UL TEST REPORT AND PROCEDURE

Standard:	UL 60950-1, 2nd Edition, 2007-03-27 (Information Technology Equipment - Safety - Part 1: General Requirements) CAN/CSA C22.2 No. 60950-1-07, 2nd Edition, 2007-03 (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:	Regulated Power Supply
Model:	GEN xx-yy GEN H xx-yy PUxx-yy where xx is number denoting max. output voltage from 6 to 600V, yy is number denoting max. output current in Amperes, from 1.3 to 200, see "Additional Information" for full list.
Rating:	Input: 100-240V 50-60Hz 9.5A or 19A. Output: From 0-8VDC/200A up to 0-600VDC/2.6A, 750 or 1500 Watt max. see "Additional Information" for details
Applicant Name and Address:	TDK-LAMBDA LTD 56 HAHAROSHET STREET P.O.B. 500 KARMIEL INDUSTRIAL ZONE 2161401 KARMIEL ISRAEL

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: Piotr A. Bizunowicz Reviewed by: Mike Burns

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

General purpose versatile programmable stabilized switch-mode power supplies.

Model Differences

'GEN' models have full-width 19inch enclosure, 'GEN H' models have half-width 9.5 inch enclosure.

Models rated 9.5A have appliance inlet as power input, models rated 19A have terminal block with wiring compartment for non-detachable power cord (provided with unit). Not investigated for permanent connection.

Models with output rating not higher than 50Vdc are tested as SELV, others are considered Secondary Hazardous Voltage.

Models designated 'PU xx-yy" are identical in construction with models of GEN series, except for alternate name, see "additional information".

Technical Considerations

- Equipment mobility : movable
- Connection to the mains : pluggable A
- Operating condition : continuous
- Access location : operator accessible (SELV models), restricted access locations (non-SELV models)
- 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) : 20A (9.5A rated units); 25A (19A rated units)
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : up to 2000m
- Altitude of test laboratory (m) : below 2000m

- Mass of equipment (kg) : 8.06(GEN), 4.28 (GEN H)
- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 50°C
- The means of connection to the mains supply is: Pluggable A, Non-detachable power cord (19A units), Detachable power cord (9.5A units), , ,
- The product is intended for use on the following power systems: TT, TN
- The equipment disconnect device is considered to be: Plug (19A units), Appliance inlet (9.5A units)
- The following are available from the Applicant upon request: Installation (Safety) Instructions / Manual

Additional Information

Full list of models covered:(model name; input current; output rating; notes)
--GEN6-100; 9.5A; 0-6Vdc, 0-100A; *2, *A
--GEN6-200, PU6-200; 19A; 0-6Vdc, 0-200A; *1, *A
--GEN8-90; 9.5A; 0-8Vdc, 0-90A; *2, *A
--GEN8-180, PU8-180; 19A; 0-8Vdc, 0-180A; *2, *A
--GEN12.5-60; 9.5A; 0-12.5Vdc, 0-60A; *2, *A
--GEN12.5-120, PU2.5-120; 19A; 0-12.5Vdc, 0-120A; *2, *A
--GEN20-38; 9.5A; 0-20Vdc, 0-38A; *2, *A
--GEN20-76, PU20-76; 19A; 0-20Vdc, 0-76A; *2, *A
--GEN30-25; 9.5A; 0-30Vdc, 0-25A; *2, *A
--GEN30-50, PU30-50; 19A; 0-30Vdc, 0-50A; *2, *A
--GEN40-19; 9.5A; 0-40Vdc, 0-19A; *2, *A
--GEN40-38, PU40-38; 19A; 0-40Vdc, 0-38A; *2, *A
--GEN50-30, PU50-30; 19A; 0-50Vdc, 0-30A; *2, *A
--GEN60-12.5; 9.5A; 0-60Vdc, 0-12.5A; *2, *B
--GEN60-25, PU60-25; 19A; 0-60Vdc, 0-25A; *2, *B
--GEN80-9.5; 9.5A; 0-80Vdc, 0-9.5A; *2, *B
--GEN80-19, PU80-19; 19A; 0-80Vdc, 0-19A; *2, *B
--GEN100-7.5; 9.5A; 0-100Vdc, 0-7.5A; *2, *B
--GEN100-15, PU100-15; 19A; 0-100Vdc, 0-15A; *1, *B
--GEN150-5; 9.5A; 0-150Vdc, 0-5A; *2, *B
--GEN150-10, PU150-10; 19A; 0-150Vdc, 0-10A; *2, *B
--GEN300-2.5; 9.5A; 0-300Vdc, 0-2.5A; *2, *B
--GEN300-5, PU300-5; 19A; 0-300Vdc, 0-5A; *2, *B
--GEN600-1.3; 9.5A; 0-600Vdc, 0-1.3A; *2, *B
--GEN600-2.6, PU600-2.6; 19A; 0-600Vdc, 0-2.6A; *1, *B
--GEN H 8-90, PU8-90; 9.5A; 0-8Vdc, 0-90A; *1, *A
--GEN H 20-38, PU20-38; 9.5A; 0-20Vdc, 0-38A; *2, *A
--GEN H 40-19, PU40-19; 9.5A; 0-40Vdc, 0-19A; *2, *A
--GEN H 60-12.5, PU60-12.5; 9.5A; 0-60Vdc, 0-12.5A; *2, *B
--GEN H 80-9.5, PU80-9.5; 9.5A; 0-80Vdc, 0-9.5 A; *1, *B
--GEN H 150-5, PU150-5; 9.5A; 0-150Vdc, 0-5A; *2, *B
--GEN H 300-2.5, PU300-2.5; 9.5A; 0-300Vdc, 0-2.5A; *1, *B
--GEN H 6-100, PU6-100; 9.5A; 0-6Vdc, 0-100A; *2, *A
--GEN H 12.5-60, PU12.5-60; 9.5A; 0-12.5Vdc, 0-60A; *2, *A
--GEN H 30-25, PU30-25; 9.5A; 0-30Vdc, 0-25A; *2, *A
--GEN H 100-7.5, PU100-7.5; 9.5A; 0-100Vdc, 0-7.5A; *2, *B
--GEN H 600-1.3, PU600-1.3; 9.5A; 0-600Vdc, 0-1.3A; *1, *B
Notes:
*1: Basic model fully tested and described.
*2: Similar to the basic model except for circuit changes noted for output voltages and currents.

*A: Secondary output circuits are SELV circuits
*B: Secondary output circuits may not be SELV circuits
Models with input rated 9.5A may be referred in documentation and manuals as "GEN750 series" and models with input rated 19.5A as "GEN1500 series", alternatively "PU750W" and "PU1500W"

Markings and instructions

Clause Title	Marking or Instruction Details
Safety Instructions - Rack Mount	"Rack Mount Instructions - The following or similar rack-mount instructions are included with the installation instructions: A) Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer. B) Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised. C) Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading. D) Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern. E) Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips)."
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
Disconnect device - Pluggable equipment	Statement indicating that the socket-outlet shall be installed near the equipment and shall be easily accessible. (Instruction)
Fuses - Non-operator access/soldered-in fuses	Unambiguous reference to service documentation for instructions for replacement of fuses replaceable only by service personnel

Terminal for main protective earthing	Provided adjacent to the main protective earthing terminal (60417-5019) 
Terminals for external primary power supply conductors	Capital letter "N" located adjacent to a terminal intended exclusively for connection of the primary power neutral conductor
Symbols - On/Off switch	All other controls to be marked with symbol for "ON" (60417-2-IEC-5007) and  symbol for "OFF" (60417-2-IEC-5008)
2.7.1 Short circuit protection	Installation Instructions for untis rated 19A indicate Listed circuit breaker or branch rated fuse, rating, number of poles, special characteristics.
Special Instructions to UL Representative requirements for rack mount and wiring terminals apply only to GEN/PU units in full-width 19inch enclosures.	

Production-Line Testing Requirements

Electric Strength Test Special Constructions - Refer to Generic Inspection Instructions, Part AC for further information.

Model	Component	Removable Parts	Test probe location	V rms	V dc	Test Time, s
all models	main and auxiliary switching transformer	--	input to output	3000	4242	1

Earthing Continuity Test Exemptions - This test is not required for the following models:

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Electric Strength Test Exemptions - This test is not required for the following models:

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Electric Strength Test Component Exemptions - The following solid-state components may be disconnected from the remainder of the circuitry during the performance of this test:

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Sample and Test Specifics for Follow-Up Tests at UL

Model	Component	Material	Test	Sample(s)	Test Specifics
N/A					