CERTIFICATE OF COMPLIANCE

Certificate Number	2017-10-18-E146893
Report Reference	E146893-D1016-1/A0/C0-ULCB
Issue Date	2017-10-18
Issued to:	XP POWER L L C
Applicant Company:	15641 RED HILL AVE, SUITE 100 Tustin, CA 92780 US
Listed Company:	Same as Applicant
This is to certify that representative samples of	Component Power Supply ECF40USXX Series, where XX can be 12,15,18,24,28,36, or 48 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, CAN/CSA C22.2 No. 60601-1:14, IEC 60601-1 :2005 +A1 :2012
Additional Standards:	None
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, CAN/CSA C22.2 No. 60601-1:14, IEC 60601-1 :2005 +A1 :2012
Certification Type:	Component Recognition
CCN:	QQHM2/QQHM8
Complementary CCNs:	
Product:	Component Power Supply
Model:	ECF40USXX Series, where XX can be 12,15,18,24,28,36, or 48
Rating:	Input: 100-240 Vac, 50/60- HZ, 1.2A Max Output: See Model Differences for details.
Applicant Name and Address:	XP POWER L L C 15641 RED HILL AVE, SUITE 100 Tustin, CA 92780, US

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: Ahmad Daoudi / Project 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

Products covered are open frame power supplies intended for building-in to be used with Medical Electrical Equipment. Units are intended for used with Class I or Class II end-products.
Refer to the Report Modifications page for any modifications made to this report.

Model Differences

All models in the ECF40USXX series are identical with exception to model designation, Transformer (T1) and secondary components/circuitry that allow for different output voltage ratings.
Model output ratings as follows.
Model ECF40US12: Output Rated: 10.1 Vdc - 13.5 Vdc, 3.34 A Max., 40 W Max.
Model ECF40US15: Output Rated: 13.6 Vdc - 17 Vdc, 2.67 A Max., 40 W Max.
Model ECF40US18: Output Rated: 17.1 Vdc - 21 Vdc, 2.23 A Max, 40 W Max.
Model ECF40US24: Output Rated: 21.1 Vdc - 26 Vdc, 1.67 A Max., 40 W Max.
Model ECF40US28: Output Rated: 26.1 Vdc - 31 Vdc, 1.43 A Max., 40 W Max.
Model ECF40US36: Output Rated: 33.1 Vdc - 42 Vdc, 1.11 A Max, 40 W Max.
Model ECF40US48: Output Rated: 42.1 Vdc - 54 Vdc, 0.83 A Max., 40 W Max.

Additional Information

Licenses older than 3 years to be provided by the manufacturer upon request. A marking plate for Model ECF40US28 is not provided/required, since the input rating are identical for all models. Marking plates provided in the enclosures are representative of all models.

Technical Considerations

- The product was investigated to the following additional standards: None
- 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 power supply was evaluated for use at the maximum ambient temperature permitted by the manufacturer's specification of : 50 deg. C at full rated load and 70 deg. at 50% rated load.
- 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.
- Repeat of leakage current testing and consideration of non-frequency weighted leakage test shall be

considered in the end product application.

- This power supply was evaluated with Two MOPP between Primary and Secondary for 354Vpk/240Vrms; One MOPP primary and Earth for 350Vpk/240Vrms; One MOPP between Secondary to Ground for working voltage of 48Vdc.
- 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 shall ensure that the requirements related to accompanying documents, clause 7.9, are met.
- The maximum investigated branch circuit rating is: 20 A
- The end-product Electric Strength Test to be conducted shall be based upon a maximum working voltage
- of: Primary-Earthed Dead Metal: 240 Vrms, 354 Vpk; Primary-SEC: 240 Vrms, 354 Vpk; Secondary to
- Ground: 240Vrms, 354Vpk.
- 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): TR1 (Class F, 155°C)
- The following end-product enclosures are required: Mechanical, Fire, Electrical
- Printed Wiring Board rated 130°C.
- The need for Marking Durability and Marking Legibility Testing shall be considered as part of the end product installation.
- When installed in a Class II end product, the power supply shall be mounted in a manner that provides sufficient clearance and creepage distance between the hazardous parts and accessible conductive parts.
- When installed in a Class I end product, proper bonding to the Class I end-product main protective earthing termination is required (via mounting holes on the PCB).
- Protective earthing testing shall be conducted in the end product application.
- The need for a fire enclosure shall be determined in the end product

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
Serial number or lot or batch identifier	Serial number or lot or batch identifier
Date of manufacture or use by date	Date of manufacture or use by date
Supply Connection	Voltage range, ac/dc, phases if more than single phase
Power Input	Amps, VA, or Watts
Output	Rated output voltage, power, frequency.

Special Instructions to UL Representative

Production-Line Testing Requirements

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

Test	Exemption Specifics	Details
Grounding Continuity	The following models are exempt from the indicated test:	Test
Dielectric Voltage Withstand	The following models are exempt from the indicated test:	Test
Patient Circuit Dielectric Voltage Withstand	The following models are exempt from the indicated test:	Exempt
Solid-State Components	The following solid-state components may be disconnected from the remainder of the circuitry during either Dielectric Voltage Withstand Test:	Exempt

Sample and Test Specifics for Follow-Up Tests at UL

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

Plastic Enclosure or Part	Test	Sample(s)	Test Specifics
None	NA	NA	NA
