UL TEST REPORT AND PROCEDURE

Standard:	UL 60601-1, 1st Edition, 2006-04-26 (Medical Electrical Equipment, Part 1: General Requirements for Safety) CAN/CSA-C22.2 No. 601.1-M90, 2005 (Medical Electrical Equipment - Part 1: General Requirements for Safety)
Certification Type:	Component Recognition
CCN:	QQHM2, QQHM8 (Power Supplies, Medical and Dental)
Product:	Switching Power Supply
Model:	MENT1150AWWXXYZ Series; Where A is an alpha character A-Z, WW is a number 0-48, XX is a 2 digit number 00-99, Y is an alpha character A-Z, and Z is a number 00-99.
Rating:	Input: 100-240 V~, 50-60 Hz, 3.0 A Output: 48 V maximum, 11.67 A maximum, or see below for standard output models. MENT1150V12XXFZ: 12 V dc/11.67 A; MENT1150V15XXFZ: 15 V dc/9.33 A; MENT1150V18XXFZ: 18 V dc/7.78 A; MENT1150V24XXFZ: 24 V dc/6.25 A; MENT1150V28XXFZ: 28 V dc/5.36 A; MENT1150V48XXFZ: 48 V dc/3.13 A.
Applicant Name and Address:	SL POWER ELECTRONICS CORP BLDG A 6050 KING ST VENTURA CA 93003 UNITED STATES

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 Underwriters Laboratories Inc. ('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 Underwriters Laboratories Inc. (UL) or any authorized licensee of UL.

Prepared by:	Bob Hilbrecht Underwriters Laboratories Inc.
Reviewed by:	Michael J. Howell Underwriters Laboratories Inc.

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

Component - Switching Power Supply

Model Differences

The models differ in output ratings which requires different turns and wire gauge in transformer T200 and secondary circuitry component values to accommodate the rated output.

Model number nomenclature explains construction as follows:
MENT1150AWWXXYZ; Where A is an Alpha Character that represents generational differences, WW is a Numeric indicator of output voltage, XX is a 2 digit Numeric indicator of external connectors, Y is an alpha character that represents Input Options, and Z is a numeric indicator where 00 is the standard configuration and 01-99 are custom modifications that may or may not be related to Safety.

Where A signifies generational differences which may have impact on safety the specific letter will be documented in this Report.

Technical Considerations

- Classification of installation and use : Portable
- Supply connection : Appliance coupler
- Accessories and detachable parts included in the evaluation : None
- Options included : None
- The product was investigated to the following additional standards:: EN 60601-1: 1990 + A1:1993 + A2:1995; (except EMC limitations, EN 60601-1-2, Biocompatibility, EN 10993-1, Programmable Electronic Systems, IEC 60601-1-4), UL 60601-1, 1st Edition, 2006-04-26 (includes National Differences for USA); CAN/CSA-C22.2 No. 601.1-M90 (R2005) (includes National Differences for Canada)
- The product was not investigated to the following standards or clauses:: Clause 36, Electromagnetic Compatibility (IEC 601-1-2), Clause 48, Biocompatibility (ISO 10993-1), Clause 52.1, Programmable Electronic Systems (IEC 601-1-4)
- The product is Classified only to the following hazards:: Casualty, Fire, Shock
- The degree of protection against harmful ingress of water is:: IPX0
- The following accessories were investigated for use with the product:: None
- The mode of operation is:: Continuous
- Software is relied upon for meeting safety requirements related to mechanical, fire and shock:: No
- The product is suitable for use in the presence of a flammable anesthetics mixture with air or oxygen

or with nitrous oxide:: No

Engineering Conditions of Acceptability

For use only in or with complete equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc. When installed in an end-product, consideration must be given to the following:

- This component has been judged on the basis of the required spacings in the First Edition of the Standards for Medical Equipment, Part 1: General Requirements for Safety, UL60601-1 and CSA 22.2 No. 601.1, which covers the end use product for which the component is designed. , , 2. The component shall be installed in compliance with the enclosure, mounting, spacings, casualty markings and segregation requirements of the end-use application. , , 3. Consideration should be given to measuring the temperature on power electronic components and transformer windings when the power supply is installed in the end-use equipment. , , 4. The input/output connectors are not acceptable for field connection, they are only intended for connection to mating connectors of internal wiring inside the end-use machine. The output circuits have not been evaluated for direct patient connection (Type B, BF or CF). , , 5. The temperature test was performed in a raised ambient of 40 °C. , , 6. Leakage Current test should be repeated in the end-product application. , , 7. The Power Transformers (T200) and Inductor L102 comply with Class B (130°C) limits. , , 8. This power supply has been evaluated as Class I, continuous operation, ordinary equipment and has not been evaluated for use in the presence of a flammable anesthetic mixture with air, oxygen or nitrous oxide. , , 9. The Class I model power supply was evaluated as Reinforced insulation between primary and secondary; basic insulation between primary to ground/heatsink. In addition, the power supply was evaluated with either the output + or - connected to ground/heatsink. , 10. The component is provided with a plastic enclosure (V-0) that is suitable for fire and shock hazards. , 11. The output has been evaluated and tested for operator accessible part. Under normal and single fault conditions, the outputs do not exceed 25 V ac or 60 V dc. , 12. The product was evaluated as a desk top and/or portable use only. Additional evaluation may be required as part of end product investigation to insure compliance of the product as mobile device. , 13. Installation instructions and end product markings are the responsibility of the end-use product manufacturer. , 14. The following statement shall be provided for Class I models in the end product. "To ensure that grounding reliability is achieved, the power supply shall be connected to receptacle marked 'Hospital Only' or 'Hospital Grade'. The marking can be provided on the power supply, the end product, or on the power supply cord set. , 15. Capability of the equipment to withstanding cleaning, sterilization or disinfection without deterioration has not been evaluated. Additional evaluation may be required as part of end product investigation. ,

Additional Information

The schematics for these models are kept on file at the Testing Laboratory mentioned in the first page of this test report, and can be provided by the manufacturer upon request by an accepting NCB.

Light Emitting Diodes (LED's) employed on the units are for use as visual indicators only, and operate within Class 1 limits in accordance to IEC 60825 Standard. The LED's operate in the visible range of 400 to 710 nm. Applicant to furnish LED specifications upon request.

The attached label is a draft of artwork for marking plate pending approval by National Certification Bodies. The artwork provided is representative of all models in the Series.

The attached Licenses for the Critical Components effective for three years from the date of issue noted on the License. A Recognizing National Certification Body (NCB), may challenge the CB Test Certificate when it

is more than three years old.

Current Licenses for critical components to be furnished by applicant upon request.

Testing to applicable collateral standards was not conducted by UL and no supporting evidence of compliance has been presented. When submitting this Test Report to other Certification Body, the manufacturer is responsible for providing any additional information that the Body may need in order to issue its Mark, including testing for compliance with the applicable collateral standards.

Marking Durability - Results of the Marking Durability test were obtained from the following Report covering previously tested similar models:
- Silkscreen. Reference Report E145117-A4-CB-1, Issued 2007-07-26, Certificate # US/11777B/UL.
- Label system. Reference Report E116994-A51-CB-1, Issued 2009-12-22, Certificate # US/14580/UL.

Additional Standards

The product fulfills the requirements of: EN 60601-1: 1990 + A1:1993 + A2:1995 (except EMC limitations, EN 60601-1-2, Biocompatibility, EN 10993-1, Programmable Electronic Systems, IEC 60601-1-4); UL 60601-1, 1st Edition, 2006-04-26 (includes National Differences for USA); CAN/CSA-C22.2 No. 601.1-M90 (R2005) (includes National Differences for Canada)

Markings and instructions

Clause Title	Marking or Instruction Details
Company identification	Classified or Recognized company's name, Trade name, Trademark or File
Model	Model number
Alternating current	
Supply Connection	Voltage range, ac/dc, phases if more than single phase
Supply Frequency	Rated frequency range in hertz
Power Input	Amps, VA, or Watts
IP Rating	IPX1
Fuses	Ratings (current and voltage) and type. (located adjacent to fuse OR as a diagram inside enclosure)
Output	Rated output voltage, power, frequency.
Attention, consult accompanying documents	

Special Instructions to UL Representative

N/A

Production-Line Testing Requirements

Test Exemptions - The following models are exempt from the indicated test

Model	Grounding Continuity	Dielectric Voltage Withstand	Patient Circuit Dielectric Voltage Withstand
MENT1150A family	Test	Test	Exempt

Solid-State Component Test Exemptions - The following solid-state components may be disconnected from the remainder of the circuitry during either Dielectric Voltage Withstand Test:

N/A

Sample and Test Specifics for Follow-Up Tests at UL

The following tests shall be conducted in accordance with the Generic Inspection Instructions

Model	Samples	Test	Test Details
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