

## UL TEST REPORT AND PROCEDURE

<b>Standard:</b>	UL 60950-1, 2nd Edition, 2011-12-19 (Information Technology Equipment - Safety - Part 1: General Requirements) CSA C22.2 No. 60950-1-07, 2nd Edition, 2011-12 (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, Built-In AC/DC
<b>Model:</b>	NLP250X-96S12, -96S24, -96S24N01, -96S48, -99S12, -99S24 and -99S48 where X is any alphanumeric character or blank that represents customer specific options that do not affect safety.
<b>Rating:</b>	Input Ratings: 100-240 Vac, 4.0 A, 50/60 Hz 115 Vac, 4.0 A, 400 Hz  Output Ratings: NLP250X-96S12 and -99S12 12Vdc/21.0A, max. 252 watts with 200 LFM Fan 12Vdc/14.7A, max 175 watts Convection Cooled  NLP250X-96S24, -96S24N01 and -99S24 24Vdc/10.5A, max. 252 watts with 200 LFM Fan 24Vdc/7.29A, max. 175 watts Convection Cooled - Without Cover  NLP250X-96S48 and -99S48 48Vdc/5.25A, max. 252 watts with 200 LFM Fan 48Vdc/3.65A, max. 175 watts Convection Cooled
<b>Applicant Name and Address:</b>	ASTEC INTERNATIONAL LTD - PHILIPPINE BRANCH 3RD & 4TH FL, TECHNO PLAZA ONE BLDG, 18 ORCHARD RD, EASTWOOD CITY CYBERPARK, BAGUMBAYAN, QUEZON CITY 1110, PHILIPPINES

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: Ken Ho

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Report Reference #

E186249-A59-UL

### 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

Component type AC/DC switching power supply for building in.

### Model Differences

All models are identical except for model number, output ratings, number of turns in transformer's output winding and minor secondary component changes.

### Technical Considerations

- Equipment mobility : for building-in
- Connection to the mains : internal connections for factory wiring
- Operating condition : continuous
- Access location : To be considered in end system
- Over voltage category (OVC) : OVC II
- Mains supply tolerance (%) or absolute mains supply values : +6%, -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) : See cover page
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : 3000 m
- Altitude of test laboratory (m) : less than 500 meters
- Mass of equipment (kg) : < 18
- The product was submitted and evaluated for use at the maximum ambient temperature (T<sub>ma</sub>) permitted by the manufacturer's specification of: 50°C at full rated load without cover, 40°C at full rated load with cover and 70°C at derated load of 2.5% per degree above 50°C.
- The means of connection to the mains supply is: Provided with internal connections for factory wiring only
- The product is intended for use on the following power systems: TN

- The product was investigated to the following additional standards: EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011
- The models NLP250-99S12 and NLP250-99S24 have also been investigated to UL 60601-1 clause 19, 20, 42, 57.6, 57.9 and 57.10. This investigation was based on TUV Certificate No. B 11 10 13890 01130 under EN 60601-1:2006 (3rd ed.). These models are not for direct patient contact and all outputs are not Medical SELV.

#### **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 end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-Earthed Dead Metal: 363.4 Vrms, 592 Vpk, Primary-SELV: 364.4 Vrms, 583 Vpk
- The following secondary output circuits are SELV: All (Not Medical SELV)
- The following secondary output circuits are at hazardous energy levels: All
- 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: Required
- 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, T2 and T3 are Class F
- The following end-product enclosures are required: Mechanical, Fire, Electrical
- The maximum continuous power supply output (Watts) relied on forced air cooling from: 200 LFM forced air.
- The following components are rated based on their RTI: All inductors (minimum 130°C)
- The creepage and clearance distances have additionally been assessed for suitability up to 3000 meters altitude.
- There are no flames, or molten, dripping materials emitted by the power supply under fault condition and all position.