UL TEST REPORT AND PROCEDURE

Standard:	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)
Certification Type:	Component Recognition
CCN:	QQGQ2, QQGQ8 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)
Complementary CCN:	QQJQ2, QQJQ8 (Power Supplies for Use in Audio/Video, Information and Communication Technology Equipment)
Product:	Built-in Power Supply
Model:	ZWS240BP-abcdef (a=24, 36, 48, b="/" or blank, c="T" or blank, d="R" or blank, e="A", "L" or blank, f="CO2", "FG" or blank), ZWS240BP-48/SE52P
Rating:	Model: ZWS240BP-abcdef Input: 100-240VAC, 50-60Hz, 3.9A Output: See Enclosure Id. 7-01, 7-07 and 7-10 for details. Model: ZWS240BP-48/SE52P Input: 200-240VAC, 50-60Hz, 1.6A Output: See Enclosure Id. 7-09 for details.
Applicant Name and Address:	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: Tomoko Takahashi Reviewed by: Bruce A. Mahrenholz

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; ZWS240BP-abcdef
(a = 24, 36, 48. b = "/" or blank. c=T or blank, d= "R" or blank. e = "A", "L" or blank. f = "CO2", "FG" or blank)
a; output voltage as above
b; (separator)
c; type of input connector
d; remote control
e; A = with covers on both component side and solder side,
L = with cover on solder side
f; CO2 = coating of both sides of PWB for functional purpose,
FG = low leakage current
Suffixes b, d and f are not safety relevant.

Model ZWS240BP-48/SE52P is identical to Model ZWS240BP-48 except for Input rating, Output Rating.

Refer to Enclosure id 7-01, 7-07, 7-09 and 7-10 for detail.

Technical Considerations

- Equipment mobility : for building-in
- Connection to the mains : not directly connected to the mains
- 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 A
- 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
- Mass of equipment (kg) : approximately 0.52
- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: See Enclosure Ids. 7-01 and 7-09 (Output Derating Curve) and 7-07 (Output Derating Curve for Additional Forced Air Condition) 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 following Production-Line tests are conducted for this product: Electric Strength
- 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
- 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): T2; Class 155 (F)
- The following end-product enclosures are required: Fire, Electrical
- The end-product Electric Strength Test shall take into account the maximum working voltage of: Primary-Earthed Dead Metal: 250 Vrms, 420 Vpk, Primary-SELV: 274 Vrms, 621 Vpk [For models other than model ZWS240BP-48/SE52P]. Primary-Earthed Dead Metal: 250 Vrms, 420 Vpk, Primary-SELV: 254 Vrms, 712 Vpk [For model ZWS240BP-48/SE52P]
- The following secondary output circuits are ES1: Output of all models
- The following secondary output circuits are at PS3 energy level: Output of all models.
- Humidity conditioning has been conducted by tropical condition.
- 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.
- Classification of PIS has not been conducted. Therefore, all electrical components and conductors including printed wirings were assumed to be arcing/resistive PIS.
- Line to Line Capacitor C1 and C4 may have variations in capacitance to C1: 0.33 uF, C4: 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 and C9 may have variations in capacitance up to C2, C3: 1500 pF, C9: 2200 pF. Therefore, consideration shall be given in controlling the capacitance value in the end product application with respect to touch current issue.
- Earth terminal provided on Input Connector (CN1) has not been evaluated as protective earthing terminal.
- This component is intended to be bonded to a protective earthing terminal of the end-product via Chassis.

Additional Information

The CB Scheme Test Certificate Nos. JPTUV-042885/-M1/-M2 dated 2012-03-21/2012-06-04/2013-01-17 and Report Ref. Nos. 12026097 001/002/003 dated 2012-03-19/2012-06-01/2013-01-10 were prepared by TÜV Rheinland Japan Ltd., 4-25-2 Kita-Yamata, Tsuzuki-ku, Yokohama 224-0021, Japan.

This Test Report was based on the above CB Test Certificate and Test Report and was submitted by the CB Scheme. The test results and clause verdicts of the above noted Test Report were reviewed and found to comply with the applicable U.S. and Canadian (Bi-National) Standard for Safety for Information Technology Equipment - Safety - Part 1: General Requirements, UL 60950-1 and CAN/CSA-C22.2 No. 60950-1-07, Second Edition, issued date December 19, 2011. As a result the clause verdicts and test results for this Test Report were noted as N/A and have been referred to the TÜV Rheinland Japan Ltd. Test Report for details. All test data has been retained in UL's files.

Additional Standards

The product fulfills the requirements of: 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
1.7.1 Power rating - Ratings	Ratings (voltage, frequency/dc, current)
1.7.1 Power rating - Company identification	Listee's or Recognized company's name, Trade Name, Trademark or File Number
1.7.1 Power rating - Model	Model Number
1.7.6 Fuses - Rating	Rated current and voltage and type located on or adjacent to fuse or fuseholder.