

UL TEST REPORT AND PROCEDURE

Standard:	UL 60950-1, 2nd Edition, 2011-12-19 (Information Technology Equipment - Safety - Part 1: General Requirements) CAN/CSA C22.2 No. 60950-1-07, 2nd Edition, 2011-12 (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 Supplies for building-in
Model:	eNSP3-450P....., eNSP4-500P....., ePCSA-500P....., and ePCSA-500P-X2S3
Rating:	Input: 100-240 V, 4.8 - 1.9 A, 50/60 Hz;  DC Output: 3.3 V, 20 A Max./ 30 A Peak; 5 V, 22 A Max./ 33 A Peak; 12 V, 22 A Max./ 30 A Peak; -12V, 0.5 A Max./ 0.5 A Peak; 5 VSB, 2 A Max./ 2.5 A Peak; Total Max Wattage: 350 W; Total Peak Wattage: 450.5 W for Model eNSP3-450P.....; 500.5 W for Models ePCSA-500P..... and eNSP4-500P.....  DC Output: 3.3 V, 20 A Max./ 30 A Peak; 5 V, 22 A Max./ 33 A Peak; 12 V, 22 A Max./ 30 A Peak; -12V, 0.8 A Max./ 0.8 A Peak; 5 VSB, 2 A Max./ 2.5 A Peak; Total Max Wattage: 350 W; Total Peak Wattage: 500.5 W for ePCSA-500P-X2S3  See Enclosure Id. 7-01 for details.
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.

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<b>Supporting Documentation</b> <p>The following documents located at the beginning of this Procedure supplement the requirements of this Test Report:</p> <p>A. Authorization - The Authorization page may include additional Factory Identification Code markings.</p> <p>B. Generic Inspection Instructions -</p> <p>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.</p> <p>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.</p> <p>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.</p>
<b>Product Description</b> <p>The equipment under test are Power Supplies for building-in, Models eNSP3-450P....., ePCSA-500P....., eNSP4-500P....., and ePCSA-500P-X2S3.</p> <p>The products are Class I (earthed) provided with an appliance Inlet and Power Switch.</p> <p>Only portion that will be operator accessible in the end product is the Front Panel which is constructed of a 5V material and complies with the requirements for a Fire/Electrical Enclosure. There are no bottom or top openings but side and back are provided with openings that do not comply with requirements for a Fire Enclosure. The power supply cord is not provided. SELV Connector in Front is for signals only.</p>
<b>Model Differences</b> <p>Model eNSP3-450P..... is identical to Model ePCSA-500P..... except for model designation and the battery circuit.</p> <p>Model eNSP3-450P employs an additional charging/discharging circuit for the battery unit.</p> <p>Model eNSP4-500P..... is identical to Model ePCSA-500P..... except for model designation and Optional Capacitor Pack, Type BS13*-EC400/422F. Model eNSP4-500P..... employs an additional charging / discharging circuit for capacitor pack for back-up power. They activate to discharging mode when the supply source is disconnected. The symbols "." in type designation may be "-", space, 0 to 9 or A to Z and denotes the shipment difference.</p> <p>Model ePCSA-500P-X2S3 is identical to Model ePCSA-500P..... except for model designation, output ratings, and 12V regulator IC.</p>
<b>Technical Considerations</b> <ul style="list-style-type: none"><li>▪ Equipment mobility : for building-in</li><li>▪ Connection to the mains : pluggable A</li><li>▪ Operating condition : continuous</li><li>▪ Access location : N/A (Component-type power supply)</li><li>▪ Over voltage category (OVC) : OVC II</li><li>▪ Mains supply tolerance (%) or absolute mains supply values : +10%, -15%</li><li>▪ Tested for IT power systems : No</li><li>▪ IT testing, phase-phase voltage (V) : N/A</li><li>▪ Class of equipment : Class I (earthed)</li></ul>

<ul style="list-style-type: none"><li>▪ Considered current rating of protective device as part of the building installation (A) : N/A (Component-type power supply)</li><li>▪ Pollution degree (PD) : PD 2</li><li>▪ IP protection class : IP X0</li><li>▪ Altitude of operation (m) : Up to 3000</li><li>▪ Altitude of test laboratory (m) : Approximately 10 to 20</li><li>▪ Mass of equipment (kg) : &lt; 18</li><li>▪ The product is intended for use on the following power systems: TN</li><li>▪ The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 45°C @ 100 % Loading / 60°C @ 70 % Loading</li><li>▪ The means of connection to the mains supply is: Detachable Power Supply Cord / Pluggable A</li><li>▪ The equipment disconnect device is considered to be: Appliance Inlet</li><li>▪ The following were investigated as part of the protective earthing/bonding: Quick Connect Terminal</li><li>▪</li></ul>
<p>Engineering Conditions of Acceptability</p> <p>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:</p> <ul style="list-style-type: none"><li>▪ Accessibility to HAZ/V and HAZ/EL shall be considered in the end-product.</li><li>▪ The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-Earthed Dead Metal: 521 Vrms, 680 Vpk for Models eNSP3-450P and ePCSA-500P. Primary-Earthed Dead Metal: 530 Vrms, 665 Vpk for Model eNSP4-500P.</li><li>▪ The following secondary output circuits are SELV: All</li><li>▪ The following secondary output circuits are at hazardous energy levels: 12 V</li><li>▪ The following secondary output circuits are at non-hazardous energy levels: 3.3 V, 5 V, -12 V, and 5 VSB</li><li>▪ The maximum investigated branch circuit rating is: 20 A</li><li>▪ The investigated Pollution Degree is: 2</li><li>▪ Proper bonding to the end-product main protective earthing termination is: Required</li><li>▪ An investigation of the protective bonding terminals has: Not been conducted</li><li>▪ 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): T4, Class B</li><li>▪ The following end-product enclosures are required: Electrical / Fire</li><li>▪ The equipment is suitable for direct connection to: AC mains supply</li><li>▪</li></ul>
<p>Additional Information</p> <p>The IEC 60950-1:2005 (2nd Edition); Am 1:2009 CB Test Certificates (Ref. Certif. Nos. NO70344, NO70345, NO70346, NO70347, NO70344/M1, NO70345/M1, NO70346/M1, NO70347/M1, NO70344/A1/M1, NO70345A1//M1, NO70346/A1/M1, NO70347/A1/M1, NO70344/A1/M2, NO70345A1//M2, NO70346/A1/M2, NO70347/A1/M2) and CB Test Report Ref. Nos. 212191, 231652, 266997 and 276321, issued 2012-08-30, 2013-02-15, 2014-08-09 and 2015-01-26 were prepared by NEMKO.</p> <p><b>The IEC 60950-1:2005 (2nd Edition); Am 1:2009; Am2:2013 CB Test Certificates (Ref. Certif. Nos. NO87451, NO87451/M1, NO87451/M2) and CB Test Report Ref. Nos. 288609, 407740, and 467368, issued 2015-07-13, 2020-10-08, and 2022-06-02 were prepared by NEMKO.</b></p>

This Test Report was based on the above CB Test Certificate and Test Report and was submitted by the CB Scheme. The test results and clause verdicts of the above noted Test Report were reviewed and found to comply with the applicable U.S. and Canadian (Bi-National) Standard for Safety for Information Technology Equipment - Safety - Part 1: General Requirements, UL 60950-1, 2nd Edition, 2011-12-19 and CAN/CSA C22.2 No. 60950-1-07, 2nd Edition, 2011-12. As a result the clause verdicts and test results for this Test Report were noted as N/A and have been referred to the Nemko Test Report for details. All test data has been retained in UL's files.	
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
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						
<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
eNSP3-450P....., eNSP4-500P....., ePCSA-500P....., and ePCSA-500P-X2S3	Transformers (T1, T2 and T3)	N/A	Primary to Secondary	2500 Vpk	2500	1
<u>Earthing Continuity Test Exemptions - This test is not required for the following models:</u>						
N/A						
<u>Electric Strength Test Exemptions - This test is not required for the following models:</u>						
N/A						
<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	
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