

## UL TEST REPORT AND PROCEDURE

<b>Standard:</b>	UL 60950-1, 2nd Edition, 2019-05-09 (Information Technology Equipment - Safety - Part 1: General Requirements) CAN/CSA C22.2 No. 60950-1-07, 2nd Edition, 2014-10 (Information Technology Equipment - Safety - Part 1: General Requirements)
<b>Certification Type:</b>	Component Recognition
<b>CCN:</b>	QQGQ2, QQGQ8 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)
<b>Complementary CCN:</b>	QQJQ2, QQJQ8 (Power Supplies for Use in Audio/Video, Information and Communication Technology Equipment)
<b>Product:</b>	AC-DC Power Supply
<b>Model:</b>	DRJ15-24-1, DRJ30-5-1, DRJ30-12-1, DRJ30-24-1  Maybe followed by suffix "abc" ("a" is "/" or blank, "b" is "E" or blank, "c" is "CO", "CO2" or blank)
<b>Rating:</b>	Model DRJ15-24-1: Input: 100-240 Vac, 0.32 A, 50-60 Hz Output: 24 Vdc, 0.63 A.  Model DRJ30-5-1: Input: 100-240 Vac, 0.5 A, 50-60 Hz Output: 5 Vdc, 4 A.  Model DRJ30-12-1: Input: 100-240 Vac, 0.65 A, 50-60 Hz Output: 12 Vdc, 2.3 A.  Model DRJ30-24-1: Input: 100-240 Vac, 0.65 A, 50-60 Hz Output: 24 Vdc, 1.25 A.
<b>Applicant Name and Address:</b>	TDK-LAMBDA CORP NAGAOKA TECHNICAL CENTER R&D DIV 2704-1 SETTAYA-MACHI NAGAOKA-SHI NIIGATA 940-1195 JAPAN

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: Toshiyuki Suzuki / Project  
Handler

Reviewed By: Masatomo Takiyama / 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 power supply (DIN rail type) intended for building-in.

Output:

- 24 V (21.6V-28.5V), maximum 0.63 A (maximum 15.1W) (for DRJ15-24-1),
- 5 V (4.5V-6.0V), maximum 4.0 A (maximum 20.0W) (for DRJ30-5-1),
- 12 V (10.8V-15.0V), maximum 2.3 A (maximum 27.6W) (for DRJ30-12-1),
- 24 V (21.6V-28.5V), maximum 1.25 A (maximum 30W) (for DRJ30-24-1),

### Model Differences

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

Standard model is Terminal Block model.

Maybe followed by suffix "abc" ("a" is "/" or blank, "b" is "E" or blank, "c" is "CO", "CO2" or blank).

Suffix "b": It denotes models with "E" = Terminal Block is for Europe.

Suffix "c": It denotes models with "CO" = Optional thin coating (QMJU2) on one side of PWB, "CO2" = Optional thin coating (QMJU2) on both sides of PWB.

### Test Item Particulars

Mass of equipment (kg)	0.114
Equipment mobility	for building-in
Connection to the mains	N/A
Operating condition	continuous
Access location	N/A
Over voltage category (OVC)	OVC II
Mains supply tolerance (%) or absolute mains supply values	+10%, -10%
Tested for IT power systems	No
IT testing, phase-phase voltage (V)	N/A
Class of equipment	Class I (earthed)

Considered current rating of protective device as part of the building installation (A)	20
Pollution degree (PD)	PD 2
IP protection class	IP X0
Altitude of operation (m)	up to 3000 m
Altitude of test laboratory (m)	less than 2000 meters

### Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (T<sub>ma</sub>) permitted by the manufacturer's specification of : See Enclosure #7-01.
- The means of connection to the mains supply is : N/A
- The product is intended for use on the following power systems : TN
- The equipment disconnect device is considered to be : provided in end product.
- The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS) : Output.
- The output circuit is additionally investigated to performance requirements for Class 2 circuits described in the Standard for Class 2 Power Units, UL 1310.

### 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 following secondary output circuits are SELV : Output.
- The following secondary output circuits are at non-hazardous energy levels : 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 OBJ2 insulation system with the indicated rating greater than Class A (105°C) : T1 (Class 130 (B))
- The following secondary output circuits are supplied by a Limited Power Source : Output.
- The end-product Electric Strength Test shall take into account the a maximum working voltage of:  
Model DRJ15-24-1: Primary-SELV: 240Vrms, 472Vpk, Primary-Earthed Dead Metal: 240Vrms, 472Vpk, Model DRJ30-5-1: Primary-SELV: 240Vrms, 448Vpk, Primary-Earthed: 240Vrms, 454Vpk, Model DRJ30-12-1: Primary-SELV: 248Vrms, 448Vpk, Primary-Earthed Dead Metal: 248Vrms, 448Vpk, Model DRJ30-24-1: Primary-SELV: 242Vrms, 440Vpk, Primary-Earthed Dead Metal: 242Vrms, 440Vpk.
- The following end-product enclosures are required: - Fire: Housing may provide fire barrier, but due to the openings, complete fire enclosure is required., - Electrical: Housing complied with electric strength test for reinforced insulation but has not been evaluated to robustness tests.
- The following secondary output circuits are ES1: Output of all models.
- The following secondary output circuits are at PS2 energy level: Output of all models.
- Classification of PIS has not been conducted. Therefore, all electrical components and conductors including printed wirings were assumed to be arcing/resistive PIS.

### Additional Information

The Clearances and Creepage Distances have additionally been assessed for suitability up to 3000 m elevation.

**Additional Standards**

The product fulfills the requirements of: UL 62368-1, 2nd Edition, 2014-12-01, CAN/CSA C22.2 No. 62368-1-14, 2nd Edition, 2014-12.

**Markings and Instructions**

Clause Title	Marking or Instruction Details
Power rating - Ratings	
Power rating - Company identification	Listee's or Recognized companys name, Trade Name, Trademark or File Number
Power rating - Model	Model Number
Fuses - Rating	Rated current and voltage and type located on or adjacent to fuse or fuseholder.