

UL TEST REPORT AND PROCEDURE

Standard:	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)
Certification Type:	Component Recognition
CCN:	QQGQ2, QQGQ8 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)
Product:	Switching Power Supply for Building-in
Model:	DS460-3, DS460S-3
Rating:	AC Input: 100-240V, 5.29 - 2.2A, 50/60Hz DC Output: +12.0V, 36.0A Max. +12.0Vsb, 2.3A Max. Maximum Combined Output Power is 460W
Applicant Name and Address:	ASTEC INTERNATIONAL LTD - PHILIPPINE BRANCH 3RD & 4TH FLOOR 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: 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

The equipment is switching mode power supply, intended for building in as a component used in information technology equipment which is employing isolating transformers. Reinforced insulation is provided between primary and secondary. Basic insulation is provided between primary and PE (Protective Earth).

The Model designation of "DS460S-3" can be specified as "DS460S-3-401" or "DS460S-3-402" or "DS460S-3-408" or "DS460S-3-001" or "DS460S-3-002" or "DS460S-3-003" for ARTESYN (trademark) internal use, not affecting the safety issues.

Model Differences

Model DS460S-3 is identical to model DS460-3 except model designation and model DS460S-3 has a reversed fan condition (airflow direction is going to output side).

Technical Considerations

- Equipment mobility : for building-in
- Connection to the mains : pluggable A
- 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) : See cover page
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : >3050 m
- Altitude of test laboratory (m) : >500 m
- Mass of equipment (kg) : <1.5
- The product was submitted and evaluated for use at the maximum ambient temperature (T_{ma}) permitted by the manufacturer's specification of: 50°C

- The means of connection to the mains supply is: Pluggable A
- The product is intended for use on the following power systems: TT TN
- The equipment disconnect device is considered to be: Appliance inlet
- The class of laser product is: Class 1 (I)
- The product was investigated to the following additional standards: EN 60950-1:2006 + A11:2009+A12:2011+A2:2013 (which includes all European national differences, including those specified in this test report).
- The following are available from the Applicant upon request: Installation (Safety) Instructions / Manual

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 creepage and clearance distances have additionally been assessed for suitability up to 3050meters altitude.
- 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: 346 Vrms, 628 Vpk Primary-Earthed Dead Metal: 346 Vrms, 636 Vpk
- The following secondary output circuits are SELV: +12V,+12Vsb
- The following secondary output circuits are at hazardous energy levels: +12.0V
- The following secondary output circuits are at non-hazardous energy levels: +12.0Vsb
- The maximum investigated branch circuit rating is: 20 A
- The investigated Pollution Degree is: 2
- The following magnetic devices (e.g. transformers or inductor) are provided with an OBJ2 insulation system with the indicated rating greater than Class A (105°C): T600 and T5 Class F
- The following end-product enclosures are required: Mechanical , Fire , Electrical
- The equipment is suitable for direct connection to: AC mains supply
- The power supply terminals and/or connectors are: Not investigated for field wiring