

CERTIFICATE OF COMPLIANCE

Certificate Number E317867
Report Reference E317867-A6007-UL
Issue Date 2020-MARCH-05

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 for Use in Audio/Video,
Information and Communication Technology Equipment
Switching Power supply,
ECP180PSXX, where XX can be any number between 12
and 48 designating the output voltage, may also be
provided with suffix "SF" for removal of F2.

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 62368-1 & CAN/CSA C22.2 No. 62368-1-14,
Audio/Video, Information and Communication Technology
Equipment Part 1: Safety 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

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UL TEST REPORT AND PROCEDURE

Standard:	UL 62368-1, 2nd Ed, 2014-12-01 (Audio/video, information and communication technology equipment Part 1: Safety requirements) CAN/CSA C22.2 No. 62368-1-14, 2nd Ed-(Audio/video, information and communication technology equipment Part 1: Safety requirements)
Certification Type:	Component Recognition
CCN:	QQJQ2, QQJQ8 (Power Supplies for Use in Audio/Video, Information and Communication Technology Equipment)
Complementary CCN:	N/A
Product:	Switching Power supply
Model:	ECP180PSXX, where XX can be any number between 12 and 48 designating the output voltage, may also be provided with suffix "SF" for removal of F2.
Rating:	Input: 100-240 Vac, 2.5 A, 50/60 Hz Output: Model ECP180PS12: Output Rated: 12 Vdc, 15A Model ECP180PS15: Output Rated: 15 Vdc, 12A Model ECP180PS24: Output Rated: 24 Vdc, 7.5 A Model ECP180PS28: Output Rated: 28 Vdc, 6.43 A Model ECP180PS36: Output Rated: 36 Vdc, 5A Model ECP180PS48: Output Rated: 48 Vdc, 3.75A See Enclosure 7-01 for additional ratings information.
Applicant Name and Address:	XP POWER L L C 15641 RED HILL AVE, SUITE 100 TUSTIN CA 92780 UNITED STATES

Issue Date: 2020-03-02

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Report Reference #

E317867-A6007-UL

Revision Date: 2020-03-03

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.

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Prepared By: Robert Leon / Project Handler

Reviewed By: Walid Beytoughan / 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 model covered in this report is a component power supply intended for use in Audio/video, Information and Communication Technology Equipment. It is an open frame power supply intended for building-in Class I or Class II end-products. Double insulated symbol is optionally provided. The Earthing symbol may only be provided for Class I installations.

Model Differences

All models in the Model ECP180PSXX series are identical with exception to the Mains Transformer, TR1, and minor secondary components that allow for different output voltage ratings.

See below for Model Ratings Table for 50°C ambient with 10 cfm fan applied 5 cm from input connector CN1 blowing inward:

Model ECP180PS12: Output Rated: 12 Vdc, 15A

Model ECP180PS15: Output Rated: 15 Vdc, 12A

Model ECP180PS24: Output Rated: 24 Vdc, 7.5 A

Model ECP180PS28: Output Rated: 28 Vdc, 6.43 A

Model ECP180PS36: Output Rated: 36 Vdc, 5A

Model ECP180PS48: Output Rated: 48 Vdc, 3.75A

See Enclosure 7-01 for additional ratings information.

Test Item Particulars

Classification of use by	Skilled person
Supply Connection	AC Mains
Supply % Tolerance	+10%/-10%
Supply Connection – Type	mating connector For building-in
Considered current rating of protective device as part of building or equipment installation	20 A; building;
Equipment mobility	for building-in
Over voltage category (OVC)	OVC II
Class of equipment	Not classified
Access location	N/A

Pollution degree (PD)	PD 2
Manufacturer's specified maximum operating ambient (°C)	50 at 100% load, 70 at 50% load
IP protection class	IPX0
Power Systems	TN
Altitude during operation (m)	5000 m
Altitude of test laboratory (m)	33 m
Mass of equipment (kg)	0.25 kg

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : 50°C at 100% load, 70°C at 50% load.
- The product is intended for use on the following power systems : TN
- The equipment disconnect device is considered to be : provided as an element of the end product.
- The product was investigated to the following additional standard : EN 62368-1:2014 + A11:2017
- Power supplies covered by this report were evaluated for both Class I and Class II (double insulated). Double insulated symbol is optionally provided. See Conditions of Acceptability for insulation required for Class II. Earthing symbol may only be provided for Class I power supplies.

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 product-line tests are conducted for this product : Electric Strength
- The end-product Electric Strength Test is to be based upon a maximum working voltage of : Primary-Earth: 241 Vrms, 343 Vpk; Primary-SELV: 250 Vrms, 388 Vpk
- The following output circuits are at ES1 energy levels : All outputs
- The following output circuits are at PS2 energy levels : 12 V fan output circuit
- The following output circuits are at PS3 energy levels : All outputs
- The maximum investigated branch circuit rating is : 20 A
- The investigated Pollution Degree is : 2
- Proper bonding to the end-product main protective earthing termination is : Required when installed in Class I end products.
- 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 : AC-N (CN1)
- The following end-product enclosures are required : Fire, Electrical, Mechanical
- 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) : L2, L3, L4, TR1 (Class B, 130°C)
- The maximum continuous power supply output (Watts) relied on forced air cooling from : 10 cfm fan applied 5 cm from input connector CN1 blowing inward.
- The power supply was evaluated to be used at altitudes up to : "5,000 m" (1.48 correction factor as per IEC 60664-1, Table A2).
- When installed in a Class I end product, the power supply shall be mounted in a manner that provides, at a minimum, 2.3 mm Clearance between the primary side of power supply and protectively earthed accessible conductive parts.
- When installed in a Class II end product, the power supply shall be mounted, on insulating posts, in a manner that provides, at a min. 4.5 mm Clearance between the power supply and any accessible conductive parts.
- The power supply terminals and/or connectors are: Suitable for factory wiring only.
- The equipment is provided with a fuse in both the Line and Neutral of the primary circuit, unless provided with suffix "SF" to indicate only one fuse provided in the Line.
- Prospective Touch Current and Voltage testing to be conducted in the end-product evaluation.
- Units provided with fuses in the line and neutral shall be considered for the need for "Double Pole Fusing" warning markings as part of the end-product.
- Safeguards against capacitor discharge after disconnection of a connector (clause 5.5.2.2) shall be evaluated in the end product.

Additional Information

This report is based on previously conducted testing (as listed below) and the review of product construction of original CBTR Ref. No. E317867-A83-CB-2, dated 2015-09-08, CB Test Certificate Ref. Nos. US-25966-UL issued date 2015-09-10 and US-25966-A1-UL issued date 2017-06-08 issued by UL LLC. Refer to Section "Test performed (name of test and test clause)" covering all applicable performance tests and rationale for waived tests.

The following tests were selected as representative of the test program applicable to model covered by this CBTR: Safeguards Against Capacitor Discharge After Disconnection of a Capacitor (5.5.2.2), Electric Strength Test (5.4.9) and Simulated Abnormal Operating Conditions (B.3). These tests have been witnessed for models selected as representative of the product family covered by this report and of the applicable test program.

The nameplate markings provided are considered representative of the entire series and only the output ratings may vary.

This report references component licenses documentation or certificates that are older than 3 years or issued to previous IEC/EN Standard editions. It has being determined that all critical components comply with current

safety requirements. Receiving NCB may request additional information. Acceptance of these licenses, certificates or relevant documentation is at the discretion of the Receiving NCB.

Correction 1:

1. Corrected EN62368-1:2014 to include +A11:2017.
2. Corrected GPI2: Additional application considerations to include the following statement "The following tests were selected as representative of the test program applicable to model covered by this CBTR: Safeguards Against Capacitor Discharge After Disconnection of a Capacitor (5.5.2.2), Electric Strength Test (5.4.9) and Simulated Abnormal Operating Conditions (B.3). These tests have been witnessed for models selected as representative of the product family covered by this report and of the applicable test program."
3. Added to Technical Considerations: "The product was investigated to the following additional standards: EN 62368-1:2014 + A11:2017."

Additional Standards

The product fulfills the requirements of: IEC 62368-1:2014, EN 62368-1:2014 + A11:2017

Markings and Instructions

Clause Title	Marking or Instruction Details
Equipment identification marking – Manufacturer identification	Listees or Recognized companys name, Trade Name, Trademark or File Number
Equipment identification marking – model identification	Model Number
Equipment rating marking – ratings	"Input Ratings (voltage, frequency/dc, current/power)", "Output Ratings (voltage, frequency/dc, current/power)"

Special Instructions to UL Representative

Inspect the transformer(s) listed in Production-Line Testing Requirements (Electric Strength Test Special Constructions) per AA1.1- (C). When the tests are conducted at other location, Inspect test record and specification sheet provided by the component manufacturer. verify the specification sheet indicates 100%.

BD1.0	TABLE: Production-Line Testing Requirements					
BD1.1	Electric Strength Test Special Constructions – Refer to Generic Inspection Instructions, Part AC for further information.					
Model	Component	Removable parts	Test probe location	Test V rms	Test V dc	Test Time, s
All Models	Transformer TR1	-	Primary Pins - Secondary Pins	2800 Vac or higher	4000 Vdc or higher	1 to 4 secs
BD1.2	Earthing Continuity Test Exemptions – This test is not required for the following models:					
	All Models					
BD1.3	Electric Strength Test Exemptions – This test is not required for the following models:					
	N/A					
BD1.4	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.					
	N/A					

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