

## UL TEST REPORT AND PROCEDURE

<b>Standard:</b>	UL 60950-1, 2nd Edition, 2014-10-14 (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>	Switching Power supply
<b>Model:</b>	ZWS240RC-24 Maybe followed by suffix "abcdef" (a = "/" , b = T, c = R, d = A, L, e = CO2, f = FG, and "a", "b", "c", "d", "e", "f" may be blank)
<b>Rating:</b>	Input: AC 100-240V, 50-60 Hz, 3.2A Output: DC 24V (21.6 - 26.4V), 10A/ 240W
<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: Tetsuo Iwasaki

Reviewed by: Ikuro Kinno

### 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 is a switching power supply intended for building in to an end product.

### Model Differences

Nomenclature; ZWS240RC-24

Maybe followed by suffix "abcdef" (a = "/" , b = T, c = R, d = A, L, e = CO2, f = FG, and "a", "b", "c", "d", "e", "f" may be blank)

a; (separator)

b; T = Screw terminals

c; R = Remote control

d; A = with Chassis and Cover

L = with Chassis

e; CO2 = Coating process on PWB for functional purpose

f; FG = Low leakage current

### Technical Considerations

- Equipment mobility : for building-in
- Connection to the mains : N/A
- Operating condition : continuous
- Access location : N/A (for building-in)
- 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) : 20A
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : Up to 5000m
- Altitude of test laboratory (m) : less than 2000 meters
- Mass of equipment (kg) : 0.52 (suffix d = blank), 0.78 (suffix d = A or L)

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: See Enclosure Id. 7-01 and 7-02 (Output Derating Curve ) for details.
- The product is intended for use on the following power systems: TN

**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 end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-SELV: 279 Vrms, 476 Vpk
- The following secondary output circuits are SELV: CN51
- The following secondary output circuits are at hazardous energy levels: CN51
- The maximum investigated branch circuit rating is: 20 A
- Proper bonding to the end-product main protective earthing termination is: Required (via Chassis on which the unit is mounted)
- The following secondary output circuits are ES1: CN51
- The following secondary output circuits are at PS3 energy level: CN51
- Line to Line Capacitors (C1 and C4) may have variation in capacitance up to 0.33 uF and 0.47 uF. Therefore, consideration shall be given in controlling the capacitance value in the end-product application with respect to capacitance discharge issue.
- Primary to Ground Capacitor (C2, C3, C8, C9 (C9 for optional)) may have variations in capacitance up to 1500 pF. Therefore, consideration shall be given in controlling the capacitance values in end product application with respect to touch Current issue.
- Humidity conditioning has been conducted by tropical condition.
- Classification of PIS has not been conducted. Therefore, all electrical components and conductors including printed wirings were assumed to be arcing/resistive PIS.
- This component has been evaluated in "control of fire spread" method assuming appropriate fire enclosure is provided in end product. Unless the fire enclosure is made of non-combustible or V-0 material, the separation from the PIS shall be considered.
- The following magnetic devices (e.g. transformers or inductor) are provided with IEC 60085 (equivalent to UL 1446) insulation system with the indicated rating greater than Class 105 (A): T2 (Class 155(F))

**Additional Information**

The Clearances and Creepage Distances have additionally been assessed for suitability up to 5000 m elevation.

**Additional Standards**

The product fulfills the requirements of: 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	Ratings (voltage, frequency/dc, current)
Power rating -	Model Number

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2019-02-13

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Report Reference #

E122103-A215-UL

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