

## UL TEST REPORT AND PROCEDURE

<b>Standard:</b>	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)
<b>Certification Type:</b>	Component Recognition
<b>CCN:</b>	QQGQ2, QQGQ8 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)
<b>Product:</b>	Power Supply
<b>Model:</b>	PCSA-370P***** (*****: letter A to Z, number 0 to 9 or blank)
<b>Rating:</b>	Input: 100-240V~, 50/60Hz, 4.3-1.8A Output: +5V/21A, +3.3V/17A, +12V/18A, -12V/0.5A, +5VS/1.5A Total: 280.5W MAX
<b>Applicant Name and Address:</b>	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.

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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

This equipment is component type power supply for use with IT equipment.

### Model Differences

Model PCSA-370P\*\*\*\*\* ("") is 0-9, A-Z or blank. The symbol "" in the model designation may be any alphanumeric character or blank and denotes with or without 3.3V output, type of output and customer usage. The difference does not affect safety.

### Technical Considerations

- Equipment mobility : for building-in (component-type)
- Connection to the mains : No direct connection
- 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) : 20A
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : up to 2000
- Altitude of test laboratory (m) : less than 2000
- Mass of equipment (kg) : < 18
- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 40°C at 100% Load, 50°C at 80% 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
- The equipment disconnect device is considered to be: Appliance inlet

### 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, Earthing Continuity
- The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-SELV: 1.12 kVpeak, 453 Vrms, Primary-Earthed Dead Metal: 1.12 kVpeak, 453 Vrms,
- The following secondary output circuits are SELV: All secondary outputs
- The following secondary output circuits are at non-hazardous energy levels: All secondary outputs
- 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 magnetic devices (e.g. transformers or inductor) are provided with an OBJY2 insulation system with the indicated rating greater than Class A (105°C): T1 (Class B), L1 (RTI: 120°C), L101 (RTI: 105°C), L103 (RTI: 120°C)
- The following end-product enclosures are required: Fire, Electrical
- The equipment is suitable for direct connection to: AC mains supply
- Heating test should be considered in final application.
- Only AC inlet side enclosure is evaluated as electrical and fire enclosure. Other surfaces shall be checked in the end-product.
- Protection for thermal overload of Varistor (ZNR1) shall be considered in the end product.

### Additional Information

Unless otherwise stated, the required tests were conducted on the Model PCSA-370P-X2S with following output conditions at input voltage, 90-264 Vac by applicant's request.

Output Conditions are follows:

Condition 1 (applicant's request):

+5V/20A, +3.3V/15A, +12V/10A, -12V/0.5A, +5VS/1.5A, Total: 283W

Condition 2 (+5V max):

+5V/21A, +3.3V/5.5A, +12V/12A, -12V/0.5A, +5VS/1.5A, Total: 280.7W

Condition 3 (+3.3V max):

+5V/13.4A, +3.3V/17A, +12V/12A, -12V/0.5A, +5VS/1.5A, Total: 280.6W

Condition 4 (+12V max):

+5V/4A, +3.3V/10A, +12V/18A, -12V/0.5A, +5VS/1.5A, Total: 282.5W

Condition 5 (80% Load):

+5V/12A, +3.3V/12A, +12V/9.6A, -12V/0.4A, +5VS/1.2A, Total: 225.6W

Condition 6 (Rated Load):

+5V/15A, +3.3V/15A, +12V/12A, -12V/0.5A, +5VS/1.5A, Total: 282W

See Enclosure # 7-06 for Sample Positions.

Unless otherwise stated, all tests were conducted with following components.

- Line Filter (L1): Mfr.: Toho Zinc, Type: FK080D-1020K

- Line Filter (L2): Mfr.: Nipron, Type: LT1372

- Inductor (L202): Mfr.: Nipron, Type: LT1384

- Inductor (L101): Mfr.: Nipron, Type: LT1344

- Inductor (L102): Mfr.: Nipron, Type: LT1194  
- Transformer (T1): Mfr.: Compucase Enterprise, Type: MT1504x  
Alternative components have same construction as original them except for material of complete parts which does not affect on any safety respect and manufacturer name. For the further details, please see table 1.5.1.

**Markings and instructions**

Clause Title	Marking or Instruction Details
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
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

**Special Instructions to UL Representative**

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.

**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
PCSA-370P- *****	T3	--	PRI and SEC	300 0	4242	1 s

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

N/A

**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
N/A--	--	--	--	--	--