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)
Product:	DC Power Supply
Model:	BS27x-P350y (where x may be any alphabetic character or blank, y may be maximum 50 alphanumeric characters, slash, hyphen or blank)
Rating:	N/A
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, Project Handler Reviewed by: Kosuke Kawamura, 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

This equipment is component type DC power supply which is supplied power from main Power Supply and charges Battery. Also it provides power to main Power Supply from Battery in case of interrupted power source of main Power Supply.

Model Differences

x and y is control number not related to safety.

Technical Considerations

- Equipment mobility : for building-in
- Connection to the mains : not directly connected to the mains
- Operating condition : continuous
- Access location : for building-in, rear side of Chassis (fan side): operator accessible
- Over voltage category (OVC) : OVC II
- Mains supply tolerance (%) or absolute mains supply values : N/A
- Tested for IT power systems : No
- IT testing, phase-phase voltage (V) : N/A
- Class of equipment : Not classified
- Considered current rating of protective device as part of the building installation (A) : N/A
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : up to 5000 m
- Altitude of test laboratory (m) : approximately 10 to 20 m
- Mass of equipment (kg) : approximately 0.189 (without Chassis and Fan), 0.638 (with Chassis and Fan)
- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer’s specification of: 50 °C,
- The product was investigated to the following additional standards: EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013 (which includes all European national differences, including those specified in this test report).

- LEDs provided in the product are considered low power devices: Yes

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: 259 Vrms, 554 Vpk, Primary-Earthed Dead Metal: 259 Vrms, 554 Vpk
- The following secondary output circuits are SELV: WH1+ (13.6V), CN4 (12V). , CN3, CN5, CN6, and CN6A are signal level only.
- The following secondary output circuits are at hazardous energy levels: CN4 (depends on the Battery Capacity)
- The following secondary output circuits are at non-hazardous energy levels: WH1+, CN3, CN5, CN6, and CN6A
- The power supply terminals and/or connectors are: Suitable for factory wiring only
- The investigated Pollution Degree is: 2
- Proper bonding to the end-product main protective earthing termination is: Required
- An investigation of the protective bonding terminals has: Not been conducted
- The following end-product enclosures are required: Electrical and Fire (if Chassis not provided)
- Touch Current and Protective Bonding Test shall be evaluated in the end-product.
- This DC Power Supply is used with main Power Supply, models HPCFL-400Px, HPCSF-400Px, HPC1U-400Px, UZP-120, mUZP-120, mUZPT-120, UZP-150, mUZP-150, UZP-220, mUZP-220
- When used with Chassis and Fan (Type U40G12BHA5), maximum Battery Capacity is 12.3Ah, and maximum load of main Power Supply is 150W. When used without Chassis and Fan, maximum Battery Capacity is 10Ah, and maximum load of main Power Supply is 100W.
- If this DC Power Supply is used for over 100W load of main Power Supply without Chassis and Fan (Type U40G12BHA5), additional evaluation is required.

Additional Information

This DC Power Supply is used with main Power Supply models below.
- HPCFL-400Px (E161936-A85-UL, E161936-A86-CB)
- HPCSF-400Px (E161936-A57-UL, E161936-A58-CB)
- HPC1U-400Px (E161936-A82-UL, E161936-A82-CB)
- UZP-120 & mUZP-120 & mUZPT-120 (E161936-A98-UL, E161936-A98-CB)
- UZP-150 & mUZP-150 (E161936-A89-UL, E161936-A89-CB)
- UZP-220 & mUZP-220 (E161936-A88-UL, E161936-A88-CB)

This DC Power Supply is used with Chassis and Fan (Type U40G12BHA5) or without Chassis and Fan.
When used with Chassis and Fan (Type U40G12BHA5), maximum Battery Capacity is 12.3Ah, and maximum load of main Power Supply is 150W.
When used without Chassis and Fan, maximum Battery Capacity is 10Ah, and maximum load of main Power Supply is 100W.

Unless otherwise stated, all tests were conducted with main Power Supply, Model HPCFL-400P-X2S. Also all tests were conducted with Fuse (F10) shorted.

Maximum Normal Load Condition (Test Condition) are as below
1. Charging full discharged Battery (10Ah) without chassis and fan (no cooling)

2. Charging full discharged Battery (12.3Ah) with chassis and fan (forced air cooling)
3. Discharging full charged Battery (10Ah) and providing power to main Power Supply without chassis and fan (no cooling) (Load of Power Supply: 100W)
4. Discharging full charged Battery (12.3Ah) and providing power to main Power Supply with chassis and fan (forced air cooling) (Load of main Power Supply: 150W)
5. Maximum Normal Load for charging (13.6V, 0.5A for WH1+, WH1-) with electrical load
6. Power (12V) supply to WH1+, WH1- by DC Power Supply and providing power to main Power Supply without chassis and fan (no cooling)
7. Power (12V) supply to WH1+, WH1- by DC Power Supply and providing power to main Power Supply with chassis and fan (forced air cooling)

Sample Position: Horizontal.

(for CB)
National Differences of Australia/New Zealand were evaluated. See Enclosure Id. 7-07 (National Differences of Australia/New Zealand to IEC 60950-1, ED. 2.0 (2005) + Am1 (2009) + Am2 (2013)) for details.

National Differences of Japan according to IEC60950-1 2nd. Edition +A1 was evaluated. See Enclosure Id. 7-08 (National Differences of Japan based on J60950-1 (H27) and J3000 (H25)) for details.

In this Test Report, CENELEC mark license indicating compliance to EN standard was used to verify component compliance to IEC standard because the standards are technically equivalent.

UL94 has requirements that meet or exceed the relevant IEC requirements.

Triple Insulation Wire, Types TRW(B), TRW(F) are certified (approved) under IEC60950-1(ed.2) + Am.1 only. The certification does not include IEC60950-1 A2:2013. However, it can be accepted because the standard requirements, both IEC60950-1 A1:2009 and IEC60950-1 A2:2013 for Triple Insulation Wire are technically equivalent. Recognizing NCBs may require additional information, testing and evaluation.

Markings and instructions

Clause Title	Marking or Instruction Details
Power rating - Company identification	Listee's or Recognized company's name, Trade Name, Trademark or File Number
Power rating - Model	Model Number

Special Instructions to UL Representative

Inspect the transformer(s) listed below 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.

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
BS27x-P350y	T11, T12	--	Primary to Secondary	3000	4242	1

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

BS27x-P350y

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

N/A

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:

N/A

Sample and Test Specifics for Follow-Up Tests at UL

Model	Component	Material	Test	Sample(s)	Test Specifics
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