

CERTIFICATE OF COMPLIANCE

Certificate Number 20151106-E139109
Report Reference E139109-A138-UL
Issue Date 2015-NOVEMBER-06

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

Switching Power Supply Series - HPD1K5PSXX. Where
XX can be 24, 42 or 48. May also be provided with
additional suffix "SF" indicating Single Fuse.

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


Standard(s) for Safety: UL 60950-1 & 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
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.

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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contact a local UL Customer Service Representative at <http://ul.com/aboutul/locations/>



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)
Product:	Switching Power Supply Series
Model:	HPD1K5PSXX. Where XX can be 24, 42 or 48. May also be provided with additional suffix "SF" indicating Single Fuse.
Rating:	Input: 100-240 Vac, 50/60 Hz, 16.5 A Output: See Model Differences for details
Applicant Name and Address:	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.

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Prepared by: Robert Leon

Reviewed by: Walid Beytoughan

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 product is a component AC-DC power supply for building-in, with an adjustable output voltage from 0-48 Vdc. The power supply is provided with an overall metal enclosure, incorporating primary and SELV components.

The main PWB is secured to the chassis bottom by multiple machine screws. An insulating sheet is installed between PWB and chassis, wrapped around the board assembly, covering the sides and extending over the top. The control PWB is mounted vertically on the side of the main PWB and secured by multi-pin soldering.

The unit is provided with 2 cooling fans mounted internally behind the rear panel acting as fan guard.

Model Differences

All models in the HPD1K5PSXX series are identical with exception to the Power Transformer (T2) and Output Inductors (L7,L8,L10,L11) and secondary components/circuitry that allow for different output voltage ratings. See below for Model Ratings:

Model	Output Voltage	Max. Output Current	Max. Output Power	Max. Output Current	Max.
Output Power	Range (Vdc)	(A) (100-180VAC)	(W) (100-180VAC)	(A) (180-240VAC)	(W) (180-240VAC)
HPD1K5PS24 1500	3-24	50	1200	62.5	
HPD1K5PS42 1500	42	28.6	1200	35	
HPD1K5PS48 1500	0-48	25	1200	31.25	

Stand-by Output for all models: 5Vdc, 1A.

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) : 20A
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : 5000
- Altitude of test laboratory (m) : less than 2000
- Mass of equipment (kg) : 3
- The product is intended for use on the following power systems: TN
- The product was investigated to the following additional standards: 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 product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 50°C at 100% of rated output load and 70°C at 50% of rated output load.
- The means of connection to the mains supply is: for building-in, to be determined in the end-product.
- 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 600950-1.

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 equipment may be provided with a fuse in both the Line and Neutral of the primary circuit. The need for a marking warning service person of the hazards associated with neutral fusing shall be considered in the end-product.
- The following Production-Line tests are conducted for this product: Earthing Continuity, Electric Strength
- The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-Earthed Dead Metal: 241 Vrms, 352 Vpk, Primary-SELV: 240 Vrms, 690 Vpk,
- The following secondary output circuits are SELV: All outputs
- The following secondary output circuits are at hazardous energy levels: DC Output Buss
- The power supply terminals and/or connectors are: Not investigated for field wiring
- 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
- An investigation of the protective bonding terminals has: Not been conducted. The suitability of the protective bonding terminal shall be evaluated in the end system.,

- The following input terminals/connectors must be connected to the end-product supply neutral: AC-N, neutral terminal is provided as part of the input terminal block, however the unit is for building and compliance shall be determined in the end product. ,
- 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): L1, L2, L4, L5, L6, L7, L8, T1(Bias), T2(Power), T1 (Drive), T3 (Drive), T4 (Current). T5 (Current) are Class F (155°C),
- The following end-product enclosures are required: Electrical, Mechanical, Fire,
- The following components require special consideration during end-product Thermal (Heating) tests due to the indicated maximum temperature measurements during component-level testing: L6 (124°C), T2 (123°C), L7 (113°C), L8 (115°C),
- Fans: The fan provided in this sub-assembly is not intended for operator access. Compliance shall be determined in the end product.

Additional Information

This CB Report is a reissue and upgrade of CBTR Ref. No. E139109-A138-CB-1, CB Test Certificate Ref. No. US-23679-UL. Based on previously conducted testing and the review of product technical documentation including photos, schematics, wiring diagrams and similar, it has been determined that the product complies with the standard. All required testing was carried out under the original investigation. No testing was required to upgrade the report to IEC 60950-1, Second Edition, Amendment 2

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

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.

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

The marking plate is representative of all models in the report.

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
1.7.7.1 Protective Bonding Marking	Protective bonding terminal is marked with either the earth symbol (60417-2-IEC-5017) near the terminal or not provided.
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	Model Number