# CERTIFICATE OF COMPLIANCE

| | |
|---|---|
| **Certificate Number** | 2020-08-31-E146893 |
| **Report Reference** | E146893-D1044-1/A0/C0-UL |
| **Issue Date** | 2020-08-31 |
| **Issued to:** | XP Power LLC |
| **Applicant Company:** | 15641 RED HILL AVE, SUITE 100<br>TUSTIN, CA 92780 USA |
| **Listed Company:** | Same as Applicant |
| **This is to certify that representative samples of** | Component, power supply<br>HPA1K5PSXX Series, where XX can be 24 or 48 which represents rated output voltage. The model may or may not followed by -SF, where SF representing single fuse.<br><br>Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate. |
| **Standard(s) for Safety:** | ANSI/AAMI ES60601-1:2005/(R)2012 and A1:2012, C1:2009/(R)2012 and A2:2010/(R)2012, CSA CAN/CSA-C22.2 NO. 60601-1:14 |
| **Additional Standards:** | N/A |
| **Additional Information:** | See the UL Online Certifications Directory at www.ul.com/database for additional information. |

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

Recognized components are incomplete in certain constructional features or restricted in performance capabilities and are intended for use as components of complete equipment submitted for investigation rather than for direct separate installation in the field. The final acceptance of the component is dependent upon its installation and use in complete equipment submitted to UL LLC.

Look for the UL Certification Mark on the product.

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

Bruce Mahrenholz, Assistant Chief Engineer, Global Inspection and Field Services, UL LLC
Joseph Hosey, General Manager, Director of Sales – Canada, UNDERWRITERS LABORATORIES OF CANADA INC.

Helena Y. Wolf, Director, Global Market Access Operations, UL LLC

Description

# UL TEST REPORT AND PROCEDURE

| | |
|---|---|
| **Standard:** | ANSI/AAMI ES60601-1:2005/(R)2012 and A1:2012, C1:2009/(R)2012 and A2:2010/(R)2012, CSA CAN/CSA-C22.2 NO. 60601-1:14 |
| **Certification Type:** | Component Recognition |
| **CCN:** | QQHM2 / QQHM8 |
| **Complementary CCNs:** | |
| **Product:** | Component, power supply |
| **Model:** | HPA1K5PSXX Series, where XX can be 24 or 48 which represents rated output voltage. The model may or may not followed by -SF, where SF representing single fuse. |
| **Rating:** | HPA1K5PS24 – Input: 100-180V~, 16A, 50/60Hz or 180-240V~, 10A, 50/60Hz<br><br>HPA1K5PS48 – Input: 100-180V~, 16A, 50/60Hz or 180-240V~, 10A, 50/60Hz<br><br>Output: See models differences for output details |
| **Applicant Name and Address:** | XP Power LLC<br>15641 RED HILL AVE, SUITE 100<br>TUSTIN, CA 92780, USA |

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 as applicable.

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

Prepared by: Randy Min, handler Reviewed by: Mitchell McGarry, Reviewer

**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**

Model covered in this report is a component power supply intended for use in Medical Electrical Equipment. The need for the additional testing and evaluation shall be determined in the end product evaluation. This is a Class I, open frame power supply intended for building-in. Also, provided with isolated 5V auxiliary output for control and monitoring of the equipment's operation.
Refer to the Report Modifications page for any modifications made to this report.

**Model Differences**

The power supplies in the series are differentiated by the output voltage and current ratings, number of turns of primary/secondary windings in the Transformers (T101 (Power)) and minor differences in the secondary circuit components and PWB layout.

See below for Model Ratings Table for 50°C below:

Model HPA1K5PS24 –

Input: 100-180V~, 16A, 50/60Hz, Output: 24V, 62.5A MAX, 1400W;
180-240V~, 10A, 50/60Hz, Output: 24V, 62.5A MAX, 1500W

Model HPA1K5PS48 –

Input: 100-180V~, 16A, 50/60Hz, Output: 48V, 31A MAX, 1400W;
180-240V~, 10A, 50/60Hz, Output: 48V, 31A MAX, 1500W

**Additional Information**

N/A

**Technical Considerations**

- The product was investigated to the following additional standards: N/A
- The following additional investigations were conducted: N/A
- The product was not investigated to the following standards or clauses: N/A
- The following accessories were investigated for use with the product: N/A
- No Other Considerations

**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 component shall be considered for compliance with the Marking (clause 7) and Separation (clause 8) requirements as part of the end use application evaluation.

  The power supply was evaluated for use in 50°C ambient at Full Rated Output and 50% of the Rated Output in 70°C ambient.

  Consideration shall be given to measuring the temperature on power electronic components and transformer windings when the power supply is installed in the end-use equipment. The end use product shall ensure that the power supply is used within its ratings.

  Non-frequency weighted leakage test was not conducted and shall be considered in the end product application.

  This power supply was evaluated with Two MOPP between Primary and Secondary; One MOPP primary
  and Earth; 0 MOPP between Secondary and Earth.

  This power supply has been evaluated as a continuous operation, ordinary equipment and has not been
  evaluated for use in the presence of a flammable an aesthetic mixture with air, oxygen, or nitrous oxide.
  The output circuits have not been evaluated for direct patient connection (Type B, BF or CF).

  The maximum investigated branch circuit rating is: 20 A

  The Electric Strength Test conducted on this power supply was based upon a maximum working voltage
  of: Primary-Earthed Dead Metal: 237 Vrms, 364 Vpk; Primary-SEC: 274 Vrms, 700 Vpk.

  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): T101, T100, T3 (Class F, 155°C)

  Printed Wiring Board rated 130°C.

  The models with suffix -SF are to be provided with a single fuse.

  Fire/ Mechanical/ Electrical Enclosure to be provided as part of the end-product.