UL TEST REPORT AND PROCEDURE

Standard:	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)
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:	DRB50-5-1-xyz, DRB50-12-1-xyz, DRB50-15-1-xyz, DRB50-24-1-xyz, DRB50-48-1-xyz where x, y and z can be any alphanumerical character or blank, not safety relevant.
Rating:	Input: All models: 100-240 Vac, 2.4 A max, 50/60 Hz Output: DRB50-5-1-xyz: 5-5.5 Vdc / 6-5.4 A, max 30 W. DRB50-12-1-xyz: 12-15 Vdc / 3.4 A, max. 51 W. DRB50-15-1-xyz: 15 Vdc / 3.4 A, max. 51 W. DRB50-24-1-xyz: 24-28 Vdc / 2.1-1.8 A, max. 50.4 W. DRB50-48-1-xyz: 48-52.8 Vdc / 1.05-0.95 A, max. 50.4 W.
Applicant Name and Address:	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.

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 equipment is a switch-mode AC-DC power supply (DIN rail type) intended for building-in.

Model Differences

All models share the same mechanical and electrical design, except for output ratings, transformer (number of turns in secondary winding) and differences in output circuitry.

DRB50-5-1-xyz: output can be adjusted between 5-5.5 Vdc / 6-5.4 A, max 30 W.

DRB50-12-1-xyz: output can be adjusted between 12-15 Vdc / 3.4 A, max. 51 W.

DRB50-24-1-xyz: output can be adjusted between 24-28 Vdc / 2.1-1.8 A, max. 50.4 W.

DRB50-48-1-xyz: output can be adjusted between 48-52.8 Vdc / 1.05-0.95 A, max. 50.4 W.

Test Item Particulars

Classification of use by	Skilled person
Supply Connection	AC Mains
Supply % Tolerance	range 85-264Vac
Supply Connection – Type	To be determined in End Use Application
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 I
Access location	Not accessible for ordinary person
Pollution degree (PD)	PD 2
Manufacturer's specified maximum operating ambient (°C)	55 °C (full load) and 70 °C (with derating 50% load).
IP protection class	IPX0
Power Systems	TN TT
Altitude during operation (m)	3000 m
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	0.2

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) and 70 °C (with derating 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 : Absolute 85-264V
- 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 of the power supply DRB50-12-1, DRB50-24-1, DRB50-48-1. This is not applicable to DRB50-5-1.
- 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
- Output of the power supply DRB50-12-1, DRB50-24-1, DRB50-48-1 is classified to be NEC Class 2 Output. This is not applicable to DRB50-5-1.
- 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.

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 : Primary-SELV: 219 Vrms, 488 Vpk, Primary-Earthed Dead Metal: 219 Vrms, 418 Vpk
- The following output circuits are at ES1 energy levels : All outputs
- The following output circuits are at PS2 energy levels : All outputs
- 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 : 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) : T1 class 155 (F)
- 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 report UL Ref. No. E135494-A93, dated 2013-11-13.
Refer to Section "Test performed (name of test and test clause)" covering all applicable performance tests and rationale for waived tests.

The following derating was considered:
100% load at 55°C ambient.

50% load at 70°C ambient.
Linear derating of output load from 55°C to 70°C.

Additional investigation for the output of the PSU to be classified as NEC Class 2 Output acc. to UL 1310 / CSA C22.2 No.223 was conducted under the project # 4787390364. This classification does not apply to DRB50-5-1, which has output rating exceeding UL1310 limits.

Additional Standards

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

Markings and Instructions

Clause Title	Marking or Instruction Details
Identification of earthing terminals	“G”, “GND” or “GROUND”
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.
Class I equipment -Terminal for main protective earthing	Provided adjacent to the main protective earthing terminal  (IEC 60417-5019)
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

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