

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:	Listing
CCN:	QQGQ, QQGQ7 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)
Product:	AC power adapter
Model:	AD2412N3L
Rating:	Input:100-240 Vac, 1.0 A, 50/60 Hz Output: +12 Vdc, 2.0 A Max.
Applicant Name and Address:	ASTEC INTERNATIONAL LTD 16TH & 17TH 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.

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

Prepared by: Paul Wan

Reviewed by: Jeffery Chan

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 EUT is Not classified AC Power Adapter intended for Information Technology Products, switch mode construction with plastic enclosure.

Model Differences

Model AD2412N3L has two constructions, PCB layout & transformer T1 of construction 2 are all different from construction 1.

Technical Considerations

- Equipment mobility : movable
- Connection to the mains : pluggable A
- Operating condition : continuous
- Access location : operator accessible
- Over voltage category (OVC) : OVC II
- Mains supply tolerance (%) or absolute mains supply values : +10%, -10%
- Tested for IT power systems : Yes (for construction 1)
- IT testing, phase-phase voltage (V) : 230V (for construction 1)
- Class of equipment : Not classified
- Considered current rating of protective device as part of the building installation (A) : 20A
- 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) : < 1
- 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: IT, TT, TN for construction 1, TT & TN for construction 2

- The equipment disconnect device is considered to be: Appliance inlet
- The following accessible locations (with circuit/schematic designation) are within a limited current circuit: +12V output
- The unit has been evaluated for operated at an elevation of up to 3000 meters above sea level.
- The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS)

Additional Information

Revision (Project 4786516829)

- revised UL Fuse marking on PCB
- revised X2-Capacitor (C1) Manufacturer from Evox Rifa Group oyj to KEMET Electronic
- revised X2-Capacitor (C1) Manufacturer from Iskra Kongdenzatorji DD to ISKRA SISTEMI.DD
- revised Opto-coupler (IC2) Manufacturer from NEC Electronics Corp Compound Semiconductor to RENESAS Electronics Corporation
- removed PE Wire
- employ alternated Output cord Type 2851

Reissue - The construction of AC Power Adapter changed and the details as follow:

- Alternate Circuit and PWB Layout.
- Alternate AC Inlet, Type no. TU-301-S under File E220004 added.
- Fuse F2 and Y-Cap (C17) set as optional components.
- Limited Power Source requirement considered.
- Functional earth wire added between the AC Inlet terminal and Output cord.
- Upgrade Standard to UL 60950-1, Second Edition, including dated March 27, 2007 & CAN/CSA C22.2 No. 60950-1-07, Second Edition including dated March 1, 2007.

Revision (Project 13CA28007)

- Revise the plastic enclosure size to 106 by 48 by 33 mm (due to typo before)
- Revise PE wiring to min. 18AWG (due to typo before)
- Upgrade the standard to UL60950-1, 2nd Edition, Amendment 1: 2011-12-19 and CSA C22.2 No.60950-1, 2nd Edition, Amendment 1: 2011-12-19.

Revision (Project 4786496720)

- Add model AD2412N3L under Table BD1.2 (Eathing Continuity Test Exemptions) of Production Line Testing Requirements.

Revision (Project 4786573535)

- Revising the maximum ambient temperature from 40 degC to 50 degC.

Revision (Project 4787290414)

- Addition of construction 2 for Model AD2412N3L.

Additional Standards

The product fulfills the requirements of: N/A

Markings and instructions

Clause Title	Marking or Instruction Details
1.7.1 Power rating - Ratings	Ratings (voltage, frequency/dc, current)