8 | Touch currents to and from telecommunication networks and cable distribution systems and from telecommunication networks | No TNV. | N.A. |
| 5.1.8.1 | Limitation of the touch current to a telecommunication network and a cable distribution system | | N.A. |
| | Test voltage (V) ..... | | — |
| | Measured current (mA) ..... | | — |
| | Max. allowed current (mA) ..... | | — |
| 5.1.8.2 | Summation of touch currents from telecommunication networks..... | | N.A. |

| **5.2** | **Electric strength** | | **Pass** |
|---|---|---|---|
| 5.2.1 | General | Based on the electric strength test the use of the insulating materials within the equipment is satisfactory.<br>(see appended table 5.2) | Pass |
| 5.2.2 | Test procedure | No insulation breakdown detected during the test.<br>(see appended table 5.2) | Pass |

| **5.3** | **Abnormal operating and fault conditions** | | **Pass** |
|---|---|---|---|
| 5.3.1 | Protection against overload and abnormal operation | Ventilation openings blocked test: Results see appended table, no hazards.<br>Beside this, there is no other foreseeable misuse likely to happen. | Pass |
| 5.3.2 | Motors | Certified components used. | Pass |
| 5.3.3 | Transformers | Part of certified power supply | N.A. |
| 5.3.4 | Functional insulation..... | Functional insulation between the phases before the fuse complies with method (a), other operation insulation complies with method (c). | Pass |
| 5.3.5 | Electromechanical components | No electromechanical component. | N.A. |

| | | | |
|---|---|---|---|
| 5.3.6 | Simulation of faults | Faults in primary and secondary components and Functional insulation were already considered during the approval of the SPS.<br>Blocked ventilation and DC fan locked test:<br>Result see appended table 5.3. | Pass |
| 5.3.7 | Unattended equipment | No such components. | N.A. |
| 5.3.8 | Compliance criteria for abnormal operating and fault conditions | No fire, emission of molten metal or deformation was noted during the tests. | Pass |
| 5.3.8.1 | During the tests | Ditto. | Pass |
| 5.3.8.2 | After the tests | Ditto. | Pass |

| | | |
|---|---|---|
| **6** | **CONNECTION TO TELECOMMUNICATION NETWORKS** | **N.A.** |

| | | | |
|---|---|---|---|
| **6.1** | **Protection of telecommunication network service personnel, and users of other equipment connected to the network, from hazards in the equipment** | | **N.A.** |
| 6.1.1 | Protection from hazardous voltages | | N.A. |
| 6.1.2 | Separation of the telecommunication network from earth | | N.A. |
| 6.1.2.1 | Requirements | | N.A. |
| | Test voltage (V) ..... | | — |
| | Current in the test circuit (mA) ..... | | — |
| 6.1.2.2 | Exclusions..... | | N.A. |

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

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

| | | |
|---|---|---|
| **7** | **CONNECTION TO CABLE DISTRIBUTION SYSTEMS** | **N.A.** |

| | | | |
|---|---|---|---|
| 7.1 | Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment | | N.A. |
| 7.2 | Protection of equipment users from overvoltages on the cable distribution system | | N.A. |
| 7.3 | Insulation between primary circuits and cable distribution systems | | N.A. |
| 7.3.1 | General | | N.A. |
| 7.3.2 | Voltage surge test | | N.A. |
| 7.3.3 | Impulse test | | N.A. |

| A | ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE | | N.A. |
|---|---|---|---|
| A.1 | Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2) | | N.A. |
| A.1.1 | Samples | | — |
| | Wall thickness (mm) | | — |
| A.1.2 | Conditioning of samples; temperature (°C) | | N.A. |
| A.1.3 | Mounting of samples | | N.A. |
| A.1.4 | Test flame | | N.A. |
| A.1.5 | Test procedure | | N.A. |
| A.1.6 | Compliance criteria | | N.A. |
| | Sample 1 burning time (s) | | — |
| | Sample 2 burning time (s) | | — |
| | Sample 3 burning time (s) | | — |
| A.2 | Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4) | | N.A. |
| A.2.1 | Samples | | — |
| | Wall thickness (mm) | | — |
| A.2.2 | Conditioning of samples | | N.A. |
| A.2.3 | Mounting of samples | | N.A. |
| A.2.4 | Test flame | | N.A. |
| A.2.5 | Test procedure | | N.A. |
| A.2.6 | Compliance criteria | | N.A. |
| | Sample 1 burning time (s) | | — |
| | Sample 2 burning time (s) | | — |
| | Sample 3 burning time (s) | | — |
| A.2.7 | Alternative test acc. to IEC 60695-2-2, cl. 4, 8 | | N.A. |
| | Sample 1 burning time (s) | | — |
| | Sample 2 burning time (s) | | — |
| | Sample 3 burning time (s) | | — |
| A.3 | Hot flaming oil test (see 4.6.2) | | N.A. |
| A.3.1 | Mounting of samples | | N.A. |
| A.3.2 | Test procedure | | N.A. |
| A.3.3 | Compliance criterion | | N.A. |

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

| C | ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3) | | N.A. |
|---|---|---|---|
| | Position ..... | | — |
| | Manufacturer ..... | | — |
| | Type ..... | | — |
| | Rated values ..... | | — |
| | Method of protection ..... | | — |
| C.1 | Overload test | | N.A. |
| C.2 | Insulation | | N.A. |
| | Protection from displacement of windings | | N.A. |

| | | | |
|---|---|---|---|
| **D** | **ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS** | | **N.A.** |
| D.1 | Measuring instrument | | N.A. |
| D.2 | Alternative measuring instrument | | N.A. |

| | | |
|---|---|---|
| **E** | **ANNEX E, TEMPERATURE RISE OF A WINDING** | **N.A.** |

| | | |
|---|---|---|
| **F** | **ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10)** | **Pass** |

| | | | |
|---|---|---|---|
| **G** | **ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES** | | **N.A.** |
| G.1 | Summary of the procedure for determining minimum clearances | | N.A. |
| G.2 | Determination of mains transient voltage (V) ..... | | N.A. |
| G.2.1 | AC mains supply | | N.A. |
| G.2.2 | DC mains supply | | N.A. |
| G.3 | Determination of telecommunication network transient voltage (V) ..... | | N.A. |
| G.4 | Determination of required withstand voltage (V) .. | | N.A. |
| G.5 | Measurement of transient levels (V) ..... | | N.A. |
| G.6 | Determination of minimum clearances ..... | | N.A. |

| | | | |
|---|---|---|---|
| **H** | **ANNEX H, IONIZING RADIATION (see 4.3.13)** | | **N.A.** |

| | | | |
|---|---|---|---|
| **J** | **ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)** | | **N.A.** |
| | Metal used ..... | | — |

| | | | |
|---|---|---|---|
| **K** | **ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.7)** | | **N.A.** |
| K.1 | Making and breaking capacity | | N.A. |
| K.2 | Thermostat reliability; operating voltage (V)..... | | N.A. |
| K.3 | Thermostat endurance test; operating voltage (V) ..... | | N.A. |
| K.4 | Temperature limiter endurance; operating voltage (V) ..... | | N.A. |
| K.5 | Thermal cut-out reliability | | N.A. |
| K.6 | Stability of operation | | N.A. |

| L | ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.1) | | Pass |
|---|---|---|---|
| L.1 | Typewriters | | N.A. |
| L.2 | Adding machines and cash registers | | N.A. |
| L.3 | Erasers | | N.A. |
| L.4 | Pencil sharpeners | | N.A. |
| L.5 | Duplicators and copy machines | | N.A. |
| L.6 | Motor-operated files | | N.A. |
| L.7 | Other business equipment | Considered. | Pass |

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

| N | ANNEX N, IMPULSE TEST GENERATORS (see 2.10.3.4, 6.2.2.1, 7.3.2 and clause G.5) | | N.A. |
|---|---|---|---|
| N.1 | ITU-T impulse test generators | | N.A. |
| N.2 | IEC 60065 impulse test generator | | N.A. |

| P | ANNEX P, NORMATIVE REFERENCES | N.A. |
|---|---|---|

| Q | ANNEX Q, BIBLIOGRAPHY | N.A. |
|---|---|---|

| R | ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES | | N.A. |
|---|---|---|---|
| R.1 | Minimum separation distances for unpopulated coated printed boards (see 2.10.6) | | N.A. |
| R.2 | Reduced clearances (see 2.10.3) | | N.A. |

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

| T | ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER | | N.A. |
|---|---|---|---|
| | | See separate test report (reference to standard clause 1.1.2) | — |

| U | ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4). | | N.A. |
|---|---|---|---|
| | Separate test report | | — |

| V | ANNEX V, AC POWER DISTRIBUTION SYSTEMAS (see 16.1) | | N.A. |
|---|---|---|---|
| V.1 | Introduction | | N.A. |
| V.2 | TN power distribution systems | | N.A. |

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

| X | ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1) | | N.A. |
|---|---|---|---|
| X.1 | Determination of maximum input current | | N.A. |
| X.2 | Overload test procedure | | N.A. |

| Y | ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3) | | N.A. |
|---|---|---|---|
| Y.1 | Test apparatus | | N.A. |
| Y.2 | Mounting of test samples | | N.A. |

| | | | |
|---|---|---|---|
| Y.3 | Carbon-arc light-exposure apparatus | | N.A. |
| Y.4 | Xenon-arc light-exposure apparatus | | N.A. |

| 1.5.1 | TABLE: list of critical components | | | | Pass |
|---|---|---|---|---|---|
| object/part No. | manufacturer/ trademark | type/model | technical data | standard | mark(s) of conformity |
| Power Supply | FSP Group | FSP250-601U | I/P: 100-240Vac, 50-60Hz, 5A;<br>O/P: +3.3V/16A<br>+5V/25 A,<br>+12V/13A,<br>-5V/0.3A,<br>-12V/0.8A<br>+5Vsb/2A,<br>+3.3V & +5V max. 145W.<br>Max. total output 250W. | IEC 60950-1 | CB by Nemko |
| TFT-LCD Module **(for model APC-8172HTT-A1)** | AU | LM170EN050 | 17" TFT type, supply by LCC | -- | -- |
| D/A Inverter (for 17") | ATBEL | QF132V1.16 | I/P: 12 Vdc, 2050 mA max.<br>O/P: 760 Vrms, 6.7 mArms max. | -- | -- |
| -- Transformer (T1, T2) for inverter | ATBEL | TF505C | Class 105 °C | -- | -- |
| TFT-LCD Module **(for model APC-8152HTT-A1)** | AU | LM150XN070 | 15" TFT type, supply by LCC | -- | -- |
| D/A Inverter | Hwa Youn | QF133V1.15 | I/P: 12 Vdc, 1100 mA max.<br>O/P: 690 Vrms, 8.0 mArms max. | -- | -- |
| -- Transformer (T1) for inverter | Hwa Youn | TF502C | Class 105 °C | -- | -- |
| Hard Disk Drive (optional) | -- | -- | 5 Vdc, 0.72 A<br>12 Vdc, 0.35A Max. | EN 60950 | TUV |
| CD ROM (optional) | -- | -- | 5 Vdc, max. 1.5 A<br>Laser Class 1. | EN 60950<br>EN 60825-1 | TUV |
| Cooler Fan | Bi-Sonic | BS701512H | 12 Vdc, 0.28 A<br>36.26 CFM | UL 507 | UL |
| System Fan | Sunonwealth | GM1206PHV2-A | 12 Vdc, 0.08 A<br>18 CFM | UL 507 | UL |

| | | | | | |
|---|---|---|---|---|---|
| RTC Battery (BT1) | Matsushita | CR 2032 | 3 Vdc, 5 mA | -- | UL |
| | Mitsubishi | CR 2032 | 3 Vdc, 10 mA | -- | UL |
| | Wuhan Lixing (Torch) | CR 2032 | 3 Vdc, 5 mA | -- | UL |
| | Toshiba | CR 2032 | 3 Vdc, 10 mA | -- | UL |
| | Hitachi maxell | CR 2032 | 3 Vdc, 10 mA | -- | UL |
| | Sony | CR 2032 | 3 Vdc, 10 mA | -- | UL |
| PCB | -- | -- | Min. V-1, 105 °C | UL 94 | UL |
| Enclosure | -- | -- | Sheet metal, min. 1.2 thickness | -- | -- |
| * Additional testing and evaluation may be required based on auditing agency's discretion. | | | | | |

| 1.6.2 | TABLE: electrical data (in normal conditions) | | | | | Pass |
|---|---|---|---|---|---|---|
| fuse # | $I_{rated}$ (A) | U (V) | P (W) | I (A) | $I_{fuse}$ (mA) | condition/status |
| **for Model APC-8172HTT-A1** | | | | | | |
| -- | -- | 90V/50Hz | 115.1 | 1.292 | 1.292 | Maximum Normal Load. |
| -- | -- | 90V/60Hz | 115.1 | 1.291 | 1.291 | Ditto. |
| -- | 5 | 100V/50Hz | 114.4 | 1.154 | 1.154 | Ditto. |
| -- | 5 | 100V/60Hz | 114.2 | 1.153 | 1.153 | Ditto. |
| -- | 5 | 240V/50Hz | 109.1 | 0.550 | 0.550 | Ditto. |
| -- | 5 | 240V/60Hz | 109.1 | 0.530 | 0.530 | Ditto. |
| -- | -- | 254V/50Hz | 108.7 | 0.536 | 0.536 | Ditto. |
| -- | -- | 254V/60Hz | 108.6 | 0.524 | 0.524 | Ditto. |
| **for Model APC-8152HTT-A1** | | | | | | |
| -- | -- | 90V/50Hz | 80.0 | 0.893 | 0.893 | Maximum Normal Load. |
| -- | -- | 90V/60Hz | 79.8 | 0.891 | 0.891 | Ditto. |
| -- | 5 | 100V/50Hz | 78.6 | 0.787 | 0.787 | Ditto. |
| -- | 5 | 100V/60Hz | 78.6 | 0.785 | 0.785 | Ditto. |
| -- | 5 | 240V/50Hz | 74.4 | 0.398 | 0.398 | Ditto. |
| -- | 5 | 240V/60Hz | 74.8 | 0.400 | 0.400 | Ditto. |
| -- | -- | 254V/50Hz | 74.0 | 0.390 | 0.390 | Ditto. |
| -- | -- | 254V/60Hz | 74.1 | 0.388 | 0.388 | Ditto. |
| Comments: | | | | | | |
| Maximum normal load : Maximum brightness, play programs and each USB port loaded 0.5 A. | | | | | | |

| 2.10.3 and 2.10.4 | TABLE: clearance and creepage distance measurements | | | | | N.A. |
|---|---|---|---|---|---|---|
| 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) |
| | | | | | | |
| | | | | | | |
| Note: . | | | | | | |

| 2.10.5 | TABLE: distance through insulation measurements | | | N.A. |
|---|---|---|---|---|
| distance through insulation di at/of: | U r.m.s. (V) | test voltage (V) | required di (mm) | di (mm) |
| | | | | |
| | | | | |

| 4.5 | TABLE: maximum temperatures | | | | | | Pass |
|---|---|---|---|---|---|---|---|
| | test voltage (V) ..... | 90 Vac | 254 Vac | | | | — |
| | $t_{amb1}$ (ºC) ..... | | | | | | — |
| | $t_{amb2}$ (ºC) ..... | 40 | 40 | | | | — |
| temperature rise dT of part/at: | | T (ºC) | | | | | allowed $T_{max}$ (ºC) |
| **for Model APC-8172HTT-A1** | | | | | | | |
| LF1 Coil | Power Supply | 55.6 | 53.5 | | | | 105 |
| L10A Coil | Power Supply | 56.6 | 55.0 | | | | 105 |
| L11 Coil | Power Supply | 65.9 | 60.4 | | | | 105 |
| T1 Coil | Power Supply | 54.4 | 54.6 | | | | 90 |
| T2 Coil | Power Supply | 51.9 | 51.8 | | | | 105 |
| L88 Coil | | 55.4 | 55.3 | | | | 105 |
| EC8 Body | | 56.2 | 56.1 | | | | 105 |
| PCB near CPU heatsink | | 56.2 | 56.1 | | | | 105 |
| PCB near U2 heatsink | | 56.8 | 56.4 | | | | 105 |
| PCB near U8 | | 60.2 | 60.2 | | | | 105 |
| BT1 Body | | 56.9 | 56.8 | | | | 105 |
| H.D.D Body | | 49.2 | 51.1 | | | | 105 |
| CD-ROM Body | | 46.4 | 46.5 | | | | 105 |
| L1 coil | D/A inverter | 83.9 | 83.7 | | | | 105 |
| T1 coil | D/A inverter | 80.5 | 80.4 | | | | 105 |
| Enclosure Outside | | 42.3 | 42.0 | | | | 45 |
| **for Model APC-8152HTT-A1** | | | | | | | |
| LF1 Coil | Power Supply | 52.1 | 49.8 | | | | 105 |
| L10A Coil | Power Supply | 54.0 | 51.8 | | | | 105 |
| L11 Coil | Power Supply | 59.1 | 52.8 | | | | 105 |
| T1 Coil | Power Supply | 48.8 | 48.2 | | | | 90 |
| T2 Coil | Power Supply | 50.1 | 49.4 | | | | 105 |
| L88 Coil | | 50.5 | 49.6 | | | | 105 |
| EC8 Body | | 50.8 | 50.2 | | | | 105 |
| PCB near CPU heatsink | | 49.4 | 48.6 | | | | 105 |
| PCB near U2 heatsink | | 50.5 | 49.7 | | | | 105 |
| PCB near U8 | | 52.5 | 51.4 | | | | 105 |
| BT1 Body | | 50.8 | 50.0 | | | | 105 |
| H.D.D Body | | 47.6 | 46.9 | | | | 105 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| CD-ROM Body | | 54.9 | 44.1 | | | | 105 |
| L1 coil | D/A inverter | 69.3 | 69.0 | | | | 105 |
| T1 coil | D/A inverter | 62.4 | 62.2 | | | | 105 |
| Enclosure Outside | | 41.8 | 41.2 | | | | 45 |
| | | | | | | | |
| | | | | | | | |

| temperature T of winding: | R1 (Ω) | R2 (Ω) | dT (ºK) | allowed $T_{max}$ (ºC) | insulation class |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

| **4.5.2** | **TABLE: ball pressure test of thermoplastics parts** | | **N.A.** |
|---|---|---|---|
| | required impression diameter (mm) ..... : | ≤ 2 mm | — |

| part: | test temperature (ºC) | impression diameter (mm) |
|---|---|---|
| | | |
| | | |

| **5.2** | **TABLE: electric strength tests, impulse tests and voltage surge tests** | **Pass** |
|---|---|---|

| test voltage applied between: | test voltage (V) a.c. / d.c. | breakdown |
|---|---|---|
| Primary to SELV (output connector) | 4242 Vdc | NB |
| Primary to Earth | 3000 Vdc | NB |
| | | |

| **5.3** | **TABLE: fault condition tests** | | **Pass** |
|---|---|---|---|
| | ambient temperature (ºC) ..... : | 25 | — |
| | model/type of power supply ..... : | FSP250-601U | — |
| | manufacturer of power supply ..... : | FSP Group | — |
| | rated markings of power supply ..... : | I/P: 100-240Vac, 50-60Hz, 5A;<br>O/P: +3.3V/16A<br>+5V/25 A, +12V/13A,<br>-5V/0.3A,<br>-12V/0.8A<br>+5Vsb/2A,<br>+3.3V & +5V max. 145W.<br>Max. total output 250W. | — |

| No. | component No. | fault | test voltage (V) | test time | fuse No. | fuse current (A) | result |
|---|---|---|---|---|---|---|---|

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | Openings | Blocked | 240 | 4.5 hrs | Fuse | -- | Unit normally operation, max temp. at L1 coil of D/A inverter = 73.7 ºC, no damaged, no hazards. |
| 2 | Unit Fan | Locked | 240 | 3 hrs | Fuse | -- | Unit normally operation, max temp. at L1 coil of D/A inverter = 78.6 ºC, no damaged, no hazards. |
| 3 | CPU Fan | Locked | 240 | 2.5 hrs | Fuse | -- | Unit normally operation, max temp. at L1 coil of D/A inverter = 70.2 ºC, no damaged, no hazards. |

supplementary information

oc: open circuited
sc: short circuited

| | | | |
|---|---|---|---|
| **APPENDIX** | **CENELEC common modifications (Group differences), Special national conditions and A-deviations according to CB Bulletin No. 103A, July 2002**<br>**EN 60950: 2000**<br>**(BS EN 60950:2000, NEK EN 60950, SS EN 6950 6th ed)**<br>**(IEC Publication 60950: 1999)** | | **Pass** |
| **EXPLANATION FOR ABBREVIATIONS**<br>**C=CENELEC common modification, S=Special national condition, A=A-deviations**<br>**CH=Switzerland, DE=Germany, DK=Denmark, ES=Spain, FI=Finland, GB=United Kingdom, IE=Ireland, NO=Norway, SE=Sweden.**<br>**P=Pass, F=Fail, N=Not applicable. Placed in the column to the right.** | | | |
| 1.2.4.1 S | (DK) In Denmark, certain types of Class I appliances (see subclause 3.2.1) may be provided with a plug not establishing earthing continuity when inserted into Danish socket-outlets. | No power cord provided. | N.A. |
| 1.5.1 A | (SE) Add the following:<br>NOTE: In Sweden, switches containing mercury such as thermostats, relays and level controllers are not allowed. | No switch contains mercury provided. | Pass |
| 1.5.1 A | (CH) Switzerland (Ordinance on environmentally hazardous substances SR 814.013, Annex 3.2, Mercury)<br>Add the following:<br>NOTE: in Switzerland, switches containing mercury such as thermostats, relays and level controllers are not allowed. | No switch contains mercury provided. | N.A. |
| 1.5.8 S | (NO) In Norway, due to the IT power system used (see annex V, figure V.7), capacitors are required to be rated for the applicable phase-to-phase voltage (230 V). | No direct connection to AC mains. | N.A. |

| | | | |
|---|---|---|---|
| 1.7.2 A | (DK) Denmark (Heavy Current Regulations)<br>Supply cords of CLASS I EQUIPMENT, which is delivered without a plug, must be provided with a Visible tag with the following text:<br>"Vigtigt!<br>Lederen med grøn/gul isolation<br>mä kun tilsluttes en klemme mærket<br>⏚ eller ⏚".<br>If essential for the safety of the equipment, the tag must in addition be provided with a diagram, which shows the connection of the other conductors, or be provided with the following text:<br>"For tilslutning af de øvrige ledere, se medfølgende installationsvejledning". | No power cord provided. | N.A. |
| 1.7.2 S | (SE) In Sweden, if the separation between the mains and SELV terminal relies upon connection to the safety earth, the apparatus shall have a marking stating that it must be connected to an earthed mains socket-outlet.<br>The marking shall be in Swedish and as follows:<br>"Apparaten skall anslutas till jordat uttag när den ansluts till ett nätverk". | No direct connection to AC mains. | N.A. |
| 1.7.2 S | (NO) In Norway, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a communication network shall, if safety relies on connection to safety earth, require a marking stating that the equipment must be connected to an earthed mains socket-outlet. | No outlet | N.A. |
| 1.7.5 A | (DK) Denmark (Heavy Current Regulations)<br>CLASS II EQUIPMENT shall not be fitted with socket-outlets for providing power to other equipment. | No outlet. | N.A. |
| 1.7.5 S | (DK) In Denmark, socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-DI, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. | No outlet. | N.A. |

| | | | |
|---|---|---|---|
| 1.7.12 A | (DE) Germany (Gesetz über technische Arbeitsmittel (Gerätesicherheitsgesetz) [Law on technical labour equipment {Equipment safety law}] of 23rd October 1992, Article 3, 3rd paragraph, 2nd sentence, together with the "Allgemeine Verwaltungsvorschrift zur Durchführung des Zweiten Abschnitts des Gerätesicherheitsgesetzes" [General administrative regulation on the execution of the Second Section of the Equipment safety law], of 10th January 1996, article 2, 4th paragraph, item 2)<br><br>Directions for use with rules to prevent certain hazards for (among others) maintenance of the technical labour equipment, also for imported technical labour equipment shall be written in the German language.<br><br>NOTE: Of this requirement, rules for use even only by service personnel are not exempted. | Not technical labor equipment. | N.A. |
| 1.7.15 A | (CH) Switzerland (Ordinance on environmentally hazardous substances SR 814.013)<br><br>Annex 4. 10 of SR 814.013 applies for batteries. | The lithium battery is not user replaceable. | N.A. |
| 2.2.4 S | (NO) In Norway, requirements according to this annex, sub-clauses 1.7.2 and 6.1.2.1 apply. | No TNV. | N.A. |
| 2.3.2 S | (NO) In Norway, requirements according to this annex, sub-clause 6.1.2.1 apply. | No TNV. | N.A. |
| 2.3.3 S | (NO) In Norway, requirements according to this annex, sub-clause 6.1.2.1 apply. | No TNV. | N.A. |
| 2.3.4 S | (NO) In Norway, requirements according to this annex, sub-clauses 1.7.2 and 6.1.2.1 apply. | No TNV. | N.A. |

| | | | |
|---|---|---|---|
| 2.7.1 C | Replace the subclause as follows:<br>Basic requirements<br>To protect against excess current, short circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as a part of the building installation, subject to the following a), b) and c)<br>Except as detailed in b) and c), protective devices necessary to comply with the requirements of subclause 6.3 shall be included as parts of the equipment.<br>For components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i filter and switch, short circuit and earth fault protection may be provided by protective devices in the building installation.<br>It is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT to rely on dedicated overcurrent and short circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instruction.<br>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet. | Class III equipment. | N.A. |
| 2.7.2 C | This subclause has been declared 'Void'. | | N.A. |

| | | | |
|---|---|---|---|
| 2.10.3.1 S | (NO) In Norway, due to the IT power distribution system used (see annex V, figure V.7), the A.C. MAINS SUPPLY voltage is considered to be equal to the line-to-line voltage, and will remain at 230 V in case of a single earth fault.<br>SEV 6532-2. 1991 Plug Type 15 3P+N+PE 250/400 V,10 A<br>SEV 6533-2. 1991 Plug Type 11 L+N 250 V, 10 A<br>SEV 6534-2. 1991 Plug Type 12 L+N+PE 250 V, 10 A<br>In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998:<br>SEV 5932-2. 1998 Plug Type 25 3L+N+PE 250/400 V, 16 A<br>SEV 5933-2. 1998 Plug Type 21 L+N 250 V, 16 A<br>SEV 5934-2. 1998 Plug Type 23 L+N+PE 250 V, 16 A | No direct connection to AC mains. | N.A. |
| 3.2.1 S | (DK) In Denmark, supply cords of single-phase equipment having a rated current not exceeding 10A shall be provided with a plug according to the Heavy Current Regulations Section 107-2-DI.<br>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.<br>If poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 10A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations Section 107-2-D1 or EN 60309-2. | No power cord provided. | N.A. |

| | | | |
|---|---|---|---|
| 3.2.1 S | (ES) In Spain, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994<br><br>Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993<br><br>CLASS I EQUIPMENT provided with socket-outlets with earth contacts, or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994.<br><br>If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2. | No power cord provided. | N.A. |
| 3.2.1 S | (GB) In the United Kingdom, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 – The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations.<br><br>NOTE: 'standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug. | No power cord provided. | N.A. |
| 3.2.1 S | (IE) In Ireland, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 – National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997. | No power cord provided. | N.A. |
| 3.2.3 C | Delete NOTE 1, and in table 3A delete the conduit sizes in parentheses. | Deleted. | N.A. |

| | | | |
|---|---|---|---|
| 3.2.5 C | Replace<br>"60245 IEC 53" by "H05 RR-F"<br>"60227 IEC 52" by "H03 VV-F or H03 VVH2-F"<br>"60227 IEC 53" by "H05 VV-F or H05 VVH2-F2"<br>In table 3B, replace the first four lines by the following:<br>Up to and including 6 — 0,75[1)]<br>Over 6 up to and including 10 — (0,75)[2)] — 1,0<br>Over 10 up to and including 16 — (1,0)[3)] — 1,5<br>In the conditions applicable to table 3B, delete the words "in some countries" in condition [1)]<br>In NOTE 1, delete the second sentence. | Replaced. | N.A. |
| 3.2.5 S | (GB) In the United Kingdom, a power supply cord with conductor of 1,25 $mm^2$ is allowed for equipment with a rated current over 10 A and up to and including 13 A. | No power cord provided. | N.A. |
| 3.3.4 C | In table 3D, delete the fourth line – conductor sizes for 10 to 13 A, and replace with the following:<br>Over 10 up to and including 16 — 1,5 to 2,5 — 1,5 to 4<br>Delete the fifth line – conductor sizes for 13 to 16 A. | Replaced. | N.A. |
| 3.3.4 S | (GB) In the United Kingdom, the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is:<br>- 1,25 $mm^2$ to 1,5 $mm^2$ nominal cross-sectional area. | No power cord provided. | N.A. |
| 4.3.6 S | (GB) In the United Kingdom, the torque test is performed using a socket outlet complying with BS 1363 and the plug part Of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125°C. | No direct plug-in equipment. | N.A. |
| 4.3.6 S | (IE) In Ireland, DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 – National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997. | No direct plug-in equipment. | N.A. |

| | | | |
|---|---|---|---|
| 4.3.13 C | Replace the second compliance paragraph by:<br>For equipment using LEDs or lasers, compliance is checked according to EN 60825-1.<br>NOTE 1 - if equipment falling within the scope of EN 60950 is inherently a class 1 laser product, i.e., it contains no embedded laser or LD of a higher class number, then a laser warning label or other laser warning statement is not required (see 1.1 of EN 60825-1).<br>Renumber the NOTE below the third compliance paragraph 2S NOTE 2. | Replaced. | Pass |
| 6.1.2.1 S | (SE, NO) In Sweden and Norway, add the following text between the first and the second paragraph:<br>If the insulation is solid, including insulation forming part of a component, it shall at least consist of either:<br>two layers of thin sheet material, each of which shall pass the electric strength test below, or<br>one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below.<br>If this insulation forms part of a semiconductor component e.g. an optocoupler, there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition:<br>passes the tests and inspection criteria of 2.10.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.7 shall be performed using 1,5 kV); and<br>is subjected to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV.<br>It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2. | No TNV. | N.A. |
| 6.1.2.2 S | (SE, NO, FI) In Sweden, Norway and Finland, the exclusions are applicable to PERMANENTLY CONNECTED EQUIPMENT and PLUGGABLE EQUIPMENT TYPE B only. | No TNV. | N.A. |
| Annex G.2 S | (NO) In Norway, due to the IT power distribution system used (see annex V, figure V.7), the A.C. MAINS SUPPLY voltage is considered to be equal to the line-to-line voltage, and will remain at 230 V in case of a single earth fault. | | N.A. |

| | | | |
|---|---|---|---|
| Annex H C | Replace the last paragraph of this annex by:<br>At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 μSv/h (0,1 mR/h) (see note). Account is taken of the background level.<br>Replace the NOTE as follows:<br>NOTE – These values appear in directive 96/29/Euratorm. | Replaced. | N.A. |

| | | | |
|---|---|---|---|
| Annex H A | (DE) Germany (Regulation on protection against hazards by X-ray, of 8th January 1987, Article 5 [Operation of X-ray emission source], clauses 1 to 4)<br>A licence is required by those who operate an X-ray emission source.<br>A licence in accordance with clause 1 is not required by those who operate an X-ray emission source on which the electron acceleration voltage does not exceed 20 kV if<br>the local dose rate at distance of 0,1 m from the surface does not exceed 1 μSv/h and<br>it is adequately indicated on the X-ray emission source that<br>X-rays are generated and<br>the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer.<br>A licence in accordance with clause 1 is also not required by persons who operate an X-ray emission source on which the electron acceleration voltage exceeds 20 kV if<br>the X-ray, emission source has been granted a type approval and<br>it is adequately indicated on the X-ray emission source that<br>X-rays are generated,<br>the device stipulated by the manufacturer or importer guarantees that the maximum permissible local dose rate in accordance with the type approval is not exceeded and<br>the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer.<br>Furthermore, a licence in accordance with clause 1 is also not required by persons who operate X-ray emission sources on<br>the X-rays are generated only by intrinsically safe CRTs complying with Enclosure III, No. 6,<br>the values stipulated in accordance with Enclosure III, No. 6.2 are limited by technical measures and specified in the device and<br>it is adequately indicated on the X-ray emission source that the X-rays generate are adequately screened by the intrinsically safe CRT. | No CRT. | N.A. |
| Annex P C | Replace the text of this annex by:<br>See annex ZA. | Replaced. | N.A. |

| | | | |
|---|---|---|---|
| Annex Q C | Add the following notes for the standards indicated:<br>IEC 60127 series — NOTE: Harmonized as EN 60127 series (not modified)<br>IEC 60529 — NOTE: Harmonized as EN 60529:1991 (not modified)<br>IEC 61032 — NOTE: Harmonized as EN 61032:1998 (not modified) | Added. | N.A. |
| Annex ZA C | NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR RELEVANT EUROPEAN PUBLICATIONS<br>This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies (including amendments).<br>NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies. | | N.A. |
| | — | IEC 60050-151 | |
| | — | IEC 60050-195 | |
| | EN 60065:1993 + corr. Nov. 1993 | IEC 60065 (mod):1985 [1)] | |
| | EN 60073:1996 | IEC 60073:1996 | |
| | HD 566 S1:1990 | IEC 60085:1984 | |
| | HD 214 S2:1980 | IEC 60112:1979 | |
| | HD 21 [2)] Series | IEC 60227 (mod) Series | |
| | HD 22 [3)] Series | IEC 60245 (mod) Series | |
| | EN 60309 Series | IEC 60309 Series | |
| | EN 60320 Series | IEC 60320 (mod) Series | |
| | HD 384.3 S2:1995 | IEC 60364-3 (mod):1993 | |
| | HD 384.4.41 S2:1996 | IEC 60364-4-41 (mod):1992 | |
| | — | IEC 60384-14:1993 | |
| | EN 60417-1:1999 | IEC 60417-1:1998 | |
| | EN 60417-2:1999 | IEC 60417-2:1998 | |
| | HD 625.1 S1:1996 + corr. Nov. 1996 | IEC 60664-1 (mod):1992 | |
| | EN 60695-2-2/1:1996 | IEC 60695-2-1/1:1994 + corr. May 1995 | |
| | EN 60695-2-2:1994 | IEC 60695-2-2:1991 | |
| | — | IEC 60695-10-2:1995 | |
| | EN 60730-1:1995 | IEC 60730-1:1993 (mod) | |
| | EN 60825-1:1994 + corr. Febr. 1995 + A11:1996 | IEC 60825-1:1993 | |

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|---|---|---|---|
| | EN 60851-3:1996 | IEC 60851-3:1996 | |
| | EN 60851-5:1996 | IEC 60851-5:1996 | |
| | EN 60851-6:1996 | IEC 60851-6:1996 | |
| | — | IEC 60885-1:1987 | |
| | EN 60990:1999 | IEC 60990:1999 | |
| | — | IEC 61058-1:1996 | |
| | — | ISO 261:1998 | |
| | — | ISO 262:1998 | |
| | — | ISO 3864:1984 | |
| | — | ISO 4046:1978 | |
| | — | ISO 7000:1989 | |
| | — | ITU-T Recommendation K.17:1988 | |
| | — | ITU-T Recommendation K.21:1996 | |
| | 1)EN 60065:1993 is superseded by EN 60065:1998 + corrigendum June 1999, which is based on IEC 60065:1998, mod.<br>2) The HD 21 series is related to, but not directly equivalent with the IEC 60227 series<br>3) The HD 22 series is related to, but not directly equivalent with the IEC 60245 series | | |

# Appendix - Photo

1. Front View

Model: APC-8172HTT-A1

# Appendix - Photo

2. Rear View Model: APC-8172HTT-A1

# Appendix - Photo

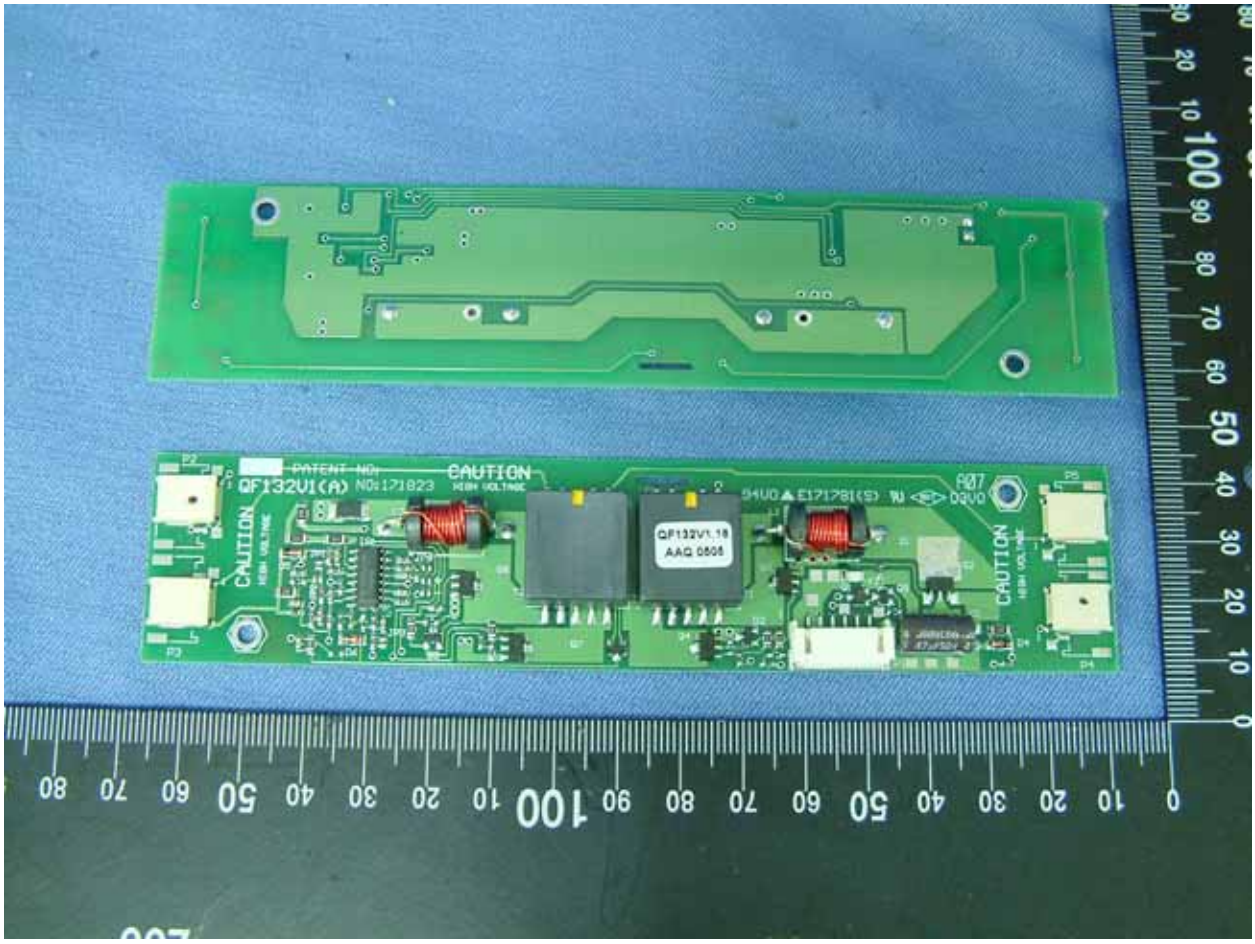
3. Inside View -1 Model: APC-8172HTT-A1

# Appendix - Photo

4. Inside View -2 Model: APC-8172HTT-A1

# Appendix - Photo

5. D/A inverter Model: APC-8172HTT-A1



# Appendix - Photo

6. Front View

Model: APC-8152HTT-A1

# Appendix - Photo

7. Rear View Model: APC-8152HTT-A1

# Appendix - Photo

8. Inside View -1 Model: APC-8152HTT-A1

# Appendix - Photo

9. Inside View -2 Model: APC-8152HTT-A1

# Appendix - Photo

10. D/A inverter Model: APC-8152HTT-A1