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:	Model/type reference: DRB120-XX-1/yyy (where XX can be 12 or 48 for the output voltage and yyy is optional and can be alphanumeric characters or blank and is for non-safety related changes - product ratings unchanged)
Rating:	Input: 100-240 VAC, 1.5 A, 50/60 Hz Output DRB120-12-1: Rated: 12-13.2 Vdc, 10-9.09 A Peak: 12-13.2 Vdc, 12-10.9 A, Max 10sec. Output DRB120-48-1: Rated: 48-52.8 Vdc, 2.5-2.27 A Peak: 48-52.8 Vdc, 3-2.72 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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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

DRB120-12-1 and DRB120-48-1 are almost identical except for the output voltage and current ratings.

Output power is the same for both models, rated 120W.

Product code may be prefixed by SP followed by / or – (SP represents a sales code)

Test Item Particulars

Product group ..... :	built-in component
Classification of use by ..... :	Instructed person
Supply Connection ..... :	AC Mains
Supply tolerance ..... :	+10%/-10%
Supply connection – type ..... :	Terminal Block for internal connection within end product
Considered current rating of protective device ... :	20A 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 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
- A maximum of 2 units are permitted to be connected in series.

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, Earthing Continuity
- The end-product Electric Strength Test is to be based upon a maximum working voltage of : Primary – Earthed Dead Metal: 280Vrms / 510Vpk, Primary-Secondary: 280Vrms / 510Vpk
- The following output circuits are at ES1 energy levels : PSU 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 (Class 155(F))
- The power supply was evaluated to be used at altitudes up to : 3000 m
- For units connected in series the end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary – Earthed Dead Metal: 280Vrms / 510Vpk, Primary – Secondary: 458Vrms / 510Vpk

Additional Information

Output Test Load for DRB120-12-1:

Condition A (rated output)
12 Vdc, 10 A

Condition B (maximum rated output)
13.2 Vdc, 9.09 A

Condition C (50% power derating at maximum ambient)
12 Vdc, 5A @ 70°C

Condition D (peak output current)
12 Vdc, cycle: 12 A for 10 seconds, 3 A for 19 seconds

Output Test Load for DRB120-48-1:

Condition A (rated output)
48 Vdc, 2.5 A

Condition B (maximum rated output)
52.8 Vdc, 2.27 A

Condition C (50% power at maximum ambient)
48 Vdc, 1.25A @ 70°C

Condition D (peak output current)
48 Vdc, cycle: 3 A for 10 seconds, 0.75 A for 19 seconds

This report is based on previously conducted testing (as listed below) and the review of product construction of original Conducted in original investigation CBTR Ref. No. E135494-A6030-CB-1 issued on 2020-03-27 and CBTC DK-95089-UL issued on 2020-03-30. Test performed according to IEC/UL 62368-1 2nd ed. Compliance criteria are equivalent to 3rd ed and no additional evaluation is required.
Refer to Section “Test performed (name of test and test clause)” covering all applicable performance tests and rationale for waived tests.

(UL Project 4790231446) The following tests were selected as representative of the test program applicable to model covered by this CBTR: 5.4.1.8 DETERMINATION OF WORKING VOLTAGE, 5.4.9.1 ELECTRIC STRENGTH TEST – TYPE TESTING OF SOLID INSULATION.
These tests have been witnessed for models selected as representative of the standard covered by this report and the applicable test program.

Additional Standards

The product fulfills the requirements of: EN IEC 62368-1:2020+A11:2020, CSA/UL 62368-1:2019

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)"
Class I equipment -Terminal for main protective earthing	Provided adjacent to the main protective earthing terminal  (IEC 60417-5019)