# UL TEST REPORT AND PROCEDURE

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|---|---|
| **Standard:** | UL 62368-1, 2nd Ed, 2014-12-01 (Audio/video, information and communication technology equipment Part 1: Safety requirements)<br>CAN/CSA C22.2 No. 62368-1-14, 2nd Ed (Audio/video, information and communication technology equipment Part 1: Safety requirements) |
| **Certification Type:** | Component Recognition |
| **CCN:** | QQJQ2, QQJQ8 (Power Supplies for Use in Audio/Video, Information and Communication Technology Equipment) |
| **Complementary CCN:** | N/A |
| **Product:** | AC-DC Power Supply for DIN rail |
| **Model:** | DRB100-24-1-xzy<br>where x, y and z may be any alphanumeric character or blank, considered non safety relevant information. |
| **Rating:** | Input: 100-240 Vac, 50/60 Hz, 1.8 A Maximum<br>Output: 24-28 Vdc, 4.2-3.6 A<br>Maximum power: 100.8 W<br>Operating ambient temperature:<br>55 °C for 100% load.<br>>55 °C up to 70 °C for 50% load. |
| **Applicant Name and Address:** | TDK-LAMBDA UK LTD<br>KINGSLEY AVE<br>ILFRACOMBE<br>EX34 8ES UNITED KINGDOM |

This is to certify that representative samples of the products covered by this Test Report have been investigated in accordance with the above referenced Standards. The products have been found to comply with the requirements covering the category and the products are judged to be eligible for Follow-Up Service under the indicated Test Procedure. The manufacturer is authorized to use the UL Mark on such products which comply with this Test Report and any other applicable requirements of UL LLC ('UL') in accordance with the Follow-Up Service Agreement. Only those products which properly bear the UL Mark are considered as being covered by UL's Follow-Up Service under the indicated Test Procedure.

The applicant is authorized to reproduce the referenced Test Report provided it is reproduced in its entirety.

UL authorizes the applicant to reproduce the latest pages of the referenced Test Report consisting of the first page of the Specific Technical Criteria through to the end of the Conditions of Acceptability.

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

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| Prepared By: | Piotr A. Bizunowicz / Project Handler | Reviewed By: | Robert Dmitruk / Reviewer |

**Supporting Documentation**

The following documents located at the beginning of this Procedure supplement the requirements of this Test Report:

A. Authorization - The Authorization page may include additional Factory Identification Code markings.

B. Generic Inspection Instructions -

i. Part AC details important information which may be applicable to products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of this Test Report.

ii. Part AE details any requirements which may be applicable to all products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of each Test Report.

iii. Part AF details the requirements for the UL Certification Mark which is not controlled by the technical standard used to investigate these products. Products are permitted to bear only the Certification Mark(s) corresponding to the countries for which it is certified, as indicated in each Test Report.

**Product Description**

The product is a Switch Mode AC-DC Power Supply for DIN-Rail mounting.

**Model Differences**

N/A

| **Test Item Particulars** | |
|---|---|
| Classification of use by | Skilled person |
| Supply Connection | AC Mains |
| Supply % Tolerance | range 90-264Vac |
| Supply Connection – Type | Not directly connected to MAINS |
| Considered current rating of protective device as part of building or equipment installation | 20 A;<br>building; |
| Equipment mobility | for building-in |
| Over voltage category (OVC) | OVC II |
| Class of equipment | Class I<br>Class II with functional earthing |
| Access location | N/A |
| Pollution degree (PD) | PD 2 |
| Manufacturer's specified maximum operating ambient (°C) | 55 °C (100% load) and 70 °C (50% load) |
| IP protection class | IPX0 |
| Power Systems | TN<br>TT |
| Altitude during operation (m) | 3000m m |
| Altitude of test laboratory (m) | 2000 m or less |
| Mass of equipment (kg) | 0.31 |

**Technical Considerations**

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : 55 °C (100% load) and 70 °C (50% load)
- The product is intended for use on the following power systems : TN, TT
- Considered current rating of protective device as part of the building installation (A) : 20
- Mains supply tolerance (%) or absolute mains supply values : Range 90-264Vac
- The equipment disconnect device is considered to be : determined in End PRoduct
- The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS) : Output
- The following were investigated as part of the protective earthing/bonding : Printed wiring board trace (refer to Enclosure - Schematics + PWB for layouts)
- The Risk Group of a lamp or lamp system (including LEDs) is : Exempt
- The following are available from the Applicant upon request : Installation (Safety) Instructions / Manual, including French language for Canada
- The product was investigated to the following additional standards : EN 62368-1:2014 + A11:2017
- The following scope limitations apply to this test report and are confirmed by Applicant to be covered separately. Additional evaluation and/or tests may be required when submitting this CB Report to a National Certification Body (NCB) to obtain a national mark:
    1) no EMC tests nor evaluation to EMC Directive 2004/108/EC and 2014/30/EU,
    2) no evaluation to RoHS Directives 2002/95/EC, 2011/65/EU and (EU) 2016/585,
    3) no evaluation to Council Recommendation 1999/519/EC nor 2006/25/EC,
    4) only English version of markings and instructions provided and reviewed,

**Engineering Conditions of Acceptability**

For use only in or with complete equipment where the acceptability of the combination is determined by UL LLC. When installed in an end-product, consideration must be given to the following:

- The following product-line tests are conducted for this product : Earthing Continuity, Electric Strength
- The end-product Electric Strength Test is to be based upon a maximum working voltage of : T1-Primary-Protective Earth: 372Vrms, 536Vpk, T1-Primary-SELV: 368Vrms, 584Vpk
- The following output circuits are at ES1 energy levels : Output
- The following output circuits are at PS3 energy levels : Output
- The maximum investigated branch circuit rating is : 20 A
- The investigated Pollution Degree is : 2
- Proper bonding to the end-product main protective earthing termination is : Required
- An investigation of the protective bonding terminals has : been conducted
- The following input terminals/connectors must be connected to the end-product supply neutral : "N"
- The following end-product enclosures are required : Fire, Electrical
- The following magnetic devices (e.g. transformers or inductor) are provided with an OBJY2 insulation system with the indicated rating greater than Class A (105°C) : T1 Class155(F)
- The following components require special consideration during end-product Thermal (Heating) tests due to the indicated maximum temperature measurements during component-level testing : T1, PC101, PC102, C55
- The power supply was evaluated to be used at altitudes up to : 3000m

**Additional Information**

This report is based on previously conducted testing (as listed below) and the review of product construction of original UL report Ref. No. E135494-A91 dated 2013-09-03.
Refer to Section "Test performed (name of test and test clause)" covering all applicable performance tests and rationale for waived tests.

Output: 24-28 Vdc, 4.2-3.6 A
Maximum power: 100.8 W

Operating ambient temperature: 55 °C at 100% load and derating above 55 °C up to 70 °C at 50% load.

Sample Operation Position: DIN-Rail vertical (input connectors aligned on bottom, output connectors on top side).

**Additional Standards**

The product fulfills the requirements of: EN 62368-1:2014 + A11:2017

**Markings and Instructions**

| Clause Title | Marking or Instruction Details |
|---|---|
| Field wiring terminals - Conductor sizes to be connected | "Use _ AWG only"/“Utiliser _ AWG uniquement” |
| Field wiring terminals for aluminum conductors only | "Use Aluminum Conductors Only"/"Utiliser seulement des conducteurs en aluminium" or "Use Aluminum or Copper-Clad Aluminum Conductors Only"/"Utiliser seulement des conducteurs en aluminium cuivré" |
| Field wiring - Wire temperature rating | "For supply connections, use wires suitable for at least ___°C"/“Utiliser des fils convenant à une température de _____ °C pour les connexions dalimentation.“ |
| Fuses – replaceable by skilled person | (component ID:_____), Ratings (____A), "Ratings (____A, ____V)", and (symbol of required characteristics) located on or adjacent to fuse or fuseholder or in service manual. |
| Class I equipment -Terminal for main protective earthing | Provided adjacent to the main protective earthing terminal  (IEC 60417-5019) |
| Equipment for use in location where children are not likely to be presented | “This equipment is not suitable for use in locations where children are likely to be present” (Instruction)/“Cet équipement ne convient pas à une utilisation dans des lieux pouvant accueillir des enfants” (Instruction) |

**Special Instructions to UL Representative**

| BD1.0 | TABLE: Production-Line Testing Requirements | | | | | |
|---|---|---|---|---|---|---|
| **BD1.1** | **Electric Strength Test Special Constructions – Refer to Generic Inspection Instructions, Part AC for further information.** | | | | | |
| Model | Component | Removable parts | Test probe location | Test V rms | Test V dc | Test Time, s |
| | | | | | | |
| **BD1.2** | **Earthing Continuity Test Exemptions – This test is not required for the following models:** | | | | | |
| | - | | | | | |
| **BD1.3** | **Electric Strength Test Exemptions – This test is not required for the following models:** | | | | | |
| | - | | | | | |
| **BD1.4** | **Electric Strength Test Component Exemptions – The following solid-state components may be disconnected from the remainder of the circuitry during the performance of this test.** | | | | | |
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| BE1.0 | Sample and Test Specifics for Follow-Up Tests at UL | | | | |
|---|---|---|---|---|---|
| Model | Component | Material | Test | Sample (s) | Test Specifics |
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