

## 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>	Switching Power Supply for building-in
<b>Model:</b>	HPS3000-9, HPS3000-9-403
<b>Rating:</b>	HPS3000-9 Input: 100 - 140 Vac, 50/60Hz 19.0A Max Output: +48 V, 31.25A Max; 5 Vsb, 3A Max  Input: 200 - 240 Vac, 50/60 Hz, 19.0A Max Output: +48 V, 62.5A Max; 5 Vsb, 3A Max  HPS3000-9-403 Input: 200 - 240 Vac, 50/60 Hz, 19.0A Max Output: +54 V, 55.6A Max; 5 Vsb, 2A Max
<b>Applicant Name and Address:</b>	ASTECH INTERNATIONAL LTD 16TH FL LU PLAZA KWUN TONG, 2 WING YIP ST KOWLOON HONG KONG

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: Brian Wong

### 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

Class I Switching Power Supply for Building In

Maximum recommended ambient (T<sub>mra</sub>): 40 deg C

### Model Differences

Model HPS3000-9 is identical to Model HPS3000-9-403 except the following:

HPS3000-9

Input:

100 - 140 Vac, 50/60Hz 19.0A Max; 200 - 240 Vac, 50/60 Hz, 19.0A Max

Output:

+48 V, 31.25A Max; 5 V<sub>sb</sub>, 3A Max

Ventilation

With built-in Fan or Optional (without fan) - ventilation to be provided by end-system @ 20.6 cfm min. at output

HPS3000-9-403

Input:

200 - 240 Vac, 50/60 Hz, 19.0A Max

Output:

+54 V, 55.6A Max; 5 V<sub>sb</sub>, 2A Max

Ventilation

With built-in Fan only.

No option for external ventilation.

### Technical Considerations

- Equipment mobility : for building-in
- Connection to the mains : To be considered in end system
- 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 : +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) : 30A
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : <3048 m
- Altitude of test laboratory (m) : <3048 m
- 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: 40 °C
- The means of connection to the mains supply is: to be considered in end system
- The product is intended for use on the following power systems: TT TN
- The class of laser product is: Class 1 (I)
- The following are available from the Applicant upon request: Installation (Safety) Instructions / Manual
- 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 Clearances and Creepage Distances have additionally been assessed for suitability up to 3048 m or 10000 ft elevation
- This power supply is not equipped with a power cord. A safety agency approved power cord and plug with appropriate wire gauge for the rated input current must be provided by the end system manufacturer.
- This equipment was not evaluated for end system mounting. When installed in the end system, the proper evaluation should be considered in end system.
- 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: For model: HPS3000-9: 382.9 Vrms, 619 Vpk, Primary-Earthed Dead Metal: 374.6 Vrms, 645 Vpk; For model: HPS3000-9 -403: 357.9 Vrms, 672 Vpk, Primary-Earthed Dead Metal: 369.5Vrms, 681 Vpk
- The following secondary output circuits are SELV: All Outputs
- The following secondary output circuits are at hazardous energy levels: +48V for HPS300-9 and +54V for HPS3000-9-403
- The following secondary output circuits are at non-hazardous energy levels: +5 Vsb
- The power supply terminals and/or connectors are: Not investigated for field wiring
- The maximum investigated branch circuit rating is: 30A
- The investigated Pollution Degree is: 2
- Proper bonding to the end-product main protective earthing termination is: Required
- An investigation of the protective bonding terminals has: Not 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): T7 (Class A), T10, T11( Class F)
- The following end-product enclosures are required: Mechanical, Fire, Electrical
- The equipment is suitable for direct connection to: AC mains supply