

UL TEST REPORT AND PROCEDURE

Standard:	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)
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:	DS800SL-3
Rating:	Input rating: 100-120 / 200-240VAC, 50/60 Hz 10A max. Output rating: +12VDC 66.7A max. +5Vsb 4.0A max. Maximum continuous output power is 800W.
Applicant Name and Address:	ASTECH INTERNATIONAL LTD 16TH FL LU PLAZA 2 WING YIP ST KWUN TONG 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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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 a Class I power supply for building-in provided with metal enclosure and ventilated by one fan. For use in Information Technology Equipment.

There are two construction designs, Construction A and Construction B respectively.

Model Differences

Power Supply in Construction B is identical to Construction A except for the airflow direction and heatsink dimension.

Construction A:

Fan Airflow direction is towards the AC inlet (going out of the unit) away from the primary components.

Construction B:

Fan Airflow direction is towards the primary components.

Moreover, output power derating condition for Construction B is defined as follows:

At 100 Vac to 120 Vac input:

- a.) Max. Output Power would be 770 W at 25 deg C.
- b.) Max. Output Power would be 750 W at 30 deg C.
- c.) Max. Output Power would be 700 W at 40 deg C.
- d.) Max. Output Power would be 640 W at 50 deg C.

At 200 Vac to 240 Vac input:

- a.) Max. Output Power would be 800 W at 25 deg C.
- b.) Max. Output Power would be 800 W at 30 deg C.
- c.) Max. Output Power would be 755 W at 40 deg C.
- d.) Max. Output Power would be 700 W at 50 deg C.

At 100Vac to 120Vac input

1. Output derates 4W per degree from 25degC to 30degC ambient temp.
2. Output derates 5W per degree from 30degC to 40degC ambient temp.
3. Output derates 6W per degree from 40degC to 50degC ambient temp.

At 200Vac to 240Vac input

1. Output derates 4.5W per degree from 30degC to 40degC ambient temp.
2. Output derates 5.5W per degree from 40degC to 50degC ambient temp.

Technical Considerations

- Equipment mobility : for building-in
- 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 : No
- IT testing, phase-phase voltage (V) : -
- Class of equipment : Class I (earthed)
- Considered current rating of protective device as part of the building installation (A) : 15 A
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : 3048
- Altitude of test laboratory (m) : less than 2000 meters
- Mass of equipment (kg) : 1.25
- 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. Cord set not provided with the equipment.
- The product is intended for use on the following power systems: 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 + A1:2010 + A11:2009 + A12:2011(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
- LEDs provided in the product are considered low power devices: Yes
- This equipment is intended to operate in a "normal" environment (offices and homes).
- This equipment is not an electromedical equipment intended to be physically connected to a patient.
- The clearances and creepage distances have additionally been assessed for suitability up to maximum 10,000 ft (3048m) elevation. Clearance distances are calculated according to IEC60664-1 table A-2, multiplier factor is 1.15.

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 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: Primary-SELV: 391 Vrms, 592 Vpk, Primary-Earthed Dead Metal: 391 Vrms, 592 Vpk
- The following secondary output circuits are SELV: +12V and +5Vsb outputs
- The following secondary output circuits are at hazardous energy levels: +12V output
- The following secondary output circuits are at non-hazardous energy levels: +5Vsb
- The power supply terminals and/or connectors are: Not investigated for field wiring
- 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
- An investigation of the protective bonding terminals has: 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): T1, T2, T3 and T4 - Class 155 (F) designated 155-10A, 155-10B or 155-10C.
- The following end-product enclosures are required: Mechanical, Fire, Electrical
- The maximum continuous power supply output (Watts) relied on forced air cooling from:
- The equipment is suitable for direct connection to: AC mains supply
- The fans included as part of this component are suitable for use in a user access area: No
- This power supply has a secondary output (+12V) exceeding 240VA. When installing in the end system care must be taken that this secondary output and the appropriate wires may not be touched.
- The disconnection from the line must be considered in the end system.
- This equipment is classified as Level 6 as defined by UL 60950-1, 2nd Edition and CAN/CSA C22.2 No. 60950-1-07 2nd edition.
- This equipment was not evaluated for end system mounting. Proper evaluation should be considered when installed in the end system.
- This power supply is not equipped with a power cord. A safety approved power cord and plug with appropriate wire gauge for the rated input current and suitable for country of application must be provided by the end system manufacturer.
- The maximum continuous power supply output (Watts) relied on forced air cooling of construction A and construction B from: one fan provided on the unit blowing air from the inside to outside of the power supply towards the front panel (ac inlet) area for construction A and reverse airflow direction for construction B. See critical components list for details.