

UL TEST REPORT AND PROCEDURE

Standard:	UL 60950-1, 2nd Edition, 2007-03-27 (Information Technology Equipment - Safety - Part 1: General Requirements) CSA C22.2 No. 60950-1-07, 2nd Edition, 2007-03 (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:	LPT100A-M, LPT100B-M and LPT100C-M, LPT101-M, LPT102-M, LPT103-M and LPT104-M
Rating:	LPT100A-M / LPT101-M : Input: AC 100 - 250V; 50/60Hz; 1.9A DC 127V (MIN) - 300V (MAX); 1.9A Outputs: V1: +2.0 to +16.5V; 18.0A V2: +2.0 to +16.5V; 9.0A V3: +7.2 to +16.5V; 2.3 A (130 W at with 200LFM forced-air cooling) V1: +2.0 to +16.5V; 13.0A V2: +2.0 to +16.5V; 5.0A V3: +7.2 to +16.5V; 1.0A (80W at natural convection cooling) Maximum continuous output power: - 130W with 200LFM Forced Air Cooling - 80W with Natural Convection Cooling LPT100B-M / LPT102-M / LPT103-M: Input: AC 100 - 250V; 50/60Hz; 1.9A DC 127V (MIN) - 300V (MAX); 1.9A Outputs: V1: +2.0 to +16.5V; 18.0A V2: +2.0 to +16.5V; 9.0A V3: -7.2 to -16.5V; 2.3 A (130W at with 200LFM forced-air cooling) V1: +2.0 to +16.5V; 13.0A V2: +2.0 to +16.5V; 5.0A V3: -7.2 to -16.5V; 1.0A (80W at natural convection cooling) Maximum continuous output power: - 130W with 200LFM Forced Air Cooling - 80W with Natural Convection Cooling LPT100C-M / LPT104-M: Input: AC 100 - 250V; 50/60Hz; 1.9A

	DC 127V (MIN) - 300V (MAX); 1.9A Outputs: V1: +2.0 to +16.5V; 18.0A V2: +21.6 to +28.8V; 3.0A V3: +7.2 to +16.5V; 2.3 A (130 W at with 200LFM forced-air cooling) V1: +2.0 to +16.5V; 13.0A V2: +21.6 to +28.8V; 1.5A V3: +7.2 to +16.5V; 1.0A (80W at natural convection cooling) Maximum continuous output power: - 130W with 200LFM Forced Air Cooling - 80W with Natural Convection Cooling
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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Reviewed by: Ken Ho

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

Switching Power Supply for Building-In

Model Differences

V1 and V2 outputs are exactly the same for models LPT100A-M and LPT100B-M except only for V3 which is:

LPT100A-M:	LPT100B-M:
V3: +7.2 to +16.5	V3: -7.2 to -16.5

V1 and V3 outputs are exactly the same for models LPT100A-M and LPT100C-M except only for V2 which is:

LPT100A-M:	LPT100C-M:
V2: +2.0 to +16.5	V2: +21.6 to +28.8

Model LPT101-M is identical to Model LPT100A-M except for model designation.

Model LPT102-M and LPT103-M is identical to Model LPT100B-M except for model designation.

Model LPT104-M is identical to Model LPT100C-M except for model designation.

Technical Considerations

- Equipment mobility : for building-in
- Connection to the mains : To be considered in end system
- Operating condition : continuous
- Access location : Consider in end product
- 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 (A) : 20
- Pollution degree (PD) : PD 2

- IP protection class : IP X0
- Altitude of operation (m) : 4000
- Altitude of test laboratory (m) : <2000
- Mass of equipment (kg) : < 1.0
- 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: AC/DC Input terminal
- The product is intended for use on the following power systems: TT , TN
- The product was investigated to the following additional standards: EN 60950-1:2006+ A11:2009 (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
- The equipment is also intended to operate at elevations up to 4000m. Clearance distances were calculated using IEC 60664-1, table A.2, correction factor 1.29.

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: 287.8 Vrms, 460 Vpk, Primary-Earthed Dead Metal: 270.2 Vrms, 442 Vpk,
- The following secondary output circuits are SELV: All outputs
- The following secondary output circuits are at non-hazardous energy levels: All outputs
- 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: 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): T1 and T2 (Class F)
- The following end-product enclosures are required: Electrical, Fire, Mechanical
- The maximum continuous power supply output (Watts) relied on forced air cooling from: 200 LFM forced-air cooling at 130 W (See enclosure ID 7-01 for details)
- The equipment is suitable for direct connection to: AC mains supply
- Refer to General Product Information 2 (additional information) for the maximum allowable output Power, Voltage and Current for all output rails (V1, V2 and V3).
- The disconnection from the line must be considered in the end system.
- Additional UL Recognized Fuse suitable for DC application must be provided in the end-system for DC input.