

**TEST REPORT**  
**IEC 60 950**  
**Safety of information technology equipment**

**Report Reference No.** .....: SPCLVD10748

**Compiled by (+ signature)** .....: Allen Huang  
Assistant Manager

.....  .....

**Reviewed by (+ signature)** .....: Frank Hsu  
President

.....  .....

**Date of issue**.....: September 07, 2001

This report is based on a blank test report that was prepared by KEMA using information obtained from the TRF originator (see below).

**Testing laboratory name** .....: Superior Product Consulting, Inc.

**Address**.....: 3F, No. 10, Alley 6, Lane 235, Pao Chiao Rd., Hsien Tien, Taipei, Taiwan, R.O.C.

**Testing location** .....: 3F, No. 10, Alley 6, Lane 235, Pao Chiao Rd., Hsien Tien, Taipei, Taiwan, R.O.C.

**Client name**.....: ISPro , Inc.

**Address**.....: 6 F, No. 9, Lane 235, Pao-Chiao Rd., Hsin-Tien, Taipei Hsien, 231 Taiwan

**Standard**.....: IEC 60 950:1991 + A1:1992 + A2:1993 + A3:1995 + A4:1996  
EN 60 950:1992 + A1:1993 + A2:1993 + A3:1995 +A4:1997 + A11:1997

**Test procedure** .....: Informative Test Report

**Procedure deviation** .....: N/A

**Non-standard test method**.....: N/A

**Test Report Form/blank test report**


**Test Report Form No.** .....: I950\_\_D/97-06

**TRF originator.** .....: FIMKO

**Master TRF**.....: reference No. I950 D, dated 97-02

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**Test item description** .....: KVM Console

**Trademark** .....: 


**Model and/or type reference** .....: RPD-1158, RPD-1151 and RPD-1151T

**Manufacturer** .....: ISPro, Inc.

**Rating(s)**.....: 100-240 Vac, 47-63 Hz, 2-1 A



Copy of marking plate


**ISPro**  
Industrial Solution Provider  
A Kontron Company



**WARNING:**  
No User Serviceable  
Parts Inside.  
Refer for service to  
Qualified Personnel.


|            |  |
|------------|--|
| MODEL      | RPD-1151   |
| INPUT      | VOLTAGE: 100 – 240 V AC<br>CURRENT: 2 A – 1 A<br>FREQUENCY: 47 – 63 Hz |
| SERIAL No. |  |

 LISTED  E220052  
ITE  
14BT





MADE IN TAIWAN


**ISPro**  
Industrial Solution Provider  
A Kontron Company



**WARNING:**  
No User Serviceable  
Parts Inside.  
Refer for service to  
Qualified Personnel.


|            |  |
|------------|--|
| MODEL      | RPD-1158   |
| INPUT      | VOLTAGE: 100 – 240 V AC<br>CURRENT: 2 A – 1 A<br>FREQUENCY: 47 – 63 Hz |
| SERIAL No. |  |

 LISTED  E220052  
ITE  
14BT





MADE IN TAIWAN


**ISPro**  
Industrial Solution Provider  
A Kontron Company



**WARNING:**  
No User Serviceable  
Parts Inside.  
Refer for service to  
Qualified Personnel.

|            |  |
|------------|--|
| MODEL      | RPD-1151T  |
| AC INPUT   | VOLTAGE: 100 – 240 V AC<br>CURRENT: 2 A – 1 A<br>FREQUENCY: 47 – 63 Hz |
| SERIAL No. |  |

 LISTED  E220052  
ITE  
14BT



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**Test item particulars:**

Equipment mobility..... : movable  
 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) ..... : < 18 Kg  
 Protection against ingress of water ..... : IPX0

**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 Enclosure #)" refers to additional information 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 Issuing testing laboratory.

This report is not valid as a CB Test Report unless appended to a CB Test Certificate issued by a NCB in accordance with IECEE 02.

**General product information:**

Model Difference: All Models are identical, except for model designation, power source, touching screen.

Model RPD-1158 and RPD-1151 are identical except for power source difference.


Model RPD-1151 and RPD-1151T are identical except for model RPD-1151T provided with touching screen function.

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|------------|---|--|---------|
| Clause     | Requirement + Test  | Result - Remark  | Verdict |
| 1          | <b>GENERAL</b>  |  | Pass    |
| 1.5        | <b>Components</b>   |  | Pass    |
| 1.5.1      | Comply with IEC 60950 or relevant component standard  | (see appended table)   | Pass    |
| 1.5.2      | Evaluation and testing components   | Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of this Standard. | Pass    |
|            | 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)                  |  | N/A     |
| 1.5.3      | Transformers  | See Annex C - Transformers.  | Pass    |
| 1.5.4      | Flammability class of high voltage components (component; manufacturer; flammability) ..... : | No high-voltage components.  | N/A     |
| 1.5.5      | Interconnecting cables  | Interconnecting cables comply with the relevant requirements of this standard.   | Pass    |
| 1.5.6      | Mains capacitors  | X capacitors meet the applicable requirements and/or tests in IEC 60384-14: 1981.  | Pass    |

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| Clause     | Requirement + Test | Result - Remark | Verdict |

|       |  |  |      |
|-------|--|--|------|
| 1.6   | <b>Power interface</b>                               |  | Pass |
| 1.6.1 | Steady state input current                           | (see appended table)<br><br>The steady state input current of the equipment did not exceed the RATED CURRENT by more than 10% under NORMAL LOAD. | Pass |
|       | Current deviation during normal operating cycle      | The current deviation during the normal operating cycle did not exceed 10 %.   | Pass |
| 1.6.2 | Voltage limit of hand-held equipment                 |  | N/A  |
| 1.6.3 | Neutral conductor insulated from earth and body      | Neutral is insulated from earth with basic insulation.   | Pass |
| 1.6.4 | Components in equipment intended for IT power system |  | N/A  |
| 1.6.5 | Mains supply tolerance (V) .....                     | +10% / -10%.   | Pass |

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|         |  |  |      |
|---------|--|--|------|
| 1.7     | <b>Marking and instructions</b>                        |  | Pass |
| 1.7.1   | Rated voltage (V) .....                                | 100 - 240 Vac.   | Pass |
|         | Symbol of nature of supply for d.c. ....               |  | N/A  |
|         | Rated frequency (Hz) .....                             | 47 - 63 Hz.  | Pass |
|         | Rated current (A) .....                                | 2-1 A  | Pass |
|         | Manufacturer .....                                     | ISPro, Inc.  | Pass |
|         | Trademark .....  |                    | Pass |
|         | Type/model .....                                       | RPD-1158, RPD-1151, RPD-1151T  | Pass |
|         | Symbol of Class II .....                               |  | N/A  |
|         | Certification marks .....                              | UL, C-UL.  | Pass |
| 1.7.2   | Safety instructions                                    | Operating/safety instructions made available to the user.  | Pass |
| 1.7.3   | Short duty cycles                                      |  | N/A  |
| 1.7.4   | Marking for voltage setting/frequency setting .....    | Autoranging supply.  | N/A  |
| 1.7.5   | Marking at power outlets .....                         |  | N/A  |
| 1.7.6   | Marking at fuseholders .....                           | Fuse marking provided as follows: F1 250 V, 1 or 2 A.  | Pass |
| 1.7.7.1 | Protective earthing terminals                          | The earth terminal is marked with the standard earth symbol (IEC 60417, No. 5019) near the terminal. | Pass |
| 1.7.7.2 | Terminal for external primary power supply conductors  |  | N/A  |
| 1.7.8.1 | Identification and location of switches and controls : | The markings and indications of the power switch is located that indication of function is clearly.  | Pass |
| 1.7.8.2 | Colours of controls and indicators .....               | Not safety-related.  | N/A  |
| 1.7.8.3 | Symbols according to IEC 60417 .....                   | The mains switch is marked with the symbols: "0" and "I" (IEC 60417, Nos. 5008 and 5007).            | Pass |
| 1.7.8.4 | Figures used for marking .....                         | No color indicators provided which affect safety.  | N/A  |

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| Clause     | Requirement + Test   | Result - Remark   | Verdict |
| 1.7.8.5    | Location of markings and indications for switches and controls ..... | Markings for switches and other controls located on the switch and control. | Pass    |
| 1.7.9      | Isolation of multiple power sources .....                            |   | N/A     |
| 1.7.10     | Instructions for installation to IT power system                     |   | N/A     |
| 1.7.11     | Instructions when protection relies on building installation         | Pluggable Type A.   | N/A     |
| 1.7.12     | Marking when leakage current exceeds 3.5 mA                          |   | N/A     |
| 1.7.13     | Indication at thermostats and regulating devices                     |   | N/A     |
| 1.7.14     | Language of safety markings/instructions                             | Only English reviewed.  | Pass    |
|            | Language .....   | English   | —       |
| 1.7.15     | Durability and legibility  | The marking(s) withstood the required test.                                 | Pass    |
| 1.7.16     | Removable parts  | No marking is located on (a) removable part(s).                             | Pass    |
| 1.7.17     | Warning text for replaceable lithium batteries                       |   | N/A     |
|            | Language .....   |   | —       |
| 1.7.18     | Operator access with a tool .....                                    |   | N/A     |
| 1.7.19     | Equipment for restricted access locations .....                      |   | N/A     |

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| Clause     | Requirement + Test | Result - Remark | Verdict |

|   |                                |  |      |
|---|--------------------------------|--|------|
| 2 | <b>PROTECTION FROM HAZARDS</b> |  | Pass |
|---|--------------------------------|--|------|

|         |  |   |      |
|---------|--|---|------|
| 2.1     | <b>Protection against electric shock and energy hazards</b>            |   | Pass |
| 2.1.1   | Access to energized parts  | No operator access to energized parts.  | Pass |
| 2.1.2   | Protection against operator contact                                    | No parts of ELV or hazardous voltages are accessible. Only SELV signal voltages are accessible.   | Pass |
|         | Test by inspection .....   |   | Pass |
|         | Test with test finger .....  |   | Pass |
|         | Test with test pin .....   |   | Pass |
| 2.1.3.1 | Insulation of internal wiring in an ELV circuit accessible to operator | No internal wiring accessible to the operator.  | N/A  |
|         | Working voltage (V); distance (mm) through insulation .....            |   | N/A  |
| 2.1.3.2 | Operator accessible insulation of internal wiring at hazardous voltage |   | N/A  |
| 2.1.4.1 | Protection in service access areas                                     | No bare parts operating at HAZARDOUS VOLTAGES in a service access area.   | N/A  |
| 2.1.4.2 | Protection in restricted access locations                              |   | N/A  |
| 2.1.5   | Energy hazard in operator access area                                  | No operator access to hazardous energy.<br><br>The output of the power supply is not an energy hazard.                                      | Pass |
| 2.1.6   | Clearances behind conductive enclosures                                | Clearances behind conductive enclosure complies during the 250N test of Sub-clause 4.2.   | Pass |
| 2.1.7   | Shafts of manual controls  | No shafts or knobs, etc. at ELV or hazardous voltage.   | Pass |
| 2.1.8   | Isolation of manual controls   | All knobs or handles provided with adequate insulation or separated from hazardous voltages by double or reinforced creepage and clearance. | Pass |

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| Clause     | Requirement + Test   | Result - Remark   | Verdict |
| 2.1.9      | Conductive casings of capacitors   | Capacitors operating at ELV or hazardous voltages are properly separated from unearthed accessible metal parts.                   | Pass    |
| 2.1.10     | Risk of electric shock from stored charge on capacitors connected to mains circuit | The capacitance of the input circuit is >0.1 uF with the mains switch in both "ON" and "OFF" position, measurements are required. | Pass    |
|            | Time-constant (s); measured voltage (V) ..... :                                    | See enclosed test record.   | —       |

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|         |                                    |   |      |
|---------|------------------------------------|---|------|
| 2.2     | <b>Insulation</b>                  |   | Pass |
| 2.2.1   | Methods of insulation              | Adequate clearances and creepage distances.<br><br>Adequate clearances through air, and creepages over the surface are provided.<br><br>Solid or laminated insulating materials having adequate thickness are provided. | Pass |
| 2.2.2   | Properties of insulating materials | Natural rubber, materials containing asbestos and hygroscopic materials are not used as insulation.   | Pass |
| 2.2.3   | Humidity treatment                 | 120 Hrs   | Pass |
|         | Humidity (%) .....                 | 93% R.H.  | —    |
|         | Temperature (°C) .....             | 40 °C   | —    |
| 2.2.4   | Requirements for insulation        | Please refer to 5.3, 2.9 and 5.1  | Pass |
| 2.2.5   | Insulation parameters              | Considered.   | Pass |
| 2.2.6   | Categories of insulation           | Operational, Basic, Reinforced.   | Pass |
| 2.2.7.1 | General rules for working voltages | Considered.   | Pass |
| 2.2.7.2 | Clearances in primary circuits     | Considered.   | Pass |
| 2.2.7.3 | Clearances in secondary circuits   | Considered.   | Pass |
| 2.2.7.4 | Creepage distances                 | Considered.   | Pass |
| 2.2.7.5 | Electric strength tests            | Considered.   | Pass |
| 2.2.8.1 | Bridging capacitors .....          | Double Insulation bridged by a single capacitor complying with IEC 60384-14: 1993, subclass Y1.   | Pass |
| 2.2.8.2 | Bridging resistors                 |   | N/A  |
| 2.2.8.3 | Accessible parts                   |   | N/A  |

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| Clause     | Requirement + Test | Result - Remark | Verdict |

|       |  |   |      |
|-------|--|---|------|
| 2.3   | <b>Safety extra-low voltage (SELV) circuits</b>  |   | Pass |
| 2.3.1 | Voltage (V) of SELV circuits under normal operating conditions and after a single fault .....  | SELV levels are maintained after single fault condition.  | —    |
| 2.3.2 | Voltage (V) between any two conductors of SELV circuit(s) and for Class I equipment between any conductor of SELV circuit and equipment protective earthing terminal under normal operating conditions ..... | Only SELV circuits and Safety Earth are accessible to the user.<br><br>All accessible voltages are less than 42.4 Vp or 60 V dc and are classified as SELV.   | Pass |
| 2.3.3 | Voltage (V) of SELV in the event of a single failure of basic or supplementary insulation or of a component .....  | $\leq 42.4$ Vpk, 60 V d.c.  | —    |
|       | Method used for separation .....   | Method 1.   | Pass |
| 2.3.4 | Additional constructional requirements   | The SELV circuit is adequately constructed in order to prevent reduction of distances, loosening of terminals, breaking of wiring at terminals, accidental shorting to hazardous voltages and the improper use of connectors. | Pass |
| 2.3.5 | Connection of SELV circuits to other circuits  | The SELV circuits are not connected to other circuits other than protective earth.  | Pass |

|       |                                       |                           |      |
|-------|---------------------------------------|---------------------------|------|
| 2.4   | <b>Limited current circuits</b>       |                           | Pass |
| 2.4.2 | Frequency (Hz) .....                  | See enclosed test record. | —    |
|       | Measured current (mA) .....           | See enclosed test record. | Pass |
| 2.4.3 | Measured voltage (V) .....            |                           | —    |
|       | Measured capacitance ( $\mu$ F) ..... |                           | N/A  |
| 2.4.4 | Measured voltage (V) .....            |                           | —    |
|       | Measured charge ( $\mu$ C) .....      |                           | N/A  |
| 2.4.5 | Measured voltage (V) .....            |                           | —    |
|       | Measured energy (mJ) .....            |                           | N/A  |

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| Clause     | Requirement + Test   | Result - Remark   | Verdict |
| 2.4.6      | Limited current circuit supplied from or connected to other circuits ..... | The LIMITED CURRENT CIRCUIT connected to other circuits complies with the requirements of Sub-clause 2.4.1. | Pass    |

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| Clause     | Requirement + Test | Result - Remark | Verdict |

|        |  |   |      |
|--------|--|---|------|
| 2.5    | <b>Provisions for earthing</b>   |   | Pass |
| 2.5.1  | Class I equipment  | Accessible parts are earthed.   | Pass |
|        | Warning label for service personnel  |   | N/A  |
| 2.5.2  | Protective earthing in Class II equipment  |   | N/A  |
| 2.5.3  | Switches/fuses in earthing conductors  | No switch or fuse in earthing conductor.  | Pass |
| 2.5.4  | Assured earthing connection for Class I equipment in systems comprising Class I and Class II equipment |   | N/A  |
| 2.5.5  | Green/yellow insulation  | Main earth conductor is green with yellow stripe.   | Pass |
| 2.5.6  | Continuity of earth connections  | It is not possible to disconnect earth without disconnecting mains as an appliance inlet is used.<br><br>Accessible non-current carrying metal parts are reliably connected to earth. | Pass |
| 2.5.7  | Making and breaking of protective earthing connections   | It is not possible to disconnect earth without disconnecting mains.   | Pass |
| 2.5.8  | Disconnection protective earthing connections  | Connections to protective earthing cannot be removed unless hazardous voltage is removed from the part simultaneously.  | Pass |
| 2.5.9  | Protective earthing terminals for fixed supply conductors or for non-detachable power supply cords     |   | N/A  |
| 2.5.10 | Corrosion resistance   | No risk of corrosion. Complies with Annex J.  | Pass |
| 2.5.11 | Resistance (Ohm) of protective earthing conductors $\leq 0.1$ Ohm                                      | The resistance from the appliance inlet to the chassis is $< 0.1$ ohms. See enclosed test record.   | Pass |
|        | Test current (A) .....   | See enclosed test record.   | —    |

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| Clause     | Requirement + Test | Result - Remark | Verdict |

|        |  |  |      |
|--------|--|--|------|
| 2.6    | <b>Disconnection from primary power</b>  |  | Pass |
| 2.6.1  | General requirements   | The appliance inlet is considered to be the disconnect device.   | Pass |
| 2.6.2  | Type of disconnect device .....  | Unit employs an appliance inlet.                                 | Pass |
| 2.6.3  | Disconnect device in permanently connected equipment                             |  | N/A  |
| 2.6.4  | Parts of disconnect device which remain energized                                | No accessible parts on the supply side of the disconnect device. | N/A  |
| 2.6.5  | Switches in flexible cords   |  | N/A  |
| 2.6.6  | Disconnection of both poles simultaneously for single-phase equipment            | Disconnect device disconnects all poles simultaneously.          | Pass |
| 2.6.7  | Disconnection of all phase conductors of supply in three-phase equipment         |  | N/A  |
| 2.6.8  | Marking of switch acting as disconnect device                                    |  | N/A  |
| 2.6.9  | Installation instructions if plug on power supply cord acts as disconnect device |  | N/A  |
|        | Language .....   |  | —    |
| 2.6.11 | Interconnected equipment   | No interconnection of hazardous voltages.                        | N/A  |
| 2.6.12 | Multiple power sources   | The equipment only receives power from one source.               | N/A  |

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| Clause     | Requirement + Test | Result - Remark | Verdict |

|       |   |   |      |
|-------|---|---|------|
| 2.7   | <b>Overcurrent and earth fault protection in primary circuits</b> |   | Pass |
| 2.7.1 | Basic requirements  | Protective devices are integrated in the equipment.                                   | Pass |
| 2.7.2 | Protection against faults not covered in 5.4                      | The protective device is properly sized and mounted.                                  | Pass |
| 2.7.3 | Short-circuit backup protection                                   | The building installation is considered as providing short-circuit backup protection. | N/A  |
| 2.7.4 | Number and location of protective devices ..... :                 | One fuse in the "LIVE" phase.   | Pass |
| 2.7.5 | Protection by several devices                                     | Only one protective device is provided.   | N/A  |
| 2.7.6 | Warning to service personnel                                      | No protective device is provided in the neutral conductor.                            | N/A  |

|         |  |  |     |
|---------|--|--|-----|
| 2.8     | <b>Safety interlock</b>                          |  | N/A |
| 2.8.2   | Design   |  | N/A |
| 2.8.3   | Protection against inadvertent reactivation      |  | N/A |
| 2.8.4   | Reliability                                      |  | N/A |
| 2.8.5   | Override an interlock                            |  | N/A |
| 2.8.6.1 | Contact gap (mm) ..... :                         |  | N/A |
| 2.8.6.2 | Switch performing 50 cycles                      |  | N/A |
| 2.8.6.3 | Electric strength test: test voltage (V) ..... : |  | N/A |
| 2.8.7   | Protection against overstress                    |  | N/A |

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|---------|--|---|------|
| 2.9     | <b>Clearances, creepage distances and distances through insulation</b>   |   | Pass |
|         | Nominal voltage (V) .....  | : 240 Vac   | —    |
|         | General  |   | Pass |
| 2.9.2   | Clearances   | (see appended table)  | Pass |
| 2.9.2.1 | Clearances in primary circuits   | (see appended table 2.9.2 and 2.9.3)                                    | Pass |
| 2.9.2.2 | Clearances in secondary circuits   | (see appended table 2.9.2 and 2.9.3)                                    | Pass |
| 2.9.3   | Creepage distances   | (see appended table)  | Pass |
|         | CTI tests .....  | : Material group IIIb; $100 \leq \text{CTI} < 175$ .                    | —    |
| 2.9.4.1 | Minimum distances through insulation                                     | (see appended table)  | Pass |
| 2.9.4.2 | Thin sheet material  | The thin sheet materials of polyester tape used in main transformer T1. | Pass |
|         | Number of layers (pcs) .....   | : 3 layers.   | Pass |
|         | Electrical strength test: test voltage (V) .....                         | : See enclosed test record.   | Pass |
| 2.9.4.3 | Printed boards   |   | N/A  |
|         | Distance through insulation  |   | N/A  |
|         | Electric strength test at voltage (V) for thin sheet insulating material |   | N/A  |
|         | Number of layers (pcs) .....   | :   | N/A  |
| 2.9.4.4 | Wound components without interleaved insulation                          | (see Annex U).  | N/A  |
|         | Number of layers (pcs) .....   | :   | N/A  |
|         | Two wires in contact inside component; angle between 45° and 90°         |   | N/A  |
|         | Routine testing for finished component                                   |   | N/A  |
| 2.9.5   | Distances on coated printed boards                                       |   | N/A  |
|         | Routine testing for electric strength                                    |   | N/A  |
| 2.9.6   | Enclosed and sealed parts  | (see appended table 2.9.2. and 2.9.3)                                   | N/A  |
|         | Temperature T1 (°C) .....  | :   | N/A  |
|         | Humidity % .....   | :   | N/A  |
| 2.9.7   | Spacings filled by insulating compound                                   | Optocoupler used.<br>(see appended table 2.9.4.1)                       | Pass |

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| Clause     | Requirement + Test                 | Result - Remark                                | Verdict |
|            | Temperature T1 (°C) .....          |  | N/A     |
|            | Humidity % .....                   |  | N/A     |
| 2.9.8      | Component external terminations    | (see appended table 2.9.2 and 2.9.3)           | Pass    |
| 2.9.9      | Insulation with varying dimensions | (see appended table 2.9.2 and 2.9.3 and 2.9.4) | N/A     |

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|------------|--------------------|-----------------|---------|
| Clause     | Requirement + Test | Result - Remark | Verdict |

|        |  |   |      |
|--------|--|---|------|
| 2.10   | <b>Interconnection of equipment</b>      |   | Pass |
| 2.10.1 | General requirements                     | SELV is only connected to SELV and Safety Earth.<br><br>There are no TNV-circuits in the equipment. | Pass |
| 2.10.2 | Type of interconnection circuits .....   | Interconnection circuits are SELV CIRCUITS.<br><br>No ELV interconnections.                         | Pass |
| 2.10.3 | ELV circuits as interconnection circuits | No other equipment  | N/A  |

|      |                                   |  |      |
|------|-----------------------------------|--|------|
| 2.11 | <b>Limited power source</b>       |  | Pass |
|      | Use of limited power source ..... | The output is inherently limited in compliance with the standard.<br><br>See enclosed test record. | Pass |

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|------------|--------------------|-----------------|---------|
| Clause     | Requirement + Test | Result - Remark | Verdict |

|   |                                       |  |      |
|---|---------------------------------------|--|------|
| 3 | <b>WIRING, CONNECTIONS AND SUPPLY</b> |  | Pass |
|---|---------------------------------------|--|------|

|       |  |   |      |
|-------|--|---|------|
| 3.1   | <b>General</b>   |   | Pass |
| 3.1.1 | Cross-sectional area of internal wiring/interconnecting cables   | All internal wiring is rated for the application.   | Pass |
|       | Protection of internal wiring and interconnecting cables         | All internal wiring used in the distribution of primary power protected against overcurrent and short circuit by suitably rated protective devices.             | Pass |
| 3.1.2 | Wireways   | 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 | Fixing of internal wiring  | All wiring is reliably routed or seperated and secured.   | Pass |
| 3.1.4 | Fixing of uninsulated conductors                                 | Uninsulated conductors have been adequately fixed to prevent, in normal use, any reduction of creepage or clearance distances below those prescribed by in 2.9. | Pass |
| 3.1.5 | Insulation of internal wiring                                    | Insulation on internal conductors are considered to be of adequate quality and suitable for the application and the working voltages involved.                  | Pass |
| 3.1.6 | Wires coloured green/yellow only for protective earth connection | Main earth conductor is green with yellow stripe.<br><br>Green/yellow used only for protection earthing.  | Pass |
| 3.1.7 | Fixing of beads and similar ceramic insulators                   |   | N/A  |
| 3.1.8 | Required electrical contact pressure                             | All electrical screw connections are by metal screw with more than 2 threads into a metal plate.  | Pass |
| 3.1.9 | Reliable electrical connections                                  | All current carrying and safety earthing connections are metal to metal.  | Pass |

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|------------|---|---|---------|
| Clause     | Requirement + Test                                | Result - Remark   | Verdict |
| 3.1.10     | End of stranded conductor                         | No risk of stranded conductor becoming unfixed.   | Pass    |
| 3.1.11     | Use of spaced thread screws/thread-cutting screws | Thread-cutting or space thread screws are not used for electrical connections. Machine screws only. | Pass    |

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|------------|--------------------|-----------------|---------|
| Clause     | Requirement + Test | Result - Remark | Verdict |

|       |   |  |      |
|-------|---|--|------|
| 3.2   | <b>Connection to primary power</b>  |  | Pass |
| 3.2.1 | Type of connection .....  | Unit employs an appliance inlet.   | Pass |
|       | Design of product with more than one supply connection .....                |  | N/A  |
| 3.2.2 | Provision for permanent connection .....                                    |  | N/A  |
|       | Size (mm) of cables and conduits .....                                      |  | N/A  |
| 3.2.3 | Appliance inlet   | The appliance inlet complies with IEC 60320.   | Pass |
| 3.2.4 | Type and cross-sectional area (mm <sup>2</sup> ) of power supply cord ..... | Power supply cord suitable for the application and subject to country's national code and regulations is to be provided by the manufacturer; to be determined by the country's local certification body. | Pass |
| 3.2.5 | Cord anchorage  |  | N/A  |
|       | Test: 25 times; 1 s; pull (N) .....   |  | —    |
|       | Longitudinal displacement ≤ 2 mm .....                                      |  | N/A  |
| 3.2.6 | Protection of power supply cord   | No sharp points or cutting edges on the equipment surfaces   | Pass |
| 3.2.7 | Cord guard  |  | N/A  |
|       | D (mm) .....  |  | —    |
|       | Test: mass (g) .....  |  | —    |
|       | Radius of curvature of the cord ≤ 1.5 D                                     |  | N/A  |
| 3.2.8 | Supply wiring space   |  | N/A  |

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|------------|--------------------|-----------------|---------|
| Clause     | Requirement + Test | Result - Remark | Verdict |

|       |  |  |     |
|-------|--|--|-----|
| 3.3   | <b>Wiring terminals for external power supply conductors</b> |  | N/A |
| 3.3.1 | Terminals  | Power supply cord suitable for the application and subject to country's national code and regulations is to be provided by the manufacturer; to be determined by the country's local certification body. | N/A |
| 3.3.2 | Special non-detachable cord                                  |  | N/A |
|       | Type of connection .....                                     |  | —   |
|       | Pull test at 5 N   |  | N/A |
| 3.3.3 | Screws and nuts  |  | N/A |
| 3.3.4 | Fixing of conductors   |  | N/A |
| 3.3.5 | Connection of connectors                                     |  | N/A |
| 3.3.6 | Size of terminals  |  | N/A |
|       | Nominal thread diameter (mm) .....                           |  | N/A |
| 3.3.7 | Protection against damage of conductors                      |  | N/A |
| 3.3.8 | Terminal location  |  | N/A |
| 3.3.9 | Test with 8 mm stranded wire                                 |  | N/A |

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|------------|--------------------|-----------------|---------|
| Clause     | Requirement + Test | Result - Remark | Verdict |

|   |                              |  |      |
|---|------------------------------|--|------|
| 4 | <b>PHYSICAL REQUIREMENTS</b> |  | Pass |
|---|------------------------------|--|------|

|       |   |   |      |
|-------|---|---|------|
| 4.1   | <b>Stability and mechanical hazards</b>                       |   | Pass |
| 4.1.1 | Stability tests   |   | Pass |
|       | Angle of 10°  | Unit does not overbalance at 10 ° Angle.                | Pass |
|       | Test: force (N) .....   | Not Floor-standing unit.                                | N/A  |
| 4.1.2 | Protection against personal injury                            | Equipment does not have any hazardous moving parts      | N/A  |
| 4.1.3 | Warning and means provided for stopping the moving part ..... | The equipment does not have any hazardous moving parts. | N/A  |
| 4.1.4 | Edges and corners   | All edges and corners are rounded and smooth.           | Pass |
| 4.1.5 | Enclosure of a high pressure lamp                             |   | N/A  |

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|------------|--------------------|-----------------|---------|
| Clause     | Requirement + Test | Result - Remark | Verdict |

|       |  |   |      |
|-------|--|---|------|
| 4.2   | <b>Mechanical strength and stress relief</b>   |   | Pass |
| 4.2.1 | General  |   | Pass |
| 4.2.2 | Internal enclosures 30 N $\pm$ 3 N; 5 s  |   | N/A  |
| 4.2.3 | External enclosures 250 N $\pm$ 10 N; 5 s  | No hazards as a result of the 250 N test.   | Pass |
| 4.2.4 | Steel ball tests   |   | N/A  |
|       | Fall test  |   | N/A  |
|       | Swing test   |   | N/A  |
| 4.2.5 | Drop test  | Product is movable equipment.   | N/A  |
| 4.2.6 | Heat test for enclosures of moulded or formed thermoplastic materials: 7 h; T (°C) ..... | The equipment has metal enclosure, test was waived  | N/A  |
| 4.2.7 | Compliance criteria  | The SUPPLEMENTARY and REINFORCED INSULATION was subjected to the electric strength test. No breakdown was recorded. | Pass |
| 4.2.8 | Mechanical strength of cathode ray tubes   |   | N/A  |

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| Clause     | Requirement + Test | Result - Remark | Verdict |

|        |   |   |      |
|--------|---|---|------|
| 4.3    | <b>Construction details</b>   |   | Pass |
| 4.3.1  | Changing of setting for different power supply voltages   | Power supply is autoranging.  | N/A  |
| 4.3.2  | Adjustment of accessible control devices  |   | N/A  |
| 4.3.4  | Prevention of dangerous concentration of dust, powder, liquid and gas   |   | N/A  |
| 4.3.5  | Fixing of knobs, grips, handles, levers   |   | Pass |
|        | Test: force (N) .....   | The shape of the handle is such that an axial pull is likely to be applied. The force applied: 30 N (50 N).                 | Pass |
| 4.3.6  | Driving belts/couplings shall not ensure electrical insulation  | Electrical insulation does not rely upon driving belts or couplings.  | Pass |
| 4.3.7  | Retaining of sleeves  | The sleeving used as supplementary insulation on internal wiring is retained by positive means.                             | Pass |
| 4.3.9  | Protection of loosening parts   | All hazardous parts are fixed to retain position in event of termination failure.   | Pass |
| 4.3.11 | Resistance to oil and grease  |   | N/A  |
| 4.3.12 | Protection against harmful concentration of ionizing radiation, ultraviolet light, laser or flammable gases (for laser see IEC 60825-1) | The equipment does not generate ionizing radiation or contain flammable liquids or gases.                                   | N/A  |
| 4.3.13 | Securing of screwed connections   | Screwed connections are reliably secured.   | Pass |
| 4.3.15 | Openings in the top of enclosure  | There are no openings in the top of the enclosure.  | N/A  |
|        | Dimensions (mm) .....   |   | —    |
| 4.3.16 | Openings in the sides of enclosure  | Foreign objects entering the enclosure will not contact bare parts at hazardous voltage. (No hazardous parts within 5° arc) | Pass |
|        | Dimensions (mm) .....   |   | —    |
| 4.3.17 | Interchangeable plugs and sockets   |   | N/A  |
| 4.3.18 | Torque test for direct plug-in equipment  |   | N/A  |
|        | Additional torque (Nm) .....  |   | N/A  |

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| Clause     | Requirement + Test  | Result - Remark | Verdict |
| 4.3.19     | Protection against excessive pressure   |                 | N/A     |
| 4.3.20     | Protection of heating elements in Class I equipment   |                 | N/A     |
| 4.3.21     | Protection of lithium batteries   |                 | N/A     |
|            | Construction of protection circuit ..... :  |                 | N/A     |
| 4.3.22     | Ageing of barrier/screen secured with adhesive  |                 | N/A     |
|            | Day 1: temperature (°C); time (weeks) ..... :   |                 | N/A     |
|            | Day 8/22/57:<br>a) temperature (°C) for 1 h<br>b) temperature (°C) for 4 h<br>c) temperature (°C) over 8 h ..... :                                      |                 | N/A     |
|            | Day 9/23/58:<br>a) relative humidity (%) for 72 h<br>b) temperature (°C) for 1 h<br>c) temperature (°C) for 4 h<br>d) temperature (°C) over 8 h ..... : |                 | N/A     |

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| Clause     | Requirement + Test | Result - Remark | Verdict |

|         |   |   |      |
|---------|---|---|------|
| 4.4     | <b>Resistance to fire</b>   |   | Pass |
| 4.4.1   | Methods of achieving resistance to fire                           | Method 1: Selection and application of components and materials which minimize the possibility of ignition and spread of flame.   | Pass |
| 4.4.2   | Minimizing the risk of ignition                                   | Components rated at least 94V-2 are mounted on PWB rated at least 94V-1.  | Pass |
|         | Printed board: manufacturer; type; flammability ... :             | min. 94V-1.   | Pass |
| 4.4.3   | Flammability of materials and components                          | The propagation of fire is minimized through the fire enclosure construction.   | Pass |
| 4.4.3.2 | Material and component: manufacturer; type; flammability .....    | Internal plastic parts are rated 94V-2 min.   | Pass |
| 4.4.3.3 | Exemptions .....  | Components used meet the flammability requirements of a relevant IEC component standard.  | Pass |
| 4.4.3.4 | Wiring harnesses: manufacturer; flammability .....                | Internal wiring is insulated with PVC, etc., and strapped by individual cable ties.<br><br>Internal wiring is UL Recognized, marked VW-1 or FT-1 and strapped by individual cable ties. | Pass |
| 4.4.3.5 | Cord anchorage bushings: manufacturer; flammability .....         |   | N/A  |
| 4.4.3.6 | Air filter assemblies: manufacturer; flammability .. :            |   | N/A  |
| 4.4.4   | Enclosures and decorative parts: manufacturer; flammability ..... | metal enclosure   | Pass |

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| Clause     | Requirement + Test  | Result - Remark   | Verdict |
| 4.4.5      | Conditions for fire enclosures  | <p>All components having windings, such as transformers, solenoids and relays are located in a fire enclosure.</p> <p>All semiconductor devices, such as transistors, diodes and integrated circuits are located in a fire enclosure.</p> <p>All resistors, capacitors and inductors are located in a fire enclosure.</p> | Pass    |
| 4.4.5.1    | Components which require fire enclosure: manufacturer; flammability ..... | A fire enclosure covers all parts except: wiring and cables insulated with PVC, TFE, PTFE, FEP, neoprene or polyimide, and their connectors.  | Pass    |
| 4.4.5.2    | Components not requiring fire enclosure .....                             | CIRCUIT supplied by a limited power source complying with 2.11. All components are mounted on materials of FLAMMABILITY CLASS V-1 or better, and the wiring is insulated with PVC, TFE, PTFE, FEP, neoprene or polyimide.   | Pass    |
| 4.4.6      | Fire enclosure construction   | No openings in bottom of fire enclosure.  | Pass    |
| 4.4.7      | Doors and covers in fire enclosures                                       |   | N/A     |
| 4.4.8      | Flammable liquids   |   | N/A     |

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| Clause     | Requirement + Test | Result - Remark | Verdict |

|   |  |  |      |
|---|--|--|------|
| 5 | <b>THERMAL AND ELECTRICAL REQUIREMENTS</b> |  | Pass |
|---|--|--|------|

|     |                |                      |      |
|-----|----------------|----------------------|------|
| 5.1 | <b>Heating</b> |                      | Pass |
|     | Heating tests  | (see appended table) | Pass |

|       |   |   |      |
|-------|---|---|------|
| 5.2   | <b>Earth leakage current</b>  |   | Pass |
| 5.2.1 | General   | Equipment intended to be connected to TT or TN POWER SYSTEMS. | Pass |
| 5.2.2 | Leakage current   | See enclosed test record                                      | Pass |
|       | Test voltage (V) .....  | dto   | —    |
|       | Measured current (mA) .....   | dto   | —    |
|       | Max. allowed current (mA) .....   | 3.5 mA (Class I movable)                                      | —    |
| 5.2.3 | Single-phase equipment  | See 5.2.2   | Pass |
|       | Test voltage (V) .....  | dto   | —    |
|       | Measured current (mA) .....   | dto   | —    |
|       | Max. allowed current (mA) .....   | dto   | —    |
| 5.2.4 | Three-phase equipment   | Not three phase equipment.                                    | N/A  |
|       | Test voltage (V) .....  |   | —    |
|       | Measured current (mA) .....   |   | —    |
|       | Max. allowed current (mA) .....   |   | —    |
| 5.2.5 | Equipment with earth leakage current exceeding 3.5 mA                                   |   | N/A  |
|       | Test voltage (V) .....  |   | —    |
|       | Measured current (mA) .....   |   | —    |
|       | Max. allowed current (mA) .....   |   | —    |
|       | Cross-sectional area (mm <sup>2</sup> ) of internal protective earthing conductor ..... |   | —    |
|       | Warning label   |   | N/A  |

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| Clause     | Requirement + Test | Result - Remark | Verdict |

|       |                          |   |      |
|-------|--------------------------|---|------|
| 5.3   | <b>Electric strength</b> |   | Pass |
| 5.3.1 | General                  | Based on the electric strength test the use of the insulating materials within the equipment is satisfactory. | Pass |
| 5.3.2 | Test procedure           | (see appended table)<br><br>No insulation breakdown detected during the test.                                 | Pass |

|       |   |  |      |
|-------|---|--|------|
| 5.4   | <b>Abnormal operating and fault conditions</b>                            |  | Pass |
| 5.4.2 | Motors  | The equipment does not have any motors.  | N/A  |
| 5.4.3 | Transformers  | (see appended table)<br><br>See enclosed test record.                          | Pass |
| 5.4.4 | Compliance of operational insulation                                      |  | Pass |
|       | Method used .....   | Method C.  | Pass |
| 5.4.5 | Electromechanical components in secondary circuits                        | The equipment does not have any electromechanical components in the secondary. | N/A  |
| 5.4.6 | Other components and circuits   | (see appended table)<br><br>See enclosed test record.                          | Pass |
| 5.4.7 | Test in any expected condition and foreseeable misuse                     | (see appended table)<br><br>See enclosed test record.                          | Pass |
| 5.4.8 | Unattended use of equipment having thermostats, temperature limiters etc. |  | N/A  |

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| Clause     | Requirement + Test  | Result - Remark   | Verdict |
| 5.4.9      | Compliance  | (see appended table)<br><br>No fire, emission of molten metal or deformation was noted during the tests.<br><br>See enclosed test record. | Pass    |
| 5.4.10     | Ball-pressure test of thermoplastic parts; impression shall not exceed 2 mm | No parts at hazardous voltage are directly mounted on thermoplastic parts.  | N/A     |

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|------------|--------------------|-----------------|---------|
| Clause     | Requirement + Test | Result - Remark | Verdict |

|   |   |  |     |
|---|---|--|-----|
| 6 | <b>CONNECTION TO TELECOMMUNICATION NETWORKS</b> |  | N/A |
|---|---|--|-----|

|            |   |   |     |
|------------|---|---|-----|
| 6.1        | <b>General</b>  |   | N/A |
| 6.2        | TNV circuits  |   | N/A |
| 6.2.1.1    | Limits of the TNV circuits  |   | N/A |
| 6.2.1.1 a) | TNV-1 circuits  |   | N/A |
| 6.2.1.1 b) | TNV-2 and TNV-3 circuits  |   | N/A |
| 6.2.1.2    | Separation from other circuits and from accessible parts  | (see appended table 2.9.2, 2.9.3 and 2.9.4) | N/A |
|            | Voltage (V) in SELV circuits, TNV-1 circuits and accessible conductive parts in event of single insulation fault or component failure ..... |   | N/A |
| 6.2.1.3    | Operating voltages generated externally   |   | N/A |
|            | Voltage (V) in SELV circuit, TNV-1 circuit or accessible conductive part .....  |   | N/A |
| 6.2.1.4    | Separation from hazardous voltages .....  |   | N/A |
|            | Insulation between TNV circuit and circuit at hazardous voltage   |   | N/A |
|            | Method used .....   |   | N/A |
| 6.2.1.5    | Connection of TNV circuits to other circuits  | (see appended table 5.4)                    | N/A |
|            | Insulation (mm) between TNV circuit supplied conductively from secondary circuit and hazardous voltage circuit .....                        |   | N/A |
| 6.2.2.1    | Protection against contact with bare conductive parts of TNV-2 and TNV-3 circuits   |   | N/A |
|            | Test with test finger   |   | N/A |
|            | Test with test probe  |   | N/A |
| 6.2.2.2    | Battery compartments  |   | N/A |
|            | Marking next to door/on door  |   | N/A |

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| Clause     | Requirement + Test   | Result - Remark          | Verdict |
| 6.3        | <b>Protection of telecommunication network service personnel, and users of other equipment connected to the telecommunication network, from hazards in the equipment</b> |                          | N/A     |
| 6.3.1      | Protection from hazardous voltages   |                          | N/A     |
| 6.3.2      | Use of protective earthing   |                          | N/A     |
|            | Language of installation instructions .....  |                          | N/A     |
| 6.3.3.1    | Insulation between TNV circuit and parts or circuitry that may be earthed  | (see appended table 5.3) | N/A     |
| 6.3.3.2    | Exclusions .....   |                          | N/A     |
| 6.3.4.1    | Limitation of leakage current (mA) to telecommunication network .....  |                          | N/A     |
| 6.3.4.2    | Summation of leakage currents from telecommunication network .....   |                          | N/A     |

|            |   |  |     |
|------------|---|--|-----|
| 6.4        | <b>Protection of the equipment user from voltages on the telecommunication network</b>  |  | N/A |
| 6.4.1      | Separation requirements   |  | N/A |
| 6.4.2      | Test procedure  |  | N/A |
| 6.4.2.1    | Impulse test: separation between TNV-1 circuits/TNV-3 circuits and:   |  | N/A |
| 6.4.2.1 a) | unearthed conductive parts/non-conductive parts of the equipment which are held or touched during normal use; test at 2.5 kV                  |  | N/A |
| 6.4.2.1 b) | parts and circuitry that can be touched by the test finger except contacts of connectors that cannot be touched by test probe; test at 1.5 kV |  | N/A |
| 6.4.2.1 c) | circuitry which is provided for connection of other equipment; test at 1.5 kV   |  | N/A |
| 6.4.2.2    | Electric strength test: separation between TNV-1 circuits/TNV-3 circuits and:   |  | N/A |
| 6.4.2.2 a) | unearthed conductive parts/non-conductive parts of the equipment which are held or touched during normal use; test at 1.5 kV                  |  | N/A |
| 6.4.2.2 b) | parts and circuitry that can be touched by the test finger except contacts of connectors that cannot be touched by test probe; test at 1.0 kV |  | N/A |
| 6.4.2.2 c) | circuitry which is provided for connection of other equipment; test at 1.0 kV   |  | N/A |
| 6.4.2.3    | Compliance criteria   |  | N/A |

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| Clause     | Requirement + Test | Result - Remark | Verdict |

|     |   |  |     |
|-----|---|--|-----|
| 6.5 | <b>Protection of telecommunication wiring system from overheating</b> |  | N/A |
|     | Maximum continuous output current (A) ..... :                         |  | N/A |

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| Clause     | Requirement + Test | Result - Remark | Verdict |

|       |   |  |     |
|-------|---|--|-----|
| A     | <b>ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE</b>   |  | N/A |
| A.1   | Flammability test for fire enclosures of moveable equipment having a total mass exceeding 18 kg, and of stationary equipment                          |  | N/A |
| A.2   | Flammability test for fire enclosures of moveable equipment having a total mass not exceeding 18 kg, and for materials located within fire enclosures |  | N/A |
| A.3   | High current arcing ignition test   |  | N/A |
| A.3.6 | Number of arcs .....  |  | N/A |
| A.4   | Hot wire ignition test  |  | N/A |
| A.4.6 | Ignition time (s) .....   |  | N/A |
| A.5   | Hot flaming oil test  |  | N/A |
| A.6   | Flammability test for classifying materials V-0, V-1 or V-2   |  | N/A |
| A.7   | Flammability test for classifying foamed materials HF-1, HF-2 or HBF  |  | N/A |
| A.8   | Flammability test for classifying materials HB  |  | N/A |
| A.9   | Flammability test for classifying materials 5V  |  | N/A |
| A     | Tested material   |  | N/A |
|       | Preconditioning: 7 days (168 h); temperature (°C) :   |  | —   |
|       | Mounting of samples during test .....   |  | —   |
|       | Wall thickness .....  |  | —   |
|       | Sample 1 burning time .....   |  | N/A |
|       | Sample 2 burning time .....   |  | N/A |
|       | Sample 3 burning time .....   |  | N/A |
|       | Material: compliance with the requirements  |  | N/A |
|       | Manufacturer of tested material .....   |  | —   |
|       | Type of tested material .....   |  | —   |
|       | Additional information .....  |  | —   |

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| Clause     | Requirement + Test | Result - Remark | Verdict |

|       |   |                          |     |
|-------|---|--------------------------|-----|
| B     | <b>ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS</b>         |                          | N/A |
| B.1   | General requirements  |                          | N/A |
|       | Position .....  |                          | —   |
|       | Manufacturer .....  |                          | —   |
|       | Type .....  |                          | —   |
|       | Rated voltage (V) or current (A) .....                        |                          | —   |
| B.2   | Test conditions   | (see appended table 5.4) | N/A |
| B.3   | Maximum temperatures  | (see appended table 5.4) | 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 motor in secondary circuits      |                          | N/A |
| B.7   | Locked-rotor overload test for DC motor in secondary circuits |                          | N/A |
| B.7.2 | Test time (h) .....   |                          | N/A |
| B.7.3 | Test time (h) .....   |                          | N/A |
| B.8   | Test for motors with capacitor                                |                          | N/A |
| B.9   | Test for three-phase motors                                   |                          | N/A |
| B.10  | Test for series motors  |                          | N/A |
|       | Test voltage (V) .....  |                          | —   |

| IEC 60 950 |                    |                 |         |
|------------|--------------------|-----------------|---------|
| Clause     | Requirement + Test | Result - Remark | Verdict |

|     |  |                           |      |
|-----|--|---------------------------|------|
| C   | <b>ANNEX C, TRANSFORMERS</b>           |                           | Pass |
|     | Position .....                         | T1                        | —    |
|     | Manufacturer .....                     | Sunpower                  | —    |
|     | Type .....                             | 23-455                    | —    |
|     | Rated values .....                     | Class B                   | —    |
|     | Temperatures                           | (see appended table 5.4)  | Pass |
|     | Thermal cut-out                        | (see appended table 5.1)  | N/A  |
| C.1 | Overload test                          | See enclosed test record. | Pass |
|     | Conventional transformer               |                           | N/A  |
| C.2 | Insulation                             |                           | Pass |
|     | Precautions .....                      |                           | Pass |
|     | Retaining of end turns of all windings |                           | Pass |
|     | Earthing test at 25 A                  |                           | N/A  |
| C.3 | Electric strength test                 | (see appended table 5.3)  | Pass |

| IEC 60 950 |                    |                 |         |
|------------|--------------------|-----------------|---------|
| Clause     | Requirement + Test | Result - Remark | Verdict |

|   |                                    |   |     |
|---|------------------------------------|---|-----|
| H | <b>ANNEX H, IONIZING RADIATION</b> |   | N/A |
|   | Ionizing radiation                 |   | N/A |
|   | Measured radiation .....           | : | —   |
|   | Measured high-voltage (kV) .....   | : | —   |
|   | Measured focus voltage (kV) .....  | : | —   |
|   | CRT markings .....                 | : | —   |
|   | Certified by .....                 | : | —   |
|   | Standard used .....                | : | —   |

|   |  |  |     |
|---|--|--|-----|
| U | <b>ANNEX U, INSULATED WINDING WIRES FOR USE AS MULTIPLE LAYER INSULATION</b> |  | N/A |
|   | See separate test report   |  | N/A |

| IEC 60 950 |                    |                 |         |
|------------|--------------------|-----------------|---------|
| Clause     | Requirement + Test | Result - Remark | Verdict |

| 1.5.1   | TABLE: list of critical components                                  |                               |  |                       |   | Pass |
|---|---|-------------------------------|--|-----------------------|---|------|
| object/part No.   | manufacturer/<br>trademark  | type/model                    | technical data   | standard              | mark(s) of<br>conformity <sup>1)</sup>  |      |
| Enclosure<br>(For models<br>RPD-1151 and<br>RPD-1151-T)   | --  | RPD-1151-BLK,<br>RPD-1151-BGE | metal  | --                    | --  |      |
| Enclosure<br>(For model RPD-<br>1158)                     | --  | RPD-1158-BLK,<br>RPD-1158-BGE | metal  | --                    | --  |      |
| Appliance Inlet   | Rich Bay  | R-301                         | 10A, 250Vac  | IEC 60320             | VDE, UL, CSA  |      |
| Power Switch  | Light Country   | R19                           | 4A, 250Vac   | IEC 61058-1           | VDE, S, N, FI, N,<br>UL, CSA  |      |
| Keyboard<br>(Provided with<br>trackball)                  | Cherry GmbH<br>(CHERRY)   | G84-4400-BLK,<br>G84-4400-BGE | --   | --                    | (Testing with<br>sample, located<br>in secondary<br>circuit.)                         |      |
| LCD Panel   | Samsung   | LTM150XS-L01                  | TFT type, 15"  | --                    | (Testing with<br>sample, located<br>in limited current<br>circuitry.)                 |      |
| Touch Panel<br>Module (For<br>model RPD-<br>1151T)        | --  | INTC-1510-P                   | --   | --                    | (Testing with<br>sample, located<br>in secondary<br>circuit.)                         |      |
| DC/AC Inverter  | Hwa Youn  | QF61V4 series                 | I/p: 12Vdc/ 270-<br>930mA<br>o/p: 840Vac,<br>1.7-6.5mA             | --                    | (Testing with<br>sample, the<br>output evaluated<br>as limited current<br>circuitry.) |      |
| Power Supply<br>(For models<br>RPD-1151 and<br>RPD-1151T) | Hitron<br>Electronics<br>Corp. (HITRON)                             | HES24-12020                   | I/p: 100-240Vac,<br>50/60Hz, 0.55-<br>0.3A<br>o/p: +12Vdc/2A       | EN 60950<br>IEC 60950 | TÜV, CB (DE 2-<br>002244), UL   |      |
| Power Supply<br>(For model RPD-<br>1158)                  | ISPro, Inc.<br>(Manufactured<br>by Sunpower<br>Technology<br>Corp.) | SPP-AS21Z1                    | I/p: 100-240Vac,<br>47-63Hz, 0.8A<br>o/p: +12Vdc/2A,<br>+9Vdc/0.4A | EN 60952<br>IEC 60950 | (Testing with<br>sample, report to<br>test report for<br>details.)                    |      |
| All PCB   | --  | --                            | V-1 min. 105°C<br>min.   | UL 94                 | UL  |      |
| (Following items for power supply, model SPP-AS21Z1)      |   |                               |  |                       |   |      |

| IEC 60 950                    |                    |                        |                          |                 |              |
|-------------------------------|--------------------|------------------------|--------------------------|-----------------|--------------|
| Clause                        | Requirement + Test |                        |                          | Result - Remark | Verdict      |
| - Primary Connector (CN1)     | Long Chu           | H 3060/ P3060          | 7A, 250Vac               | VDE 0627        | TÜV, UL, CSA |
|                               | Taiwan King Pin    | P-8800-I or P-8800-L   | 5A, 250Vac               | VDE 0627        | TÜV, UL, CSA |
|                               | Taiwan King Pin    | PVHI or PVHL           | 7A, 250Vac               | VDE 0627        | TÜV, UL, CSA |
|                               | Chyao Shium        | VH Series              | 7A, 250Vac               | VDE 0627        | TÜV, UL, CSA |
| - Fuse (F1)                   | Bel                | 5ST, 5SF, 5HT or 5HF   | T or F, 1 or 2A, 250Vac  | IEC 60127       | VDE, S, UL   |
|                               | Conquer            | UFE, UTE, UDA or UBM   | T or F, 1 or 2A, 250Vac  | IEC 60127       | VDE, S, UL   |
|                               | Littelfuse         | 215, 216 or 218        | T or F, 1 or 2A, 250Vac  | IEC 60127       | VDE, S, UL   |
| - X Capacitor (C1) (Optional) | Arcotronics        | 1.40, R46              | 0.47µF max., 250Vac min. | IEC 60384-14    | VDE, SEV, FI |
|                               | BC                 | MKP 333 5              | 0.47µF max., 250Vac min. | IEC 60384-14    | VDE, SEV, FI |
|                               | Cheng              | CTX                    | 0.47µF max., 250Vac min. | IEC 60384-14    | VDE, SEV, FI |
|                               | Eichhoff Gmbh      | MKT./...               | 0.47µF max., 250Vac min. | IEC 60384-14    | VDE, SEV, FI |
|                               | EVOX RIFA AB.      | PHE 830 M              | 0.47µF max., 250Vac min. | IEC 60384-14    | VDE, SEV, FI |
|                               | EVOX RIFA AB.      | PHE820E, PHE820M       | 0.47µF max., 250Vac min. | IEC 60384-14    | VDE, SEV, FI |
|                               | EVOX RIFA AB.      | PHE 800, PHE 810       | 0.47µF max., 250Vac min. | IEC 60384-14    | VDE, SEV, FI |
|                               | Hua Jung           | MKP                    | 0.47µF max., 250Vac min. | IEC 60384-14    | VDE, SEV, FI |
|                               | Iskra              | KNB 1530               | 0.47µF max., 250Vac min. | IEC 60384-14    | VDE, SEV, FI |
|                               | Jenn Fu            | MPX                    | 0.47µF max., 250Vac min. | IEC 60384-14    | VDE, SEV, FI |
|                               | Matsushita         | ECQ-UV, ECQ-UZ, ECQ-EW | 0.47µF max., 250Vac min. | IEC 60384-14    | VDE, SEV, FI |
|                               | Nitsuko            | CFJC, CFKC             | 0.47µF max., 250Vac min. | IEC 60384-14    | VDE, SEV, FI |
|                               | Pilkor             | PCX2 335, PCX2 335M    | 0.47µF max., 250Vac min. | IEC 60384-14    | VDE, SEV, FI |
|                               | Roederstein        | F 1772-xxx-xxxx        | 0.47µF max., 250Vac min. | IEC 60384-14    | VDE, SEV, FI |

| IEC 60 950   |                           |                  |  |                       |                                   |
|--|---------------------------|------------------|--|-----------------------|-----------------------------------|
| Clause   | Requirement + Test        |                  |  | Result - Remark       | Verdict                           |
|  | Siemens                   | B81130           | 0.47 $\mu$ F max.,<br>250Vac min.                          | IEC 60384-14          | VDE, SEV, FI                      |
|  | Taishing                  | MEX              | 0.47 $\mu$ F max.,<br>250Vac min.                          | IEC 60384-14          | VDE, SEV, FI                      |
|  | Teapo                     | XG-VS, XG-VP     | 0.47 $\mu$ F max.,<br>250Vac min.                          | IEC 60384-14          | VDE, SEV, FI                      |
|  | UTX                       | HQX              | 0.47 $\mu$ F max.,<br>250Vac min.                          | IEC 60384-14          | VDE, SEV, FI                      |
| - Bleeder Resistor (R1) (Not provided when C1 not provided.) | --                        | --               | 470k $\Omega$ , 1/4 min.                                   | --                    | --                                |
| - Line Choke (LF1) (Optional)                                | Sunpower Technology Corp. | 25-028           | Class 105 $^{\circ}$ C min. (Material: bobbin is Phenolic) | --                    | --                                |
| - Y Capacitor (C7) (Optional)                                | Matsushita                | RS               | 4700pF max.,<br>250Vac min.                                | IEC 60384-14/<br>1993 | VDE, SEV, UL,<br>CSA, S, N, D, FI |
|  | Matsushita                | NS-A             | 4700pF max.,<br>250Vac min.                                | IEC 60384-14/<br>1993 | VDE, SEV, UL,<br>CSA, S, N, D, FI |
|  | Murata                    | KH               | 4700pF max.,<br>250Vac min.                                | IEC 60384-14/<br>1993 | VDE, SEV, UL,<br>CSA, S, N, D, FI |
|  | Samsung                   | AA               | 4700pF max.,<br>250Vac min.                                | IEC 60384-14/<br>1993 | VDE, SEV, UL,<br>CSA, S, N, D, FI |
|  | Samsung                   | AD               | 4700pF max.,<br>250Vac min.                                | IEC 60384-14/<br>1993 | VDE, SEV, UL,<br>CSA, S, N, D, FI |
|  | TDK                       | CS               | 4700pF max.,<br>250Vac min.                                | IEC 60384-14/<br>1993 | VDE, SEV, UL,<br>CSA, S, N, D, FI |
|  | TDK                       | CD               | 4700pF max.,<br>250Vac min.                                | IEC 60384-14/<br>1993 | VDE, SEV, UL,<br>CSA, S, N, D, FI |
|  | Welson                    | KL               | 4700pF max.,<br>250Vac min.                                | IEC 60384-14/<br>1993 | VDE, SEV, UL,<br>CSA, S, N, D, FI |
| - Bridge Rectifier (BD1)                                     | --                        | --               | 2A min., 600V min.   | --                    | --                                |
| - Electrolytic Capacitor (C2)                                | --                        | --               | 400Vdc min.,<br>85 $^{\circ}$ C min.                       | --                    | --                                |
| - Power Switching IC (U1)                                    | --                        | --               | 1A min., 600V min.   | --                    | --                                |
| - Optical Isolator (OPT1)                                    | Sharp                     | PC817,<br>PC817U | di > 0.4mm   | VDE 0884<br>IEC 60950 | TÜV<br>FI                         |

| IEC 60 950   |                           |  |   |                       |                        |
|--|---------------------------|--|---|-----------------------|------------------------|
| Clause   | Requirement + Test        |  | Result - Remark   |                       | Verdict                |
|  | Sharp                     | PC111,<br>PC111M                             | di > 0.4mm  | VDE 0884<br>IEC 60950 | TÜV<br>FI              |
|  | Sharp                     | PC123  | di > 0.4mm  | VDE 0884<br>IEC 60950 | TÜV<br>FI              |
|  | Toshiba                   | TLP 721.                                     | di = 0.8mm  | VDE 0884<br>IEC 60950 | TÜV<br>FI              |
|  | Taiwan Liton              | LTV-817                                      | di ≥ 0.4mm  | VDE 0884<br>IEC 60950 | TÜV<br>FI              |
|  | NEC                       | PC 2561...-                                  | di > 0.4mm  | VDE 0884<br>IEC 60950 | TÜV<br>FI              |
|  | QTC                       | 4N35   | di = 1.1mm  | VDE 0884<br>IEC 60950 | TÜV<br>FI              |
| - Bridging Capacitor (C6) (Optional)   | Murata                    | KX (Y1 type)                                 | 3300pF max.,<br>250Vac min.   | IEC 60384-14/<br>1993 | VDE, S, FI, UL,<br>CSA |
|  | Samsung                   | AD (Y1 type)                                 | 3300pF max.,<br>250Vac min.   | IEC 60384-14/<br>1993 | VDE, S, FI, UL,<br>CSA |
|  | Matsushita                | NS-A (Y1 type)                               | 3300pF max.,<br>250Vac min.   | IEC 60384-14/<br>1993 | VDE, S, FI, UL,<br>CSA |
|  | Samwha                    | SD (Y1 type)                                 | 3300pF max.,<br>250Vac min.   | IEC 60384-14/<br>1993 | VDE, S, FI, UL,<br>CSA |
|  | TDK                       | CD (Y1 type)                                 | 3300pF max.,<br>250Vac min.   | IEC 60384-14/<br>1993 | VDE, S, FI, UL,<br>CSA |
| - Power Transformer (T1)   | Sunpower Technology Corp. | 23-455<br>(UL Class B designated Viking B-2) | Class B<br>(Material: bobbin is Phenolic; insulation tape is polyester; UL approval.) | --                    | UL                     |
| 1) an asterisk indicates a mark which assures the agreed level of surveillance |                           |  |   |                       |                        |

| IEC 60 950 |                    |                 |         |
|------------|--------------------|-----------------|---------|
| Clause     | Requirement + Test | Result - Remark | Verdict |

| 1.6                        | TABLE: electrical data (in normal conditions) |       |       |        |             | Pass                      |
|----------------------------|---|-------|-------|--------|-------------|---------------------------|
| fuse #                     | I rated (A)                                   | U (V) | P (W) | I (mA) | I fuse (mA) | condition/status          |
|                            |   |       |       |        |             | See enclosed test record. |
|                            |   |       |       |        |             |                           |
| supplementary information: |   |       |       |        |             |                           |

| IEC 60 950 |                    |                 |         |
|------------|--------------------|-----------------|---------|
| Clause     | Requirement + Test | Result - Remark | Verdict |

| 2.9.2 and 2.9.3   | TABLE: clearance and creepage distance measurements |              |                  |         |                   |          | Pass |
|---|---|--------------|------------------|---------|-------------------|----------|------|
| 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) |      |
| Primary to metal enclosure (Near power switch and appliance inlet)  | <420  | <250         | 2.0              | >4.0    | 2.5               | >5.0     |      |
| Power Supply to metal enclosure   | <420  | <250         | 2.0              | >4.0    | 2.5               | >4.0     |      |
| Power Supply to secondary boards (earth trace)  | <420  | <250         | 2.0              | >3.0    | 2.5               | >3.0     |      |
| Primary to secondary (Near power switch and appliance inlet. The lead wires of connected between both devices and power supply provided with tube.) | <420  | <250         | 4.0              | >4.0    | 5.0               | >5.0     |      |
| Primary trace to secondary trace (power supply, under OPT1)   | <420  | <250         | 4.0              | 7.5     | 5.0               | 7.5      |      |
| Primary trace to secondary trace (power supply, under C6)   | <420  | <250         | 4.0              | 5.0     | 5.0               | 5.5      |      |
| Primary trace to secondary trace (power supply, under T1)   | 584   | 289          | 4.6              | 12.5    | 6.2               | 12.5     |      |
| Primary trace to earth trace (power supply, under C7, near L4)  | <420  | <250         | 2.0              | >2.5    | 2.5               | >3.0     |      |
| Primary trace to earth trace (power supply, near C1, F1)  | <420  | <250         | 2.0              | >3.3    | 2.5               | >3.3     |      |
| Primary component (C6) to secondary component (U2), (power supply, U2 secured with glue.)   | <420  | <250         | 4.0              | >9.0    | 5.0               | >9.0     |      |
| Primary pins of T1 to secondary component (R3, R14), (power supply)   | <420  | <250         | 4.0              | >8.5    | 5.0               | >8.5     |      |
| Primary component (ZD1) to T1 core to secondary components (C13, H2), (power supply, T1 core wrap with two layers insulation tape)                  | <420  | <250         | 4.0              | >4.0    | 5.0               | >5.0     |      |

| IEC 60 950  |                    |     |     |                 |     |         |
|---|--------------------|-----|-----|-----------------|-----|---------|
| Clause  | Requirement + Test |     |     | Result - Remark |     | Verdict |
| Primary winding to secondary winding of T1 transformer (power supply, T1 provided with margin tape, polyester tape, 3.1 mm minimum; each winding exit leads provided with tube.)  | 584                | 289 | 4.6 | 6.2             | 6.2 | 6.2     |
| Primary winding / secondary winding to core / secondary pins / primary pins of T1 transformer (power supply, T1 provided with margin tape, polyester tape, 3.1 mm minimum; each winding exit leads provided with tube.) | 584                | 289 | 2.3 | >3.1            | 3.1 | >3.1    |
|   |                    |     |     |                 |     |         |

| 2.9.4.1                               | TABLE: distance through insulation measurements |                  |                  |         | Pass |
|---------------------------------------|---|------------------|------------------|---------|------|
| distance through insulation di at/of: | U r.m.s. (V)                                    | test voltage (V) | required di (mm) | di (mm) |      |
| Optical Insulator (OPT1)              | <250V   | 3000Vac          | 0.4              | >0.4    |      |
|                                       |   |                  |                  |         |      |
| supplementary information:            |   |                  |                  |         |      |

| IEC 60 950 |                    |                 |         |
|------------|--------------------|-----------------|---------|
| Clause     | Requirement + Test | Result - Remark | Verdict |

|                                 |   |   |                    |                    |        |
|---------------------------------|---|---|--------------------|--------------------|--------|
| 5.1                             | <b>TABLE: temperature rise measurements</b> |   |                    |                    | Pass   |
|                                 | test voltage (V) .....                      | : | 90 / 264 V         |                    | —      |
|                                 | t1 (°C) .....                               | : | --                 |                    | —      |
|                                 | t2 (°C) .....                               | : | --                 |                    | —      |
| temperature rise dT of part/at: |   |   | dT (K)             | required dT (K)    |        |
| See enclosed test record.       |   |   |                    |                    |        |
|                                 |   |   |                    |                    |        |
| temperature rise dT of winding: |   |   | R <sub>1</sub> (Ω) | R <sub>2</sub> (Ω) | dT (K) |
|                                 |   |   |                    |                    |        |
|                                 |   |   |                    |                    |        |
| supplementary information:      |   |   |                    |                    |        |

| IEC 60 950 |                    |                 |         |
|------------|--------------------|-----------------|---------|
| Clause     | Requirement + Test | Result - Remark | Verdict |

| 5.3                           | <b>TABLE: electric strength measurements</b> |           | Pass |
|-------------------------------|--|-----------|------|
| test voltage applied between: | test voltage (V)                             | breakdown |      |
| See enclosed test record.     |  | No        |      |
|                               |  |           |      |
| supplementary information:    |  |           |      |

|            |                    |                 |         |
|------------|--------------------|-----------------|---------|
| IEC 60 950 |                    |                 |         |
| Clause     | Requirement + Test | Result - Remark | Verdict |

| 5.4                        | <b>TABLE: fault condition tests</b>    |       |                  |           |          |                            | Pass                      |
|----------------------------|--|-------|------------------|-----------|----------|----------------------------|---------------------------|
|                            | ambient temperature (°C) ..... :       |       |                  |           |          | 25°C                       | —                         |
|                            | model/type of power supply ..... :     |       |                  |           |          | (see appended table 1.5.1) | —                         |
|                            | manufacturer of power supply ..... :   |       |                  |           |          | (see appended table 1.5.1) | —                         |
|                            | rated markings of power supply ..... : |       |                  |           |          | (see appended table 1.5.1) | —                         |
| No.                        | component No.                          | fault | test voltage (V) | test time | fuse No. | fuse current (A)           | result                    |
|                            |  |       |                  |           |          |                            | See enclosed test record. |
|                            |  |       |                  |           |          |                            |                           |
| supplementary information: |  |       |                  |           |          |                            |                           |

| IEC 60 950 |                    |                 |         |
|------------|--------------------|-----------------|---------|
| Clause     | Requirement + Test | Result - Remark | Verdict |

|                            |  |                       |                          |
|----------------------------|--|-----------------------|--------------------------|
| 5.4.10                     | <b>TABLE: ball pressure test of thermoplastics</b> |                       | N/A                      |
|                            | required impression diameter (mm) .....            | <= 2 mm               | —                        |
| part                       |  | test temperature (°C) | impression diameter (mm) |
|                            |  |                       |                          |
|                            |  |                       |                          |
| supplementary information: |  |                       |                          |

## **ENCLOSURE No. 1**

### **Photographs**

**(Total 11 Pages including this Cover Page)**

## Model RPD-1151T



## Model RPD-1151T



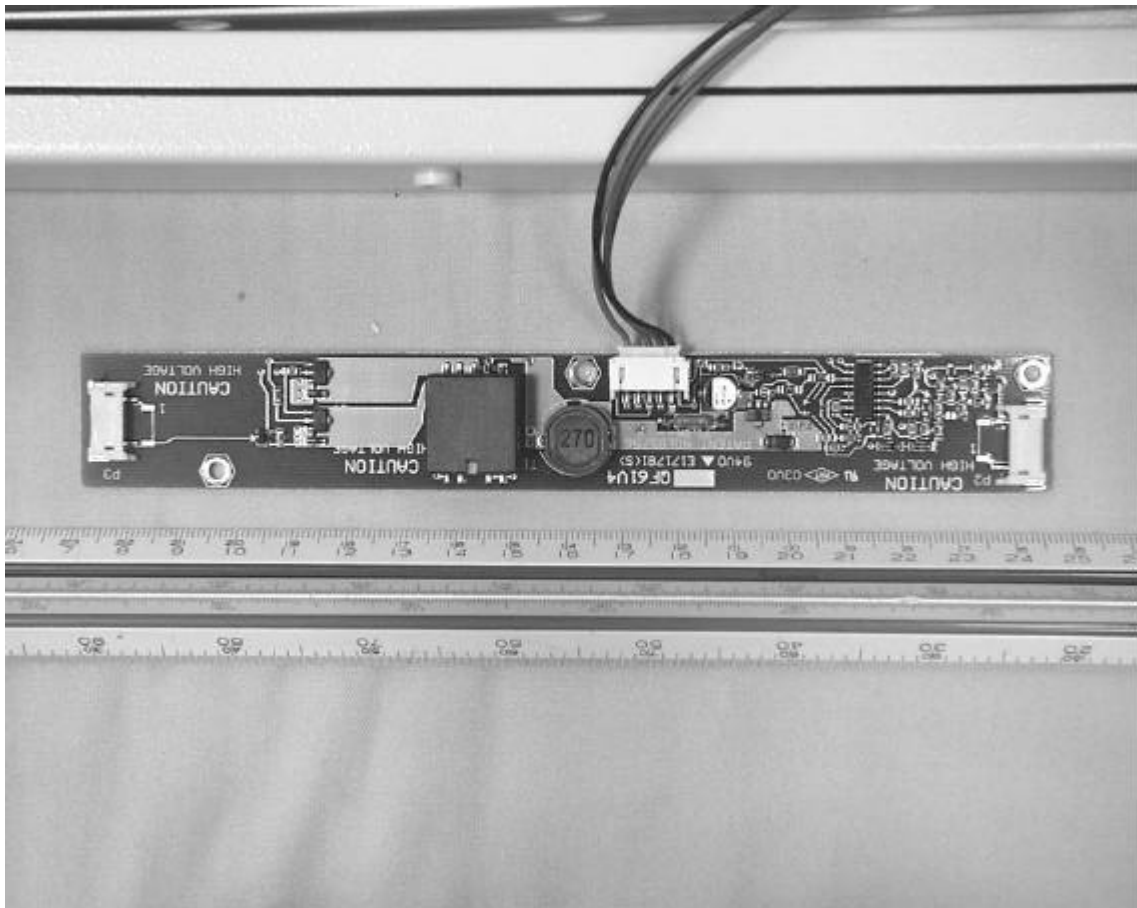
## Model RPD-1151T



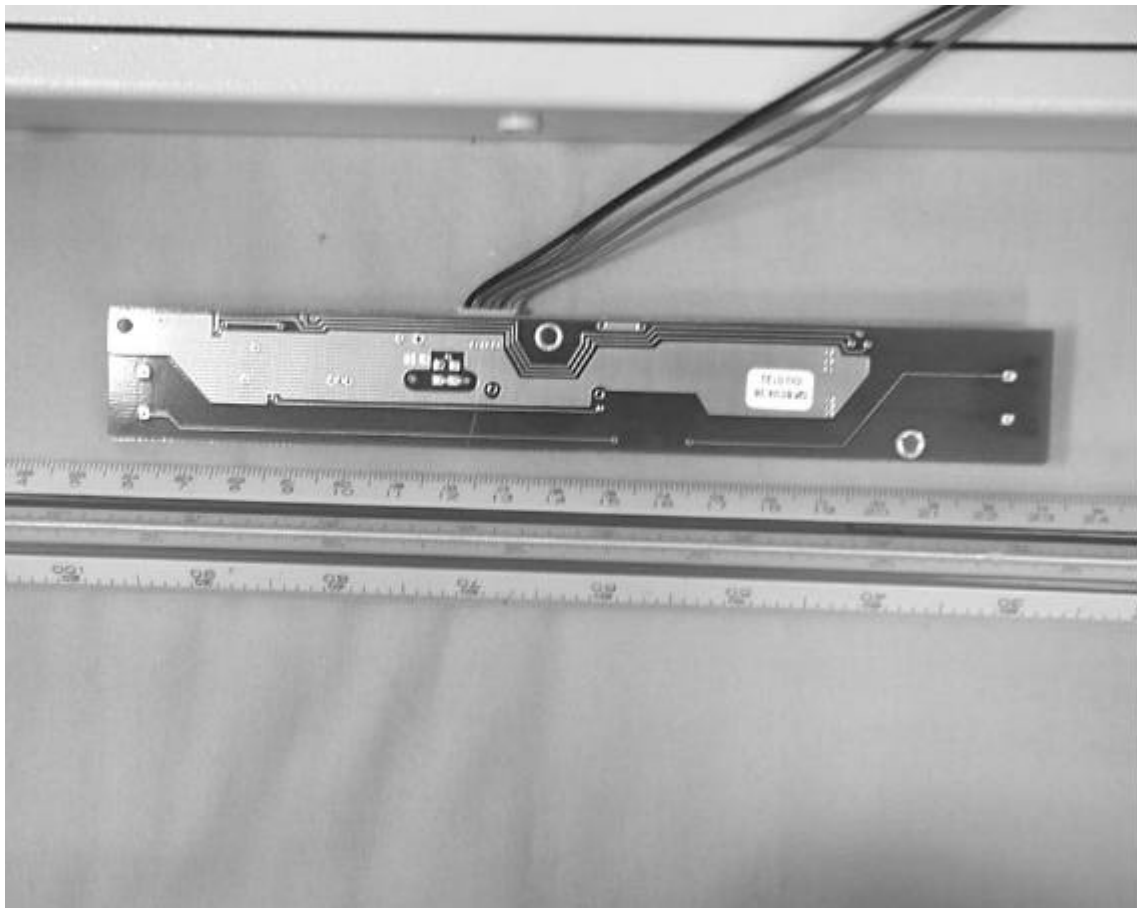
### Model RPD-1151T



## DC/AC Inverter



## DC/AC Inverter



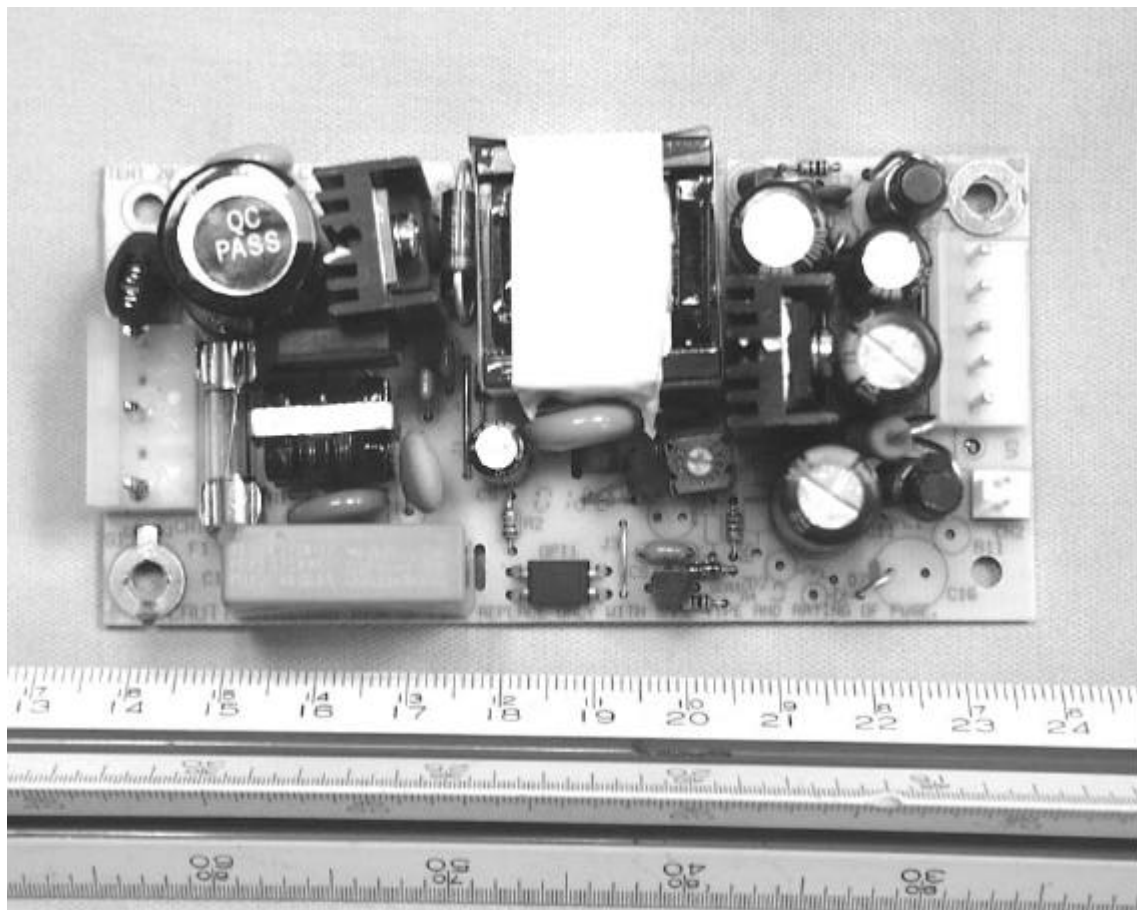
### Model RPD-1158



### Model RPD-1158



## Power Supply, Model SPP-AS21Z1



## Power Supply, Model SPP-AS21Z1

