

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:	GEN2400W Series; GENwww-xxx-yyyy-zzzzz-u. (See Model Differences for details)
Rating:	Input: Single Phase type: 190-240 VAC, 50/60Hz, 15.5A Three Phase type: 190-240 VAC, 50/60 Hz, 9 A Output: Main: 600 Vdc maximum, 300 A maximum, 2400 W maximum Auxiliary 1: 5 Vdc/ 0.2 A Auxiliary 2: 15 Vdc/ 0.2 A
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: Ermanno Rebecchi

Reviewed by: Eddie Chen

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

Product is a family of power supplies, Class I, intended for TN power system, enclosed in the steel box type frame enclosure and cover, having rated output from 0-8 VDC/0-300 A up to 0-600 VDC/0-4A with total output power 2400 W maximum.

Model Differences

All models are identical except for the rated input and output, input type (Single or Three phases), interface options type and type/model number designation.

GENwww-xxx-yyyy-zzzzz-u;
www = maximum output voltage from 8 VDC to 600 VDC
xxx = maximum output current
yyyy = optional, can be LAN, MD, IEEE, IEMD, IS420 or IS510
zzzzz = can be 1P230 (single phase) or 3P208 (three phase).
u = North America market

Technical Considerations

- Equipment mobility : permanent connection
- Connection to the mains : permanent connection
- Operating condition : continuous
- Access location : restricted access location
- 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) : N/A
- Class of equipment : Class I (earthed)
- Considered current rating (A) : 20
- Pollution degree (PD) : PD 2
- IP protection class : IP 20
- Altitude of operation (m) : up to and include 2000
- Altitude of test laboratory (m) : 163

- Mass of equipment (kg) : approx. 9.5
- 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: Permanently connected (field wired)
- The product is intended for use on the following power systems: TN
- The following are available from the Applicant upon request: Installation (Safety) Instructions / Manual

Additional Information

This UL Test Report is a reissue of UL Test Report Ref No. E155698-A9-UL-1 due to upgrading the Test Report from UL 60950-1 1st Edition to UL 60950-1 2nd Ed. Some clauses are addressed with comments as well as "Pass" or "N/A" verdicts.

UL Test Report E155698-A9-UL-1 was based upon previous evaluation under CB Test Certificate No. US-TUVR-4354, Report Ref. No. 30881382.001. See Enclosure - Miscellaneous for the updated sub-clause under UL 60950-1 2nd Ed.

In addition to the standard upgrade the following revisions were made to the UL Test Report:



- Addition of surge absorber, Model TND12V471K, manufactured by Nippon Chemi-Con to the critical component table.
- Addition of alternate surge absorber, Model S10K300E2K1, manufactured by Epcos Co Ltd. to the critical component table.
- Addition of alternate surge absorber, Model TVR10471K, manufactured by Thinking Electronic Industrial Co., Ltd to the critical component table.
- Addition of alternate surge absorber, Model ERZV10D471, manufactured by Panasonic Corporation, Panasonic Corporation of North America to the critical component table.
- Addition of alternate surge absorber, Model V10E300P, manufactured by Littelfuse Inc. to the critical component table.

- Units have Hazardous Energy Level output and intended to be installed in RAL
- Units may be adjusted by operator to 105% of the rated output voltage
- Units with output up to (and including) 40 VDC are considered as SELV output circuits
- Units are considered permanently connected equipment with protection provided for the input terminal (by using a bracket) and output protection bracket (for units with output more than SELV level).
- Common parts for all models;
 - a. Input board
 - b. Power factor control (PFC) board
 - c. BIAS board
 - d. DC-DC converter boards (two provided)
 - e. Control board
 - f. Output filter assembly
 - g. Display assembly
 - h. Fans assembly.
- Optional parts;
 - a. Analog control boards
 - b GPIB board
 - c. LAN board.

Additional Standards

The product fulfills the requirements of: N/A

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
Disconnect device - Permanently connected equipment	Statement indicating that a readily accessible disconnect device shall be incorporated in the building installation wiring. (Instruction)
Fuses - Rating	Rated current and voltage and type located on or adjacent to fuse or fuseholder.
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)
Special Instructions to UL Representative N/A	

Production-Line Testing Requirements						
<u>Electric Strength Test Special Constructions - Refer to Generic Inspection Instructions, Part AC for further information.</u>						
Model	Component	Removable Parts	Test probe location	V rms	V dc	Test Time, s
All models	T501, T502, T503, T601	--	Primary and Secondary pins	300 0	4242	1
<u>Earthing Continuity Test Exemptions - This test is not required for the following models:</u>						
-						
<u>Electric Strength Test Exemptions - This test is not required for the following models:</u>						
-						
<u>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:</u>						
N/A						
<u>Sample and Test Specifics for Follow-Up Tests at UL</u>						
Model	Component	Material	Test	Sample(s)	Test Specifics	
N/A	-	-	-	-	-	