UL TEST REPORT AND PROCEDURE

Standard:	UL 60950-1, 2nd Edition, 2011-12-19 (Information Technology Equipment - Safety - Part 1: General Requirements) CAN/CSA C22.2 No. 60950-1-07, 2nd Edition, 2011-12 (Information Technology Equipment - Safety - Part 1: General Requirements)
Certification Type:	Component Recognition
CCN:	QQGQ2, QQGQ8 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)
Product:	DIN Rail Power Supply
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, 1.2 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 SWITZERLAND SA VIA LUSERTE SUD 6 6572 QUARTINO TICINO SWITZERLAND

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

Model Differences

All models are similar except for output ratings, transformer and differences in output circuitry.

Technical Considerations

- Equipment mobility : for building-in
- Connection to the mains : permanent connection
- Operating condition : continuous
- Access location : for building-in, no user access permitted
- Over voltage category (OVC) : OVC II
- Mains supply tolerance (%) or absolute mains supply values : 85-264 Vac considered
- Tested for IT power systems : No
- IT testing, phase-phase voltage (V) : -
- Class of equipment : Class I (earthed)
- Considered current rating of protective device as part of the building installation (A) : 20 A branch circuit
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : 2000 m
- Altitude of test laboratory (m) : less than 2000 meters
- Mass of equipment (kg) : 0.2 kg
- 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 means of connection to the mains supply is: Permanently connected (field wired)
- The product is intended for use on the following power systems: TN
- The equipment disconnect device is considered to be: To be provided in the end-use equipment.
- The following circuit locations (with circuit/schematic designation) were investigated as a limited

power source (LPS): Output

- 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.

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 Production-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-SELV: 219 Vrms, 488 Vpk, Primary-Earthed Dead Metal: 219 Vrms, 418 Vpk
- The following secondary output circuits are SELV: DC output
- The following secondary output circuits are at non-hazardous energy levels: DC output
- The following secondary output circuits are supplied by a Limited Power Source: DC 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
- 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 F)
- The following end-product enclosures are required: Fire, Electrical

Additional Information

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.

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.

Markings and instructions

Clause Title	Marking or Instruction Details
Power rating - Ratings	Ratings (voltage, frequency/dc, current)
Power rating - Company identification	Listee's or Recognized company's name, Trade Name, Trademark or File Number
Power rating -	Model Number

Model	
Fuses - Non-operator access/soldered-in fuses	Unambiguous reference to service documentation for instructions for replacement of fuses replaceable only by service personnel
Terminal for main protective earthing	Provided adjacent to the main protective earthing terminal (60417-5019) 
NEC Class 2 Output	NEC Class 2 Output marking may be provided on the DRB50-12-1, DRB50-24-1 and DRB50-48-1. This is not acceptable for DRB50-5-1.

Special Instructions to UL Representative

N/A

Production-Line Testing Requirements

Electric Strength Test Special Constructions - Refer to Generic Inspection Instructions, Part AC for further information.

Model	Component	Removable Parts	Test probe location	V rms	V dc	Test Time, s
N/A						

Earthing Continuity Test Exemptions - This test is not required for the following models:

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Electric Strength Test Exemptions - This test is not required for the following models:

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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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Sample and Test Specifics for Follow-Up Tests at UL

Model	Component	Material	Test	Sample(s)	Test Specifics
N/A					