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:	DC-DC Converter
Model:	AVD120-48S12XXXXXXXXX
Rating:	DC Input: 36-75V, 4.5A Max. DC output: 12V, 10A
Applicant Name and Address:	ASTEC INTERNATIONAL LTD 16TH FL,LU PLAZA, KWUN TONGM,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.

Prepared by: Henry Ho Reviewed by: Paul Wan

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

1. Model rating and name rules.

Model name	Rated Input	Rated Output
AVD120-48S12XXXXXXXXX	36-75VDC, 4.5A Max.	12VDC, 10A

2. AVD120-48S12XXXXXXXXX, Where X may be represented by any ASCII character code, no safety impact.
3. When installing this equipment, all requirements of the mentioned standard must be fulfilled.
4. Maximum operating ambient temperature of this equipment is 70°C.
5. Basic insulation is provided between the input circuit and output circuit, functional insulation is provided the DC input / DC output and base plate.
6. The built-in converter shall be connected to a source which is insulated from the mains supply by min. reinforced insulation.
8. Clearance was evaluated for operating altitude up to 3000m above sea level.
9. The built-in converter has no in-line fuse, for safety operation, an external 8A, 125VDC fast acting fuse form model AVD120-48S12XXXXXXXXX must be employed as input line fuse before installation.

Model Differences

N/A

Technical Considerations

- Equipment mobility : for building-in
- Connection to the mains : not directly connected to the mains
- Operating condition : continuous
- Access location : restricted access location
- Over voltage category (OVC) : Other: 1500V
- Mains supply tolerance (%) or absolute mains supply values : N/A
- Tested for IT power systems : No
- IT testing, phase-phase voltage (V) : No
- Class of equipment : Not classified
- Considered current rating of protective device as part of the building installation (A) : Considered in end system
- Pollution degree (PD) : PD 2

- IP protection class : IP X0
- Altitude of operation (m) : 3000
- Altitude of test laboratory (m) : <2000
- Mass of equipment (kg) : <1kg
- The means of connection to the mains supply is: not connect directely to mains
- The equipment disconnect device is considered to be: consider in end system.
- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 70°C with base plate 55°C without base plate
- External DC Currnet Fuse, UL-Listed (JDYX/7), type 314 series, under LITTELFUSE INC (E10480), rated 125 Vdc, 8A is provided at the DC Input of the unit during the tests.

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 secondary output circuits are at non-hazardous energy levels: +12Vdc Output
- 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 F)
- The following Production-Line tests are conducted for this product: Electric Strength
- The end-product Electric Strength Test is to be based upon a maximum working voltage of: DC input - DC output: 85.9Vrms, 136Vpk,
- The following secondary output circuits are SELV: +12V
- The investigated Pollution Degree is: 2
- The following end-product enclosures are required: Mechanical, Fire, Electrical
- External DC Current Fuse, UL-Listed (JDYX/7), type 314 series, under LITTELFUSE INC (E10480), rated 125 Vdc, 8A must be employed as input line fuse before installation.

Additional Information

N/A

Additional Standards

The product fulfills the requirements of: CSA C22.2 No.60950-1-07, 2nd Edition.

Markings and instructions

Clause Title	Marking or Instruction Details
Power rating - Ratings	Ratings (voltage, frequency/dc, current)
Power rating - Company identification	Listee's or Recognized company's name, Trade Name, Trademark or File Number
Power rating - Model	Model Number

Special Instructions to UL Representative