Test Report issued under the responsibility of:

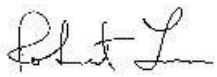
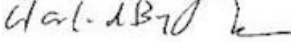
TEST REPORT
IEC 62368-1
Audio/video, information and communication technology equipment
Part 1: Safety requirements

Report Number .....:	E317867-A6007-CB-1
Date of issue.....:	2020-03-26 ; Correction 1 : 2020-03-26
Total number of pages .....:	20
Applicant's name.....:	**XP POWER L L C**
Address .....:	**15641 RED HILL AVE, SUITE 100** **TUSTIN CA 92780** **UNITED STATES**
Name of Test Laboratory preparing the Report .....:	UL Fremont 47173 Benicia Street, Fremont, CA, 94538, USA
Test specification:	
Standard .....:	IEC 62368-1:2014 (Second Edition)
Test procedure .....:	CB Scheme
Non-standard test method.....:	N/A
Test Report Form No.....:	IEC62368_1B
Test Report Form(s) Originator .....:	UL(US)
Master TRF.....:	2014-03

This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

General disclaimer:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory.
The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test Item description :	Switching Power supply	
Trade Mark .....:		
Manufacturer .....:	XP POWER L L C 15641 RED HILL AVE, SUITE 100 TUSTIN CA 92780 UNITED STATES	
Model/Type reference .....:	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.	
Ratings .....:	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.	
Testing procedure and testing location:		
☒ CB Testing Laboratory:		
Testing location/ address .....:	UL Fremont, 47173 Benicia Street, Fremont, CA, 94538, USA	
Tested by (name + signature).....:	Robert Leon / Project Handler	
Approved by (name + signature).....:	Walid Beytoughan / Reviewer	
☐ Testing procedure: CTF Stage 1		
Testing location/ address..... :		
Tested by (name + signature).....:		
Approved by (name + signature).....:		
☐ Testing procedure: CTF Stage 2		
Testing location/ address..... :		
Tested by (name + signature).....:		
Witnessed by (name + signature).....:		

Approved by (name + signature).....:			
☒	Testing procedure: CTF Stage 3		
☐	Testing procedure: CTF Stage 4		
Testing location/ address..... :		XP POWER LTD 401 COMMONWEALTH DR HAW PAR TECHNOCENTRE LOBBY B, #02-02 SINGAPORE 149598 SINGAPORE	
Tested by (name + signature).....:		Lim Nixon / Tester	See Original Report for Signature.
Witnessed by (name + signature).....:		Robert Leon / Project Handler	See Original Report for Signature.
Approved by (name + signature).....:		Walid Beytoughan / Reviewer	See Original Report for Signature.
Supervised by (name + signature) .....:		Robert Leon / Project Handler	See Original Report for Signature.

List of Attachments (including a total number of pages in each attachment):

National Differences (0 pages)
Enclosures (0 pages)

Summary of testing:

Tests performed (name of test and test clause): **None**	**Testing Location: None**

Summary of compliance with National Differences:

List of countries addressed: EU Group and National Differences, USA / Canada

EU Group and National Differences applies to CENELEC member countries: Austria , Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom

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

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

Note: The above markings are the minimum requirements required by the safety lab. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.

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
POSSIBLE TEST CASE VERDICTS:	
- test case does not apply to the test object..... :	N/A
- test object does meet the requirement ..... :	P (Pass)
- test object does not meet the requirement ..... :	F (Fail)
TESTING:	
Date of receipt of test item..... :	N/A
Date (s) of performance of tests..... :	N/A
GENERAL REMARKS:	
"(See Enclosure #)" refers to additional information appended to the report. **"(See appended table)" refers to a table appended to the report.** **Throughout this report a ☐ comma / ☒ point is used as the decimal separator.**	
Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:	

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... :	☒ **Yes** ☐ **Not applicable**
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies) ..... :	ABES TECHNOLOGY CO LTD NO 78-1 ZHANGMA ST XIUSHUI SHIANG CHANGHUA COUNTY 504 TAIWAN XP POWER (KUNSHAN) LTD 230 BIN JIANG NAN RD ZHANGPU TOWN KUNSHAN JIANGSU 215321 CHINA XP POWER (VIETNAM) CO LTD LOT D - 4Q - CN MY PHUOC 3 INDUSTRIAL PARK BEN CAT DISTRICT BINH DUONG VIET NAM

GENERAL PRODUCT INFORMATION:

Report Summary

The original report was modified on 2020-03-26 to include the following changes/additions:
Correction 2:

1. Corrected Energy Source Diagram.
2. Corrected Overview of Employed Safeguards.
3. Corrected sub-clauses 6.2.2.1, 6.2.2.4, 6.2.2.5, 6.4.4 and 6.4.5.
4. Corrected Table 4.1.2 (AC Inlet Connector CN1) and Table 6.2.2.

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.

Additional application considerations – (Considerations used to test a component or sub-assembly) -

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."

Correction 2:

1. Corrected Energy Source Diagram.
2. Corrected Overview of Employed Safeguards.
3. Corrected sub-clauses 6.2.2.1, 6.2.2.4, 6.2.2.5, 6.4.4 and 6.4.5.
4. Corrected Table 4.1.2 (AC Inlet Connector CN1) and Table 6.2.2.

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
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 OBJY2 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.