

# CERTIFICATE OF COMPLIANCE

**Certificate Number** 20191130-E317867  
**Report Reference** E317867-A86-UL  
**Issue Date** 2019-NOVEMBER-30

**Issued to:** XP POWER L L C  
15641 RED HILL AVE, SUITE 100  
TUSTIN CA 92780

**This certificate confirms that  
representative samples of**

COMPONENT - POWER SUPPLIES, INFORMATION  
TECHNOLOGY EQUIPMENT INCLUDING ELECTRICAL  
BUSINESS EQUIPMENT

COMPONENT - POWER SUPPLIES FOR USE WITH  
AUDIO/VIDEO, INFORMATION AND COMMUNICATION  
TECHNOLOGY EQUIPMENT

See Addendum Page For Models/Product

Have been investigated by UL in accordance with the  
component requirements in the Standard(s) indicated on  
this Certificate. UL Recognized components are incomplete  
in certain constructional features or restricted in  
performance capabilities and are intended for installation in  
complete equipment submitted for investigation to UL LLC.

**Standard(s) for Safety:** UL 60950-1 and CAN/CSA C22.2 No. 60950-1-07 -  
Information Technology Equipment - Safety - Part 1:  
General Requirements

**Additional Information:** See the UL Online Certifications Directory at  
<https://iq.ulprospector.com> for additional information.

This *Certificate of Compliance* does not provide authorization to apply the UL Recognized Component Mark. Only the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Recognized Component Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Recognized Component Mark on the product.



Bruce Mahrenholz, Director North American Certification Program

UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at <http://ul.com/aboutul/locations/>



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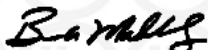
**Certificate Number** 20191130-E317867  
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This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

## Switching Power Supply

EPL225PS12  
EPL225PS15  
EPL225PS18  
EPL225PS24  
EPL225PS28  
EPL225PS36  
EPL225PS48

May be followed by the additional suffix "-SF".



Bruce Mahrenholz, Director North American Certification Program

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## UL TEST REPORT AND PROCEDURE

<b>Standard:</b>	UL 60950-1, 2nd Edition, 2019-05-09 (Information Technology Equipment - Safety - Part 1: General Requirements) CAN/CSA C22.2 No. 60950-1-07, 2nd Edition, 2014-10 (Information Technology Equipment - Safety - Part 1: General Requirements)
<b>Certification Type:</b>	Component Recognition
<b>CCN:</b>	QQGQ2, QQGQ8 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)
<b>Complementary CCN:</b>	QQJQ2, QQJQ8 (Power Supplies for Use in Audio/Video, Information and Communication Technology Equipment)
<b>Product:</b>	Switching Power Supply
<b>Model:</b>	EPL225PS12 EPL225PS15 EPL225PS18 EPL225PS24 EPL225PS28 EPL225PS36 EPL225PS48  May be followed by the additional suffix "-SF".
<b>Rating:</b>	All Models Except EPL225PS12:  INPUT : 100-240V ~ 3A , 50/60Hz OUTPUT : See Enclosures for output ratings.  Model EPL225PS12:  INPUT : 100-240V ~ 3A, 50/60Hz 100-264VDC 2.0A  OUTPUT : See Enclosures for output ratings.
<b>Applicant Name and Address:</b>	XP POWER L L C 15641 RED HILL AVE, SUITE 100 TUSTIN CA 92780 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 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.

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

Prepared By: Adam Tangocci / Project Handler    Reviewed By: Gregory Ray / 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

The models covered in this report are component AC-DC power supplies intended for use in Information Technology Equipment. They are open frame power supplies intended for building-in.

### Model Differences

All models in the EPL225PS series are identical with exception to the mains transformer (TR1) and minor secondary components that allow for different output voltage ratings.

Suffix "SF" indicates single fuse provided in the line side of the primary.

Suitable for use at 100% rated load at 50°C, 50% load at 70°C. See enclosures for additional details.

### Test Item Particulars

Equipment mobility	for building-in
Connection to the mains	for building-in
Operating condition	continuous
Access location	for building-in
Over voltage category (OVC)	OVC II
Mains supply tolerance (%) or absolute mains supply values	DC Mains: +20%, -15% +10%, -10%
Tested for IT power systems	Yes
IT testing, phase-phase voltage (V)	230
Class of equipment	Class I
Considered current rating of protective device as part of the building installation (A)	20 A
Pollution degree (PD)	PD 2
IP protection class	IP X0
Altitude of operation (m)	5000
Altitude of test laboratory (m)	less than 2000 meters
Mass of equipment (kg)	0.1

### Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (T<sub>ma</sub>) permitted by the manufacturer's specification of : See Model Differences section.
- The means of connection to the mains supply is : for building-in, to be determined in end-product.
- The product is intended for use on the following power systems : TN, IT (230 V L-L)
- The equipment disconnect device is considered to be : for building-in, to be determined in end-product.
- The product was investigated to the following additional standards : CSA/UL/IEC 62368-1 2nd Ed; EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013 (which includes all European national differences, including those specified in this test report).

**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 following Production-Line tests are conducted for this product : Electric Strength, Earthing Continuity
- The end-product Electric Strength Test is to be based upon a maximum working voltage of : Primary-SELV: 284 Vrms, 484 Vpk; Primary-Earthed Dead Metal: 264 Vrms, 400 Vpk
- The following secondary output circuits are at hazardous energy levels : All
- The power supply terminals and/or connectors are : Not investigated for field wiring
- The maximum investigated branch circuit rating is : 20A
- The investigated Pollution Degree is : 2
- Proper bonding to the end-product main protective earthing termination is : Required
- An investigation of the protective bonding terminals has : Not been conducted
- The following input terminals/connectors must be connected to the end-product supply neutral : Input Connector (CN1) N terminal.
- The following magnetic devices (e.g. transformers or inductor) are provided with an OBJ2 insulation system with the indicated rating greater than Class A (105°C) : TR1 (Class F, 155°C)
- The following end-product enclosures are required : Electrical, Fire, Mechanical
- Suitable disconnect device is to be provided in the end system.
- Temperature, Leakage and Dielectric Strength testing shall be considered in the end system.
- According to IEC60664-1, Table A2, required Clearances have been adjusted by multiplying the clearance at sea level by a factor of 1.48 for operating at an altitude of 5000 meters. The correction factor is based on barometric pressure of 70kPa and Overvoltage Category II. If the calculated Clearance exceeded the Creepage, the Creepage was adjusted to the value of clearance. No other additional requirements were considered at this time as they are not explicitly addressed in UL 60950-1.
- Printed Wiring Board rated 130°C.
- Power supplies without suffix "-SF" have a fuse in the neutral of the primary circuit. A warning for service persons to be considered in the end product.
- Heatsinks are floating and considered live. They should not be accessible in the end-product.
- Heating test was not conducted on unit with input/output leads. If unit is provided with input and/or output leads, then temperature on leads must be measured and cannot exceed 105°C.
- UL 62368-1: The power supplies in this report have not been subjected to the capacitor discharge test of Clause 5.5.2.2. This shall be evaluated in the end product.
- UL 62368-1: The following output circuits are at PS3 energy levels: All DC Outputs
- UL 62368-1: The following output circuits are at ES1 energy levels: All DC Outputs
- UL 62368-1: Consideration to repeating the touch current test of Clauses 5.7.1 to 5.7.4 should be given in the end product evaluation.
- Regarding models rated for DC input voltage: The fault tests with a DC input condition conducted as part of UL project 4789177527 were conducted with an external DC fuse manufactured by Daito, UL File Number E59783, type DCP20, rated 450 Vdc, 2.0 A, 100 A interrupt rating. This or a similar fuse must be provided and its use must be evaluated in the end product.
- The forced air cooling output ratings may only be used when these models are provided with a fan max. 1 inch distance from the input side of the model providing min. 10CFM air flow towards the model.

**Additional Information**

The required clearance values have been assessed for suitability up to 5000 m elevation (1.48 correction factor as per IEC 60664-1, Table A2).

The need for the additional testing and evaluation shall be determined in the end product investigation.

The nameplate markings provided as an Enclosure - Marking Plate are considered representative of the entire series.

The power supply series covered by this report employ Double/Reinforced Insulation between Primary and Secondary circuits.

Correction 1 - No testing was considered necessary due to the addition of Supplementary Information in the Table 4.5.5 that clarifies acceptance of the test data under SMT.

#### **Additional Standards**

The product fulfills the requirements of: EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011 + A2:2013

#### **Markings and Instructions**

Clause Title	Marking or Instruction Details
1.7.1 Power rating - Ratings	Ratings (voltage, frequency/dc, current)
1.7.1 Power rating - Company identification	Listee's or Recognized company's name, Trade Name, Trademark or File Number
1.7.1 Power rating - Model	Model Number
1.7.6 Fuses - Non-operator access/soldered-in fuses	Unambiguous reference to service documentation for instructions for replacement of fuses replaceable only by service personnel

#### **Special Instructions to UL Representative**

N/A



<b>BD1.0</b>	<b>TABLE: Production-Line Testing Requirements</b>					
<b>BD1.1</b>	<b>Electric Strength Test Special Constructions – Refer to Generic Inspection Instructions, Part AC for further information.</b>					
Model	Component	Removable parts	Test probe location	Test V rms	Test V dc	Test Time, s
<b>BD1.2</b>	<b>Earthing Continuity Test Exemptions – This test is not required for the following models:</b>					
<b>BD1.3</b>	<b>Electric Strength Test Exemptions – This test is not required for the following models:</b>					
<b>BD1.4</b>	<b>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:</b>					

<b>BE1.0</b>	<b>Sample and Test Specifics for Follow-Up Tests at UL</b>				
Model	Component	Material	Test	Sample (s)	Test Specifics