

# CERTIFICATE OF COMPLIANCE

**Certificate Number** 20190727-E139109  
**Report Reference** E139109-A6034-UL  
**Issue Date** 2019-JULY-27

**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 WITH  
AUDIO/VIDEO, INFORMATION AND COMMUNICATION  
TECHNOLOGY EQUIPMENT; COMPONENT - POWER  
SUPPLIES, INFORMATION TECHNOLOGY EQUIPMENT  
INCLUDING ELECTRICAL BUSINESS EQUIPMENT

See Addendum Page

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 and 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

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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This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

## DC/DC Converters

A Series: Models A01, A02, A025, A03, A04, A05, A06, A07, A08, A09, A10, A12, A15, A20, A30, A40, A50 and A60.

AH Series: Models AH01, AH02, AH025, AH03, AH04, AH05, AH06, AH07, AH08, AH09, AH10, AH12, AH15, AH20, AH30 and AH60.

AG Series: Models AG01, AG02, AG025, AG03, AG04, AG05, AG06, AG07, AG08, AG09, AG10, AG12, AG15, AG20, AG30, AG40, AG50 and AG60.

AGH Series, Models AGH01, AGH02, AGH025, AGH03, AGH04, AGH05, AGH06, AGH07, AGH08, AGH09, AGH10, AGH12, AGH15, AGH20, AGH30 and AGH60.

All models may be followed by suffix "T", "R", and/or "-XXXXXXXX" where X is blank or any alphanumeric character.



Bruce Mahrenholz, Director North American Certification Program

UL LLC

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## UL TEST REPORT AND PROCEDURE

|                                    |  |
|------------------------------------|--|
| <b>Standard:</b>                   | UL 62368-1, 2nd Ed, 2014-12-01 (Audio/video, information and communication technology equipment Part 1: Safety requirements)<br>CAN/CSA C22.2 No. 62368-1-14, 2nd Ed (Audio/video, information and communication technology equipment Part 1: Safety requirements)   |
| <b>Certification Type:</b>         | Component Recognition  |
| <b>CCN:</b>                        | QQJQ2, QQJQ8 (Power Supplies for Use in Audio/Video, Information and Communication Technology Equipment)   |
| <b>Complementary CCN:</b>          | QQGQ2, QQGQ8 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)   |
| <b>Product:</b>                    | DC/DC Converters   |
| <b>Model:</b>                      | <p>A Series: Models A01, A02, A025, A03, A04, A05, A06, A07, A08, A09, A10, A12, A15, A20, A30, A40, A50 and A60.</p> <p>AH Series: Models AH01, AH02, AH025, AH03, AH04, AH05, AH06, AH07, AH08, AH09, AH10, AH12, AH15, AH20, AH30 and AH60.</p> <p>AG Series: Models AG01, AG02, AG025, AG03, AG04, AG05, AG06, AG07, AG08, AG09, AG10, AG12, AG15, AG20, AG30, AG40, AG50 and AG60.</p> <p>AGH Series, Models AGH01, AGH02, AGH025, AGH03, AGH04, AGH05, AGH06, AGH07, AGH08, AGH09, AGH10, AGH12, AGH15, AGH20, AGH30 and AGH60.</p> <p>All models may be followed by suffix "T", "R", and/or "-XXXXXXXX" where X is blank or any alphanumeric character.</p> |
| <b>Rating:</b>                     | <p>INPUT: 5 VDC, 550 mA; 12 VDC, 250 mA; 24 VDC, 120 mA<br/>OUTPUT: 0 to 6000 VDC.</p> <p>See Enclosure - Miscellaneous 7-01 and 7-02 for current ratings of each model.</p> <p>Ratings Optional.</p>  |
| <b>Applicant Name and Address:</b> | <p>XP POWER L L C<br/>15641 RED HILL AVE, SUITE 100<br/>TUSTIN CA 92780<br/>UNITED STATES</p>  |

Issue Date: 2018-08-30

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Report Reference #

E139109-A6034-UL

Revision Date: 2019-07-17

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 units are DC to HV DC converters having only functional insulation between input and output circuits.

**Model Differences**

Models A and AH Series are similar to Models AG and AGH Series except for mounting means. Models A and AH Series have built-in pins while Models AG and AGH Series are intended for surface-mount. Models differ in output ratings based on different transformer turns ratios and case size. See Enclosure - Miscellaneous, Model Ratings, for output rating differences.

The optional suffix "T" indicates model is with extended operating temperature.  
 The optional suffix "R" indicates model compliance with EU RoHS requirements.  
 The optional suffix "-XXXXXXXX" is used for marketing purposes only.

**Test Item Particulars**

|  |  |
|--|--|
| Classification of use by   | Skilled person   |
| Supply Connection  | External Circuit - not Mains connected<br>ES1  |
| Supply % Tolerance   | None   |
| Supply Connection – Type   | For building-in  |
| Considered current rating of protective device as part of building or equipment installation | 20 A;<br>building;   |
| Equipment mobility   | for building-in  |
| Over voltage category (OVC)  | other:<br>N/A for Building-In  |
| Class of equipment   | Not classified   |
| Access location  | N/A  |
| Pollution degree (PD)  | PD 2   |
| Manufacturer’s specified maximum operating ambient   | Maximum case temperatures, 75°C for AH and AGH models; and 85°C for A and AG models with suffix T. |
| IP protection class  | IPX0   |
| Power Systems  |  |

|                                 |                  |
|---------------------------------|------------------|
| Altitude during operation (m)   | 2000 m or less   |
| Altitude of test laboratory (m) | 2000 m or less   |
| Mass of equipment (kg)          | 0.0568-0.0849 kg |

#### Technical Considerations

- The product is intended for use on the following power systems : No direct connection
- The equipment disconnect device is considered to be : N/A - To be provided as an element of the end product.
- • The power supply output circuits were declared to be not accessible when installed in the end use product.
- • The case temperature should not exceed: 75°C for 1.5 W output models AH and AGH; and 85°C for 1.0 W output models A and AG with suffix T in accordance with manufacturer's specifications.

#### 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 :
- The following output circuits are at ES3 energy levels : All Outputs.
- The following output circuits are at PS3 energy levels : Manufacturer declares all outputs as PS3 circuits.
- 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 : Not required
- The following end-product enclosures are required : Electrical, Fire
- Heating test should be repeated in the end-use product.
- When installed in the end product temperature at the center position on top of the case should be measured and temperatures should not exceed 75°C for AH and AGH models; and 85°C for A and AG models. T allowed for Heating Test was considered to be 75°C . For Heating Tests, representatives samples of AH Series were tested at Tamb = 23 °C. For Heating Tests, representative samples of AGH Series were tested at both Tamb = 24°C , and Tamb = 51°C (elevated temperature).
- When installed in the end product the case should be connected to protective bonding or provided with a warning symbol for high voltage as only Functional insulation is provided between the metal case and the hazardous voltage secondary circuit.
- Power supply shall not be directly connected to primary power and shall derive its power from a safety isolating transformer whose secondary circuit is double/reinforced insulated from the mains or derive its power from batteries.
- Power Systems shall be evaluated in end system.
- Over voltage category (OVC) shall be evaluated in end system.
- The power supply outputs are not intended to be accessible to the user when installed in the end use product. Further evaluation may be necessary if its determined that the output circuits are accessible in the final installation.

#### Additional Information

No tests were conducted under this investigation based on testing previously conducted under CBTR Ref. No. E139109-A166-CB, CB Test Certificate Ref. No. US-27300-UL to IEC 60950-1:2005 (Second Edition), Am1:2009 + Am2:2013. All required tests were carried out under the previous investigation except where specifically noted.

The nameplate markings provided are considered representative of the entire series and only the output

ratings may vary.

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

This is a technical amendment. Based on a review of product technical documentation such as photos, schematics, and wiring diagrams, changes associated with this report are considered not to affect compliance with the requirements of the standard. Because of this and previously performed testing, no sample or additional testing was considered necessary. Changes and notes:

-Models: Formatting changes made for clarity.

-Models: Added statement regarding optional suffix "-XXXXXXXX" for all models.

-Model Differences: Added statement regarding optional suffix "T" for all models.

-Model Differences: Added statement regarding optional suffix "-XXXXXXXX" for all models.

**Additional Standards**

The product fulfills the requirements of: 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  |
| F.3.3. Equipment rating marking                                | Optional. "Input Ratings (voltage, frequency/dc, current/power)", "Output Ratings (voltage, frequency/dc, current/power)" |

**Special Instructions to UL Representative**

| <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>   |                 |                     |            |           |              |
|              | All Models   |                 |                     |            |           |              |
| <b>BD1.3</b> | <b>Electric Strength Test Exemptions – This test is not required for the following models:</b>   |                 |                     |            |           |              |
|              | All Models   |                 |                     |            |           |              |
| <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 |
|              |  |          |      |            |                |