CERTIFICATE OF COMPLIANCE

Certificate Number	20180614-E317867
Report Reference	E317867-A85-UL
Issue Date	2018-JUNE-14

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

This is to certify 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

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: See Addendum page

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.

The UL Recognized Component Mark generally consists of the manufacturer's identification and catalog number, model number or other product designation as specified under "Marking" for the particular Recognition as published in the appropriate UL Directory. As a supplementary means of identifying products that have been produced under UL's Component Recognition Program, UL's Recognized Component Mark: , may be used in conjunction with the required Recognized Marks. The Recognized Component Mark is required when specified in the UL Directory preceding the recognitions or under "Markings" for the individual recognitions.

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.

Bruce Mahrenholz, Director North American Certification Program

UL LLC

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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 : ASB110PSXXYY (where XX can be any number between 12 and 48 designating the output voltage and YY is "-HK" or blank)

Standard(s) for Safety:

UL 60950-1 : Information Technology Equipment - Safety - Part 1: General Requirements
CAN/CSA C22.2 No. 60950-1-07 : Information Technology Equipment - Safety - Part 1: General Requirements

Bruce Mahrenholz, Director North American Certification Program

UL LLC

UL TEST REPORT AND PROCEDURE

Standard:	UL 60950-1, 2nd Edition, 2014-10-14 (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)
Certification Type:	Component Recognition
CCN:	QQGQ2, QQGQ8 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)
Complementary CCN:	QQJQ2, QQJQ8 (Power Supplies for Use in Audio/Video, Information and Communication Technology Equipment)
Product:	Switching Power Supply
Model:	ASB110PSXXYY (where XX can be any number between 12 and 48 designating the output voltage and YY is "-HK" or blank)
Rating:	Input: 100-240 Vac, 1.5-0.5 A, 50/60 Hz Output: See Model differences for details.
Applicant Name and Address:	XP POWER L L C 15641 RED HILL AVENUE 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: Scott Corley - 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 model covered in this report is a component power supply intended for use in Information Technology Equipment, intended for building-in Class I end-products. Double insulated symbol is optionally provided.

Model Differences

All models in the Model ASB110PSXX Series are identical with exception to the Mains Transformer, T1, and minor secondary components that allow for different output voltage ratings. See below for Model Ratings

Table for 50°C ambient below:
Model ASB110PS12: Output Rated: 12 Vdc, 9.17 A max, 110 W max
Model ASB110PS15: Output Rated: 15 Vdc, 7.33 A max, 110 W max
Model ASB110PS24: Output Rated: 24 Vdc, 4.58 A max, 110 W max
Model ASB110PS28: Output Rated: 28 Vdc, 3.93 A max, 110 W max
Model ASB110PS36: Output Rated: 36 Vdc, 3.06 A max, 110 W max
Model ASB110PS48: Output Rated: 48 Vdc, 2.29 A max, 110 W max

Table for 70°C ambient below:
Model ASB110PS12: Output Rated: 12 Vdc, 4.58 A max, 55 W max
Model ASB110PS15: Output Rated: 15 Vdc, 3.67 A max, 55 W max
Model ASB110PS24: Output Rated: 24 Vdc, 2.29 A max, 55 W max
Model ASB110PS28: Output Rated: 28 Vdc, 1.97 A max, 55 W max
Model ASB110PS36: Output Rated: 36 Vdc, 1.53 A max, 55 W max
Model ASB110PS48: Output Rated: 48 Vdc, 1.15 A max, 55 W max

Units with suffix "-HK" are provided with optional heatsink.

Operating conditions may require a reduced load or increased airflow in order to stay below the 85°C baseplate rating.

Technical Considerations

- Equipment mobility : for building-in
- Connection to the mains : To be determined in end-use product
- Operating condition : continuous

- Access location : To be determined in end-use product
- Over voltage category (OVC) : OVC II
- Mains supply tolerance (%) or absolute mains supply values : +10%, -10%
- Tested for IT power systems : Yes
- IT testing, phase-phase voltage (V) : 230
- Class of equipment : Class I (earthed)
- Considered current rating of protective device as part of the building installation (A) : 20 A
- Pollution degree (PD) : PD 2
- IP protection class : IPX0
- Altitude of operation (m) : 3048
- Altitude of test laboratory (m) : less than 2000 meters
- Mass of equipment (kg) : 0.16
- The means of connection to the mains supply is: For building in, to be determined in the end use.
- The product is intended for use on the following power systems: IT, TN
- The product was investigated to the following additional standards: CSA/UL 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).
- The following accessible locations (with circuit/schematic designation) are within a limited current circuit: Load side of CY3.

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
- The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-Earthed Dead Metal: 240 Vrms, 340 Vpk, Primary-SELV: 240 Vrms, 396 Vpk
- The following secondary output circuits are SELV: All Outputs
- The following secondary output circuits are at non-hazardous energy levels: All Outputs
- The following secondary output circuits are Limited Current Circuits: Load side of CY3
- The power supply terminals and/or connectors are: Suitable for factory wiring only
- The maximum investigated branch circuit rating is: 20 A
- The investigated Pollution Degree is: 2
- 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
- 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): T1 (Class B)
- The following end-product enclosures are required: Fire, Electrical
- The following components require special consideration during end-product Thermal (Heating) tests due to the indicated maximum temperature measurements during component-level testing: T1 (110°C)
- The equipment is suitable for direct connection to: AC mains supply

- Printed Wiring Board rated 130°C.
- Clearance spacing evaluated for 3048 m altitude. Additional consideration may be necessary in the end-use product.
- Repeat of heating and dielectric test to be considered as part of end product.
- The base plate temperature should not exceed 85°C as part of the end product evaluation.
- The maximum continuous power supply output (Watts) relied on the base plate temperature not exceeding 85°C. End product shall determine appropriate heat sink size, maximum recommended ambient temperature, and output load to prevent the base plate temperature from exceeding 85°C.
- UL 62368-1 Capacitance Discharge - Safeguards against capacitor discharge after disconnection of a connector (clause 5.5.2.2) 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

Additional Information

This is a CBTR Reissue/Standard Upgrade from Report Reference No. E317867-A85-CB-1 (issued 2014-12-04), CBTC No. US-24360-UL. Based on the previously conducted testing and the review of product technical documentation including photos, schematics, wiring diagrams and similar product information, it has been determined that the product continues to comply with the standard. No Sample was deemed necessary to be reviewed and no additional testing was required based on engineering judgment to reissue/upgrade this Report. Previous tests were still applicable and all test data was transferred from the previous report (including Amendments) for reference. The original testing was conducted at XP POWER Ltd, 401 Commonwealth Drive, Haw Par Technocentre, Lobby B, #02-02, Singapore 149598 which is still active under SMT program for this Manufacturer.

The clearance distances have additionally been assessed for suitability up to 3048 m elevation (1.15 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 power supply series covered by this report employ Double/Reinforced Insulation between Primary and Secondary circuits.

Licenses older than 3 years to be provided by the manufacturer upon request.

Marking label is representative of all models.

Additional Standards

The product fulfills the requirements of: CSA C22.2 No. 60950-1-07 + A1:2011, EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011 + A2:2013, UL 60950-1 2nd Ed. Revised 2014-10-14, IEC 60950-1:2005 + A1:2009 + A2:2013, CSA/UL 62368-1 2nd Ed

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	Listee's or Recognized company's name, Trade Name, Trademark or File Number

identification	
1.7.1 Power rating - Model	Model Number
1.7.6 Fuses - Rating	Rated current and voltage and type located on or adjacent to fuse or fuseholder.

Special Instructions to UL Representative

N/A

Production-Line Testing Requirements

Electric Strength Test Special Constructions - Refer to Generic Inspection Instructions, Part AC for further information.

Model	Component	Removable Parts	Test probe location	V rms	V dc	Test Time, s
All Models	Transformer T1	-	Primary to Secondary	3000	4242	1

Earthing Continuity Test Exemptions - This test is not required for the following models:

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Electric Strength Test Exemptions - This test is not required for the following models:

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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:

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Sample and Test Specifics for Follow-Up Tests at UL

Model	Component	Material	Test	Sample(s)	Test Specifics
N/A	-	-	-	-	-