

## UL TEST REPORT AND PROCEDURE

<b>Standard:</b>	UL 62368-1, 2nd Ed, 2014-12-01 (Audio/video, information and communication technology equipment Part 1: Safety requirements) CAN/CSA C22.2 No. 62368-1-14, 2nd Ed-(Audio/video, information and communication technology equipment Part 1: Safety requirements)
<b>Certification Type:</b>	Component Recognition
<b>CCN:</b>	QQJQ2, QQJQ8 (Power Supplies for Use in Audio/Video, Information and Communication Technology Equipment)
<b>Complementary CCN:</b>	N/A
<b>Product:</b>	Power supply
<b>Model:</b>	DRL100-24-1-xyz, DRL100-24-1/C2-xyz (where x, y and z can be any alphanumeric character or blank and is not safety relevant information)
<b>Rating:</b>	Input: 100-240 Vac ; 2.8 A; 50/60 Hz Output: DRL100-24-1-xyz: 24-28 Vdc ; 4.2-3.6 A (100,8 W) DRL100-24-1/C2-xyz: 24 Vdc 3.67A (88 W)
<b>Applicant Name and Address:</b>	TDK-LAMBDA UK LTD KINGSLEY AVE ILFRACOMBE 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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**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**

Device is double-insulated, switch mode power supply for DIN rail mounting.

**Model Differences**

Model DRL100-24-1/C2-xyz is identical to DRL100-24-1-xyz except for changes in regulating feedback loop, to throttle output power down to 85W and improve performance in single-fault condition to meet NEC Class 2 per UL1310 and LPS per UL 62368 Annex Q requirements.

**Test Item Particulars**

Classification of use by	Skilled person
Supply Connection	AC Mains
Supply % Tolerance	Other + 10 % / - 15 %
Supply Connection – Type	To be determined in End Product
Considered current rating of protective device as part of building or equipment installation	20 A; building;
Equipment mobility	for building-in
Over voltage category (OVC)	OVC II
Class of equipment	Class II
Access location	service access area
Pollution degree (PD)	PD 2
Manufacturer's specified maximum operating ambient (°C)	55
IP protection class	IPX0
Power Systems	TN TT IT - 230V phase-phase (Norway) V L-L
Altitude during operation (m)	3000 m
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	0.27

**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 full load, Above 55 °C (derating): +55°C to + 70°C, where output power linearly derates from 100% to 60% of rated load
- The product is intended for use on the following power systems : TN, IT
- Considered current rating of protective device as part of the building installation (A) : 16 A (for Europe), 20 A (for Canada and US)
- Mains supply tolerance (%) or absolute mains supply values : +10%/ -15%
- The equipment disconnect device is considered to be : To be determined in End product
- The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS) : Output for model DRL100-24-1/C2-xyz only
- 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 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,
  - 5) no evaluation to Directive 96/29/Euratom.
  - 6) limited number of power supply cord types provided, additional certificates may be needed for local market
- Output for model DRL100-24-1/C2-xyz complies also with NEC/CEC class 2 circuit requirements

#### 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 : Electric Strength
- The end-product Electric Strength Test is to be based upon a maximum working voltage of : Primary-Secondary: 277 Vrms/530 Vpk
- The following output circuits are at ES1 energy levels : DC Output
- The following output circuits are at PS2 energy levels : DC Output for model DRL100-24-1/C2-xyz only
- The following output circuits are at PS3 energy levels : DC output for model DRL100-24-1-xyz only
- 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 : Not required
- An investigation of the protective bonding terminals has : not been conducted
- The following input terminals/connectors must be connected to the end-product supply neutral : N
- The following end-product enclosures are required : Electrical, Fire
- 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) : Main transformer T1 class 155 (F)
- The power supply was evaluated to be used at altitudes up to : 3000 m

#### Additional Information

n/a

#### Additional Standards

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

<b>Markings and Instructions</b>	
Clause Title	Marking or Instruction Details
Class 2/3 terminals	"Class 2" or "Class 2 output"/"Classe 2" or "Sortie Classe 2"
Equipment identification marking – Manufacturer identification	Listees or Recognized companys name, Trade Name, Trademark or File Number
Equipment identification marking – model identification	Model Number
Equipment rating marking – ratings	"Input Ratings (voltage, frequency/dc, current/power)", "Output Ratings (voltage, frequency/dc, current/power)"
Equipment with output terminals other than mains supply	rated voltage, rated frequency/dc, rated maximum current/power, equipment to be connected, Class 1 wiring adjacent to terminals, Class 2 wiring adjacent to terminals, Class 3 wiring adjacent to terminals
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.
Terminals for external primary power supply conductors	Capital letter "N" located adjacent to a terminal intended exclusively for connection of the primary power neutral conductor
Class II Equipment without Functional Earth	Symbol for Class II construction  (IEC 60417-5172)
<b>Special Instructions to UL Representative</b>	
"Class 2 output" only for model DRL100-24-1/C2-xyz	