

UL TEST REPORT AND PROCEDURE

Standard:	UL 60950-1, 2nd Edition, 2007-03-27 (Information Technology Equipment - Safety - Part 1: General Requirements) CAN/CSA C22.2 No. 60950-1-07, 2nd Edition, 2007-03 (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:	Power Supply for building-in, switch mode type
Model:	OZ-060-3R3, OZ-060-5, OZ-060-12, OZ-060-15, and OZ-060-24 (may be followed by suffix "-x0yz"; x is "J" or "E", y is any number 0 to 9, any letter A to Z or blank and z is "-K" or "-C" or blank)
Rating:	Input: 100-240 Vac, 50-60 Hz 0.85 A (for OZ-060-3R3) 1.23 A (for OZ-060-5) 1.18 A (for OZ-060-12) 1.28 A (for OZ-060-12-J0B) 1.15 A (for OZ-060-15) 1.14 A (for OZ-060-24) Output: 3.3 Vdc, 12 A (for OZ-060-3R3) 5 Vdc, 12 A (for OZ-060-5) 12 Vdc, 5.0 A (for OZ-060-12 and OZ-060-12-J0B) 15 Vdc, 4.0 A (for OZ-060-15) 24 Vdc, 2.5 A (for OZ-060-24)
Applicant Name and Address:	NIPRON CO LTD 2-57 OHAMA-CHO AMAGASAKI-SHI HYOGO-KEN 660-0095 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: Yoshifusa Koyanagi

Reviewed by: Satoru Ohnishi

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

Building-in type switching power supplies.

Model Differences

Each models are identical, except for output rating and secondary components.

Model Nomenclature:

OZ-060 -24 -J 0 0 -C
I II III IV V VI

I. Model Designation
"OZ-060"

II. Rated Output Voltage
"3R3": 3.3 Vdc
"5": 5 Vdc
"12": 12 Vdc
"15": 15 Vdc
"24": 24 Vdc

III. Input/Output Terminal
"J": Connector
"E": Terminal Block

IV. Fixed Number "0"

V. Marketing Purpose, not safety relevant.
Any number 0 to 9, any letter A to Z or blank, not affected to safety.

VI. Chassis and Cover
Blank: Not provided.
"-C": Chassis provided.
"-K": Chassis and Cover provided.

Model OZ-060-12-J0B is the same as OZ-060-12 series except for input rating, location of thermistor (R1), additional thermistor TH1 in the secondary circuit, dimension of the product and rated input current.

Technical Considerations

- Equipment mobility : for building-in
- Connection to the mains : N/A
- Operating condition : continuous
- Access location : for building-in
- Over voltage category (OVC) : OVC II
- Mains supply tolerance (%) or absolute mains supply values : +10%, -15%
- Tested for IT power systems : No
- IT testing, phase-phase voltage (V) : N/A
- Class of equipment : Class I (earthed)
- Considered current rating (A) : 20 A
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : <2000 m
- Altitude of test laboratory (m) : Approximately 10 to 20 m
- Mass of equipment (kg) : Approximately 0.3 Kg
- The product was submitted and evaluated for use at the maximum ambient temperature (T_{ma}) permitted by the manufacturer's specification of: Maximum 70°C with or without forced air (0.5 m³/minute) See Enclosure Id. 7-01 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: PRI-Ground: 281 Vrms, 624 Vpk , PRI-SEC: 322 Vrms, 648 Vpk ,
- The following secondary output circuits are SELV: All outputs.
- The following secondary output circuits are at non-hazardous energy levels: All outputs.
- The power supply terminals and/or connectors are: Suitable for factory wiring only
- 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): Transformer (T1) (Class B)
- The following end-product enclosures are required: Fire , Electrical
- RTI of Bobbin Material of Inductor (LF1) is minimum 120°C.
- Marking "FG" located near the Input Terminal Block (CN1) or Input Connector (CN1), however, Limited Short-Circuit Test per CSA C22.2 No.04 has not been conducted. Therefore, protective earthing conductor shall not be connected directly to the Input Terminal Block (CN1) or Input Connector (CN1).

Additional Information

Tests were performed with following output conditions.

<p>OZ-060-3R3: 3.3 Vdc (2.97 - 3.63 Vdc), 12 A (maximum 39.6 W) OZ-060-5: 5 Vdc (4.5 - 5.5 Vdc), 12 A (maximum 60 W) OZ-060-12: 12 Vdc (10.8 - 13.2 Vdc), 5.0 A (maximum 60 W) OZ-060-15: 15 Vdc (13.5 - 16.5 Vdc), 4.0 A (maximum 60 W) OZ-060-24: 24 Vdc (21.6 - 26.4 Vdc), 2.5 A (maximum 60 W)</p>	
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	Model Number
Fuses - Rating	Rated current and voltage and type located on or adjacent to fuse or fuseholder.
Terminals for external primary power supply conductors	Capital letter "N" located adjacent to a terminal intended exclusively for connection of the primary power neutral conductor
Special Instructions to UL Representative	
<p>Inspect the Transformer listed in BD1.1 per AA1.1 - C. When the tests are conducted at other location, inspect Test Record and Specification Sheet provided by the Component Manufacturer. Verify the Specification Sheet indicates 100% Routine Test specified in BD1.1 be conducted at the Component Manufacturer.</p>	

Production-Line Testing Requirements						
<u>Electric Strength Test Special Constructions - Refer to Generic Inspection Instructions, Part AC for further information.</u>						
Model	Component	Removable Parts	Test probe location	V rms	V dc	Test Time, s
OZ-060-3R3, OZ-060-5, OZ-060-12, OZ-060-15 and OZ-060-24	Transformer (T1)	N/A	Primary to Secondary	300 0	4242	1
<u>Earthing Continuity Test Exemptions - This test is not required for the following models:</u>						
OZ-060-3R3, OZ-060-5, OZ-060-12, OZ-060-15, and OZ-060-24						
<u>Electric Strength Test Exemptions - This test is not required for the following models:</u>						
OZ-060-3R3, OZ-060-5, OZ-060-12, OZ-060-15, and OZ-060-24						
<u>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:</u>						
N/A						
<u>Sample and Test Specifics for Follow-Up Tests at UL</u>						
Model	Component	Material	Test	Sample(s)	Test Specifics	
N/A	--N/A	--	--	--	--	--