UL TEST REPORT AND PROCEDURE

Standard:	UL 62368-1, 3rd Ed, 2021-10-22 (Audio/video, information and communication technology equipment Part 1: Safety requirements) CAN/CSA C22.2 No. 62368-1:19, 3rd Ed, 2021-10-22 (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
Model:	DRB240-48-1/yyy where yyy is optional and can be alphanumeric characters or blank and is for non-safety related changes. It can be followed by SP followed by / or – (SP represents a sales code) - product ratings unchanged.
Rating:	Input: 100-240 VAC, 2.7 A, 50/60 Hz Output: Rated: 48 - 52.8 Vdc, 5 - 4.55 A Peak: 48 - 52.8 Vdc, 6 - 5.45 A/Max 10sec.
Applicant Name and Address:	TDK-LAMBDA SWITZERLAND SA VIA LUSERTE SUD 6 6572 QUARTINO SWITZERLAND

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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.

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

Prepared By:	Isaia Bonavoglia / Project Handler	Reviewed By:	Oreste Buzzetti / Reviewer

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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

The product covered in this report is a building-in component switch-mode power supply (DIN rail type).

Model Differences

Unit product code may be followed by SP followed by / or – (SP represents a sales code), example extra labels on the unit. Product ratings unchaged.

Test Item Particulars

Product group ..... :	built-in component
Classification of use by ..... :	Instructed person
Supply Connection ..... :	AC Mains
Supply tolerance ..... :	+ 10 % / - 15 %
Supply connection – type ..... :	Terminal Block for internal connection within end product
Considered current rating of protective device ... :	20 A; Location: building
Equipment mobility ..... :	for building-in
Over voltage category (OVC) ..... :	OVC II
Class of equipment ..... :	Class I
Special installation location ..... :	N/A
	0
Pollution degree (PD) ..... :	PD 2
Manufacturer's specified Tma (°C) ..... :	55°C, above 55°C derated linearly to 50% output power at 70°C
IP protection class ..... :	IPX0
Power systems ..... :	TN
Altitude during operation (m) ..... :	3000 m
Altitude of test laboratory (m) ..... :	2000 m or less
Mass of equipment (kg) ..... :	0.45

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, above 55°C derated linearly to 50% output power at 70°C
- The product is intended for use on the following power systems : TN
- Considered current rating of protective device as part of the building installation (A) : 20
- Mains supply tolerance (%) or absolute mains supply : +10%/-15%
- The equipment disconnect device is considered to be : Provided in end product
- 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
- The product was investigated to the following additional standard : EN IEC 62368-1:2020+A11:2020, CAN/CSA C22.2 No. 62368-1:19, 3rd Edition, Revised October 22
- A maximum of 2 units are permitted to be connected in series
- IEC 62368-1:2014 2nd Edition report has been accepted for UL/IEC 62368-1:2018 3rd Edition since the technical requirements are the same. Test results from the 2nd Edition report are considered valid for UL/IEC 62368-1 3rd Edition.

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: 281.1 Vrms/500 Vpk, Primary – Earthed Dead Metal: 261.9 Vrms/460 Vpk., (For units connected in series: Primary to Secondary: 462 Vrms/524Vpk, Primary – Earthed Dead Metal: 261.9 Vrms/460 Vpk)
- The following output circuits are at ES1 energy levels : Output
- The following output circuits are at ES3 energy levels : Series connected outputs
- The following output circuits are at PS3 energy levels : All circuits
- 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 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, L3 (Class 155(F))
- The equipment is suitable for direct connection to : AC mains supply
- The power supply was evaluated to be used at altitudes up to : 3000 m

Additional Information

This report is based on previously conducted testing and the review of product construction evaluated per IEC/UL 62368-1 2nd edition in CB report Ref. No E135494-A6033-CB-1-Orinal including, Amendment-1 and 2 with certificate no. DK-95088-M2-UL issued on 2023-02-21 (2020-03-28, Orignal Issue Date).
The test sample received dates and the test dates are from the original and amendment report (E135494-A6003). Per the previously conducted testing and the review of product technical documentation including photos, schematics, wiring diagrams and similar, it has been determined that the product continues to comply with the standard. Refer to Section "Test performed" covering all conducted performance tests in those reports.

The marking label provided is representative of all models and ratings.

The following tests were selected as representative of the test program applicable to model covered by this CBTR: Operating temperature measurement conditions (Cl. B.2.6), Simulated Abnormal Operating Conditions (B.3), Determination of Working Voltage (Cl. 5.4.1.8), and Electric Strength Test - type testing of Slid Insulation (Cl. 5.4.9.1).
These tests have been witnessed for models selected as representative of the standard covered by this report and the applicable test program. (Ref: 4790099713 and 4790662104, DA file 331).

Output Test Load:

Condition A (rated output)
48 Vdc, 5 A

Condition B (maximum rated output)
52.8 Vdc, 4.55 A

Condition C (50% power at maximum ambient)
48 Vdc, 2.5A @ 70°C

Condition D (peak output for maximum 10 seconds)
Cyclic @ 48Vdc output: 6 A load for 10 sec. then 1.5 A for 19 sec.

Additional Standards

The product fulfills the requirements of: BS EN IEC 62368-1:2020 + A11:2020, EN IEC 62368-1:2020+A11:2020, UL 62368-1 3rd Edition, Revised October 22, 2021, CAN/CSA C22.2 No. 62368-1:19, 3rd Edition, Revised October 22, 2021, AS/NZS 62368.1:2018

Markings and Instructions

Clause Title	Marking or Instruction Details
Equipment identification marking – Manufacturer identification	Listee’s or Recognized Company’s 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)"

Special Instructions to UL Representative

N/A