

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:	DC Power Supply
Model:	HPCSA-700Pxyz, HPCSA-700Pxyz 48V, HPCSA-675Pxyz (where x, y, z maybe maximum 50 characters, any alphanumeric character, hyphen or blank, which denotes control number)
Rating:	<p>Input: AC100-240 V, 50/60 Hz, 7.1-2.9 A</p> <p>HPCSA-700Pxyz</p> <p>Output:</p> <p>CH1: 3.3 Vdc. maximum 16 A, peak 20 A CH2: 5 Vdc, maximum 16 A, peak 20 A CH3: 12 Vdc, maximum 18 A, peak 25 A CH4: 12 Vdc, maximum 18 A, peak 25 A CH5: 12 Vdc, maximum 18 A, peak 25 A CH6: -12 Vdc, maximum 1 A, peak 1 A CH7: 5 VSB, maximum 2 A, peak 3 A Peak: maximum 5 seconds Interval: 45 seconds</p> <p>Total Wattage: 600 W maximum (CH1+CH2: 90 W maximum, CH3+CH4+CH5+CH6: 600 W maximum, CH7: 10 W maximum) Total Peak Wattage: 700 W maximum (CH1+CH2: 120 W maximum, CH3+CH4+CH5+CH6: 700 W maximum, CH7: 15 W maximum)</p> <p>HPCSA-700Pxyz 48V</p> <p>Output:</p> <p>CH1: 3.3 Vdc. maximum 16 A, peak 20 A CH2: 5 Vdc, maximum 16 A, peak 20 A CH3: 12 Vdc, maximum 18 A, peak 25 A CH4: 12 Vdc, maximum 18 A, peak 25 A CH5: 12 Vdc, maximum 18 A, peak 25 A CH6: -12 Vdc, maximum 1 A, peak 1 A</p>

	<p>CH7: 5 VSB, maximum 2 A, peak 3 A CH8: 48 Vdc, maximum 4 A, peak 4 A Peak: maximum 5 seconds Interval: 45 seconds Total Wattage: 600 W maximum (CH1+CH2: 90 W maximum, CH3+CH4+CH5+CH6: 600 W maximum, CH7: 10 W maximum, CH8: 192 W maximum) Total Peak Wattage: 700 W maximum (CH1+CH2: 120 W maximum, CH3+CH4+CH5+CH6: 700 W maximum, CH7: 15 W maximum, CH8: 192 W maximum)</p> <p>HPCSA-675Pxyz Output: CH1: 3.3 Vdc, maximum 16 A, peak 20 A CH2: 5 Vdc, maximum 16 A, peak 20 A CH3: 12 Vdc, maximum 18 A, peak 25 A CH4: 12 Vdc, maximum 18 A, peak 25 A CH5: 12 Vdc, maximum 18 A, peak 25 A CH6: -12 Vdc, maximum 1 A, peak 1 A CH7: 5 VSB, maximum 2 A, peak 3 A Peak: maximum 5 seconds Interval: 45 seconds Total Wattage: 600 W maximum (CH1+CH2: 90 W maximum, CH3+CH4+CH5+CH6: 600 W maximum, CH7: 10 W maximum) Total Peak Wattage: 675 W maximum (CH1+CH2: 120 W maximum, CH3+CH4+CH5+CH6: 675 W maximum, CH7: 15 W maximum)</p>
Applicant Name and Address:	<p>NIPRON CO LTD 2-57 OHAMA-CHO AMAGASAKI-SHI HYOGO-KEN 660-0095 JAPAN</p>

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.

Issue Date: 2017-03-07
Revision Date: 2021-06-15

Page 3 of 28

Report Reference #

E161936-A101-UL

Prepared By: Yusuke Enokimura / Project
Handler

Reviewed By: Tadao Nakayama / Reviewer

Copyright

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 power supply.

Model Differences

HPCSA-700Pxyz is base model in this Test Report.

HPCSA-700Pxyz 48V is identical to Model HPCSA-700Pxyz, except for model designation, output rating, and providing an extra output unit for CH8.

HPCSA-675Pxyz is identical to Model HPCSA-700Pxyz, except for model designation and output rating (Total Peak Wattage: 675 W maximum (CH1+CH2: 120 W maximum, CH3+CH4+CH5+CH6: 675 W maximum, CH7: 15 W maximum)).

Test Item Particulars

Equipment mobility	for building-in
Connection to the mains	pluggable equipment pluggable A
Operating condition	continuous
Access location	operator accessible
Over voltage category (OVC)	OVC II
Mains supply tolerance (%) or absolute mains supply values	+10%, -15%
Tested for IT power systems	Yes (only for Norway)
IT testing, phase-phase voltage (V)	230
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 3000
Altitude of test laboratory (m)	approximately 10 to 20
Mass of equipment (kg)	approximately 2.0 (HPCSA-700Pxyz, HPCSA-675Pxyz), 2.4 (HPCSA-700Pxyz 48V)

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 for 100% load / 60°C for 70% load
- The means of connection to the mains supply is : Pluggable A, Detachable power cord
- The product is intended for use on the following power systems : TN and IT (only for Norway)
- 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). (For CB)

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 and Electric Strength
- The end-product Electric Strength Test is to be based upon a maximum working voltage of : Model HPCSA-700Pxyz, HPCSA-675Pxyz: 333 Vrms and 636 Vpk, Model HPCSA-700Pxyz 48V: 476 Vrms and 996 Vpk,
- The following secondary output circuits are SELV : All outputs
- The following secondary output circuits are at hazardous energy levels : 12V1 output, 12V2 output, 12V3 output
- The following secondary output circuits are at non-hazardous energy levels : 3.3V output, 5V output, - 12V output, ,5VSB and 48V output
- 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 : Not required
- An investigation of the protective bonding terminals has : Been conducted
- The following end-product enclosures are required : Electrical and Fire
- The Heating Test shall be evaluated in the end-product.

Additional Information

Maximum Normal Load (Test Conditions): See Enclosure Id. 7-01 (Test Conditions) for details.

<For CB Application>

National Differences of Australia/New Zealand were evaluated. See Enclosure Id. 7-20 (National Differences of Australia/New Zealand to IEC 60950-1:2005+A1+A2) for details.

National Differences of Japan according to IEC60950-1 2nd edition +A1 were evaluated. See Enclosure Id. 7-21 (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.


In table 1.5.1, UL standards have requirements that meet or exceed the relevant IEC requirements.

Additional Standards

The product fulfills the requirements of: <For CB Application>

EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013, GB4943.1-2011 (used at altitudes not exceeding 3000m and at tropical climate regions)

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 companys 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.
Symbols - On/Off switch	All other controls to be marked with symbol for "ON" (60417-2-IEC-5007) and  symbol for "OFF" (60417-2-IEC-5008)

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 below 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
HPCSA-700Pxyz, HPCSA-700Pxyz 48V, HPCSA-675Pxyz	Transformers (T101, T102, T103, and T101 (Extra output unit, model AU-200-48X))	--	Primary to Secondary	3000	4243	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	--	--	--	--	--