UL TEST REPORT AND PROCEDURE

Standard:	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)
Certification Type:	Component Recognition
CCN:	QQGQ2, QQGQ8 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)
Complementary CCN:	N/A
Product:	Power Supply
Model:	PCSF-350P-ABCD Where "ABCD" is any alphanumeric character or blank
Rating:	Input: 100-240 Vac, 3.4-1.4 A, 50/60 Hz Rated Output: +3.3 Vdc, 14 A; +5 Vdc, 16 A; +12 V1, 10 A; +12 V2, 16 A; -12 Vdc, 0.5 A; +5 Vsb, 2 A +3.3 Vdc and + 5 Vdc Maximum 90 W. +12 V1 and +12 V2 Maximum 220 W. Total 250 W. Output-Peak: +3.3 Vdc, 20 A; +5 Vdc, 21 A; +12 V1, 16 A; +12 V2, 22 A; -12 Vdc, 0.8 A; +5 Vsb, 3 A +3.3 Vdc and +5 Vdc Maximum 120 W. +12 V1 and +12 V2 Maximum 270 W. Total 350 W.
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.

Prepared By:	Tomoko Takahashi / Project Handler	Reviewed By:	Bruce A. Mahrenholz / 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 products are component switching mode power supplies for building into an end-product.

Model Differences

Maybe provided with suffix "ABCD", suffix is any alphanumeric character or blank.

Suffix "ABCD" of model name is meaning the following.

A: Letter A is changed by output specification in the end-product.

B: Letter B is changed by whether the +3.3 V output used or not in the end-product.

C: Letter C is changed for specific shipment for client.

D: Letter D is changed for specific shipment for client or cooling fan specification. When D is "1", the equipment has variable cooling fans controlled by inner thermal sensor.

Test Item Particulars

Mass of equipment (kg)	approximately 1.2 kg
Equipment mobility	for building-in (component type)
Connection to the mains	pluggable equipment pluggable A
Operating condition	continuous
Access location	N/A
Over voltage category (OVC)	OVC II
Mains supply tolerance (%) or absolute mains supply values	+10%, -15%
Tested for IT power systems	Yes (Only considered under Norway Deviation.)
IT testing, phase-phase voltage (V)	230 V
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 2000
Altitude of test laboratory (m)	Approximately 10 to 20

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : 40°C - 100 % Loaded, 55°C - 77.5 % Loaded
- The means of connection to the mains supply is : Pluggable A, Detachable Power Supply Cord
- The product is intended for use on the following power systems : TN, IT (only considered under Norway Deviation.)
- The equipment disconnect device is considered to be : Appliance Inlet
- 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).

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 : Earthing Continuity, Electric Strength
- The end-product Electric Strength Test is to be based upon a maximum working voltage of : Primary - SELV: 920 Vpk, 438 Vrms. Primary - Earthed: 920 Vpk, 438 Vrms.
- The following secondary output circuits are SELV : All outputs
- The following secondary output circuits are at hazardous energy levels : +12 V1 output and +12 V2 output
- The following secondary output circuits are at non-hazardous energy levels : +3.3 Vdc output, +5 Vdc output, -12 Vdc output, and +5 Vsb output
- The power supply terminals and/or connectors are : Suitable for factory wiring only (Output Connector)
- 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 (Earthing terminal of Appliance Inlet in Power Supply may act as Protective Earthing Terminal of end-product.)
- An investigation of the protective bonding terminals has : Been conducted
- The following end-product enclosures are required : Fire, Electrical
- The equipment is suitable for direct connection to : AC mains supply (Appliance Inlet)
- Enclosure (Appliance Inlet/Power Switch) Side was evaluated as an Electrical and Fire Enclosure.
- The maximum normal load is as follows: The peak outputs' current is limited within continuous five seconds. In the case of the use repeatedly, the time ratio is assumed to be 10% or less.

Additional Information

Test Conditions Maximum Normal Load: See Enclosures Id. 7-01 for details.
(Operation at moment: Maximum operation time shall be within 5 seconds. Power Supply was operated continuous, 5 seconds peak load and 45 seconds no load.)

The rated voltage tolerance (+10%, -15%) was specified by Applicant request.

For CB:
This report is a re-issued report of CB Test Report Ref. No. E161936-A15-CB-3 due to the modifications below.
- Standard update from IEC 60950-1:2005 (2nd Edition); Am 1:2009 to IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013.
- Addition of alternate Y-Capacitors (C105, C106), Murata Mfg. Co., Ltd., Type KY.
- Change description from "Various" to "Interchangeable".
- Correction of manufacturer name of Insulation sheet, from "Sabic Innovative Plastics China Co., Ltd. or SP Pacific Ltd." to "Sabic Innovative Plastics US L L C or Sabic Japan L L C".

Based on the previously conducted testing and the review of product construction, it was determined that the product continues to comply with the standard.

No tests conducted under this investigation due to reissue of CB Test Report Ref. No. E161936-A15-CB-3. All required tests wre carried out under the original investigation.

National Differences of Japan according to IEC60950-1 2nd. Edition was evaluated. See Enclosure Id. 7-04 (National Differences of Japan based on J60950-1 (H26) and J3000 (H25)) for details.

Photocouplers (PC101, PC501, PC502, PC503, PC504) Type PS2561A-1 is 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 Photocouplers are technically equivalent. Recognizing NCBs may require additional information, testing and evaluation.

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.

For Plastic materials, UL Standard (UL94) has requirements that meet or exceed the relevant IEC requirements.

Additional Standards

The product fulfills the requirements of: EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011 + A2:2013, GB4943.1-2011

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.
1.7.8.3 Symbols - On/Off switch	All other controls to be marked with

Special Instructions to UL Representative

Inspect the transformer(s) 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.

BD1.0	TABLE: Production-Line Testing Requirements					
BD1.1	**Electric Strength Test Special Constructions – Refer to Generic Inspection Instructions, Part AC for further information.**					
Model	Component	Removable parts	Test probe location	Test V rms	Test V dc	Test Time, s
PCSF-350P-ABCD	Transformer (T101)	--	Primary to Secondary	3000 Vac or	4243 Vdc	1
PCSF-350P-ABCD	Transformer (T301)	--	Primary to Secondary	3000 Vac or	4243 Vdc	1
BD1.2	**Earthing Continuity Test Exemptions – This test is not required for the following models:**					
	N/A					
BD1.3	**Electric Strength Test Exemptions – This test is not required for the following models:**					
	N/A					
BD1.4	**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					

BE1.0	Sample and Test Specifics for Follow-Up Tests at UL				
Model	Component	Material	Test	Sample (s)	Test Specifics
N/A	--	--	--	--	--