CERTIFICATE OF COMPLIANCE

Certificate Number	2018-04-19-E146893
Report Reference	E146893-D1020-1/A0/C0-UL
Issue Date	2018-04-19
Issued to: **Applicant Company:**	XP Power LLC 15641 Red Hill Ave., Ste. 100 Tustin, CA 92780 USA
Listed Company:	XP Power Ltd. 401 Commonwealth Drive, Haw Par Technocentre, Lobby B, #02-02 Singapore 149598 Singapore
This is to certify that representative samples of	Switching Brick Power Supply ALM120PSXXYY-ZZ##V (where XX is any number between 12-24 designating output voltage and YY can be blank or "C2" designating Class II configuration, and -ZZ can be blank or "-A", "-6", "-6A", "-8", "-8A" designating AC inlet type, and V can be any alphanumeric or blank designating casing colour). Models may have an additional ## identifier which can be any alphanumeric or blank designating marketing purposes only. Model name can also include suffix identifier -SF to indicate a Single Fuse supplied for Class II configurations only Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.
Standard(s) for Safety:	ANSI/AAMI ES60601-1: A1:2012, C1:2009/(R)2012 and A2:2010/(R)2012, CSA CAN/CSA-C22.2 NO. 60601-1:14
Additional Standards:	IEC 60601-1-6:2010 (Third Edition) + A1:2013
Additional Information:	See the UL Online Certifications Directory at www.ul.com/database for additional information.

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

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 **Helena Y. Wolf, Director, Global Market Access Operations, UL LLC**
Joseph Hosey, General Manager, Director of Sales – Canada, UNDERWRITERS LABORATORIES OF CANADA INC.

Description

UL TEST REPORT AND PROCEDURE

Standard:	ANSI/AAMI ES60601-1: 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:	Switching Brick Power Supply
Model:	ALM120PSXXYY-ZZ##V (where XX is any number between 12-24 designating output voltage and YY can be blank or "C2" designating Class II configuration, and -ZZ can be blank or "-A", "-6", "-6A", "-8", "-8A" designating AC inlet type, and V can be any alphanumeric or blank designating casing colour). Models may have an additional ## identifier which can be any alphanumeric or blank designating marketing purposes only. Model name can also include suffix identifier -SF to indicate a Single Fuse supplied for Class II configurations only
Rating:	Input: 100-240 Vac, 50/60 Hz, 1.4 A Output: ALM120PS12: 12 Vdc (10.1 - 13.5 Vdc), 10 A max., 120W max.; ALM120PS15: 15 Vdc (13.5 - 17.0 Vdc), 8 A max., 120W max.; ALM120PS19: 19 Vdc (17.1 - 21.0 Vdc), 6.32 A max., 120W max.; ALM120PS24: 24 Vdc (21.0 - 26.0 Vdc), 5 A max., 120W max
Applicant Name and Address:	XP Power LLC 15641 Red Hill Ave., Ste. 100 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: Janice Pham / Project Handler Reviewed by: Ned Devine / 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

Stand-alone power supply for use with Medical Electrical Equipment.
Refer to the Report Modifications page for any modifications made to this report.

Model Differences

All models within the series are identical with exception to power transformer (T1) winding and other minor changes to secondary circuit to accommodate different output voltages and current ratings.

Models may have an additional YY identifier which can be blank or "C2" to designate a Class II configuration.

Models may have an additional ZZ identifier which can be blank or "A", "6", "6A", "8", "8A" to designate the type of input connector:
- blank designates a C14 input connector (Class I construction) or C18 input connector (Class II construction);
- "A" designates a C14 input connector with optional IEC cable retention;
- "6" designates a C6 input connector;
- "6A" designates a C6 input connector with optional IEC cable retention;
- "8" designates a C8 input connector;
- "8A" designates a C8 input connector with optional IEC cable retention.

Models may have an additional ## identifier which can be any alphanumeric or blank designating marketing purposes only.

Models may have an additional -SF identifier which indicates that the power supply is provided with a single fuse. This is applicable only for Class II configurations with the identifier C2.

Models may have an additional V identifier which can be any alphanumeric or blank to represent the colour of the casing.

Output voltage rating indicated in '( )' under "Ratings" represents voltage tolerance evaluated.
ALM120PS12: 12 Vdc (10.1 - 13.5 Vdc), 10 A max., 120W max.;
ALM120PS15: 15 Vdc (13.5 - 17.0 Vdc), 8 A max., 120W max.;
ALM120PS19: 19 Vdc (17.1 - 21.0 Vdc), 6.32 A max., 120W max.;
ALM120PS24: 24 Vdc (21.0 - 26.0 Vdc), 5 A max., 120W max.;

Additional Information

Marking label is representative of all models. The nameplate labels included in this report depict the draft artwork for the marking plate pending approval by National Certification Bodies and it will not be affixed to products prior to such approval.

Technical Considerations

- The product was investigated to the following additional standards: IEC 60601-1-6:2010 (Third Edition) + A1:2013
- The following additional investigations were conducted: None
- The product was not investigated to the following standards or clauses: Biocompatibility, PESS, EMC, Annex Z of EN standards for compliance with the MDD
- The following accessories were investigated for use with the product: None
- None

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 installed in compliance with the Marking (clause 7) and Separation (clause 8) requirements of the end use application.
- The product was submitted and evaluated for use at the maximum ambient temperature (Tmra) permitted
- by the manufacturer's specification of: 40°C output loaded to 100% rated, 60°C output loaded to 60% rated.
- Repeating leakage current testing should be considered in the end product application.
- This power supply was evaluated as having: One MOPP between Primary to Earth/Reference, Two MOPP
- between Primary and Secondary.
- 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 anesthetic mixture with air, oxygen, or nitrous oxide. The
- output circuits have not been evaluated for direct patient connection (Type B, BF or CF).
- The end product should ensure that the requirements related to accompanying documents, clause 7.9, are
- met.
- The available voltage for the secondary outputs does not exceed 25 Vac or 60 Vdc, under normal and
- single fault conditions
- The output connectors are not acceptable for field connections; they are only intended for connection to
- mating connectors of the end-use machine.
- The Electric Strength Test conducted on this power supply was based upon a maximum working voltage of:
- Primary-Earthed Dead Metal (Class I units): 420 Vpk, 250 Vrms; Primary-SEC: 433.33 Vpk, 245.35 Vrms.
- 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): L1 and L2 are Class B (130°C); T1 is Class
- F (155)
- Accompanying documents to be provided as part of the end-product.
- Cleaning test to be considered as part of end product evaluation.
- Durability and Legibility of Markings Test conducted, however, the need for Marking Durability and Marking
- Legibility Testing to be considered as part of the end product installation.
- Power cord suitable for the application to be provided as part of the end product evaluation.
- It is anticipated that the requirements of IEC 60601-1-6 will be applied once again upon integration of

- power supply with the Medical Device.