

CERTIFICATE OF COMPLIANCE

Certificate Number 20130819-E139109
Report Reference E139109-A127-UL
Issue Date 2013-AUGUST-19

Issued to: XP POWER L L C
SUITE 150, 1241 E DYER RD
SANTA ANA CA 92705

**This is to certify that
representative samples of**

COMPONENT - POWER SUPPLIES, INFORMATION
TECHNOLOGY EQUIPMENT INCLUDING ELECTRICAL
BUSINESS EQUIPMENT



Switching Power Supplies, HHP650PSXX (where XX =
represents the output voltage between 12-48)

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

Standard(s) for Safety: UL 60950-1 & CSA C22.2 No. 60950-1-07 - Information
Technology Equipment - Safety - Part 1: General
Requirements

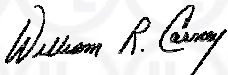
Additional Information: See the UL Online Certifications Directory at
www.ul.com/database for additional information

Only those products bearing the UL Recognized Component Marks for the U.S. and Canada should be considered as being covered by UL's Recognition and Follow-Up Service and meeting the appropriate U.S. and Canadian requirements.

The UL Recognized Component Mark for the U.S. 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. The UL Recognized Component Mark for Canada consists of the UL Recognized Mark for Canada:  and 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.

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 Recognized Component Mark on the product.



William R. Carney, Director, North American Certification Programs

UL LLC

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UL TEST REPORT AND PROCEDURE

Standard:	UL 60950-1, 2nd Edition, 2011-12-19 (Information Technology Equipment - Safety - Part 1: General Requirements) CSA C22.2 No. 60950-1-07, 2nd Edition, 2011-12 (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 Supplies
Model:	HHP650PSXX (where XX = represents the output voltage between 12-48)
Rating:	Input: 100-277 Vac, 50/60 Hz, 9 A Output: See Model Differences.
Applicant Name and Address:	XP POWER L L C SUITE 150 1241 E DYER RD SANTA ANA CA 92705 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: Nathan Escalante

Reviewed by: David E. Drewes

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, open frame type provided with a metal chassis, incorporating primary and SELV components. The power supply is intended for use in Class I Information Technology Equipment.

The main PWB is secured to the chassis by multiple machine screws.

Model Differences

The power supplies in the series are differentiated by the output voltage and current ratings, number of turns of primary/secondary windings in the Transformers (T302) and minor differences in the secondary circuit components.

See below for Model Ratings (up to 50°C) for Model HHP650PSXX, where XX indicated the output voltage:

- Model HHP650PS12: Output Rated: 12.0 Vdc, 50A (600W)
- Model HHP650PS15: Output Rated: 15.0 Vdc, 40A (600W)
- Model HHP650PS24: Output Rated: 24.0 Vdc, 27.0 A (650W)
- Model HHP650PS24 (Input: 180-277Vac): Output Rated: 24.0 Vdc, 32.4 A (780W)
- Model HHP650PS28: Output Rated: 28.0 Vdc, 23.0 A (650W)
- Model HHP650PS28 (Input: 180-277Vac): Output Rated: 28.0 Vdc, 27.6 A (780W)
- Model HHP650PS36: Output Rated: 36.0 Vdc, 18.0 A (650W)
- Model HHP650PS36 (Input: 180-277Vac): Output Rated: 36.0 Vdc, 21.6 A (780W)
- Model HHP650PS48: Output Rated: 48.0 Vdc, 13.5 A (650W)
- Model HHP650PS48 (Input: 180-277Vac): Output Rated: 48.0 Vdc, 16.2 A (780W)

Technical Considerations

- § Equipment mobility : for building-in
- § Connection to the mains : To be determined in the end-use product.
- § Operating condition : continuous
- § Access location : for building-in
- § Over voltage category (OVC) : OVC II
- § Mains supply tolerance (%) or absolute mains supply values : +10%, -10%

- § Tested for IT power systems : No
- § IT testing, phase-phase voltage (V) : N/A
- § 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 : IP X0
- § Altitude of operation (m) : 5000
- § Altitude of test laboratory (m) : less than 2000 meters
- § Mass of equipment (kg) : 1.5
- § The product was submitted and evaluated for use at the maximum ambient temperature (T_{ma}) permitted by the manufacturer's specification of: 50°C at full rated load and 70°C at half rated load.
- § The means of connection to the mains supply is: for building-in, to be determined in the end product.
- § The product is intended for use on the following power systems: TN
- § The equipment disconnect device is considered to be: for building-in, to be determined in the end product.
- § The product was investigated to the following additional standards: EN 60950-1:2006 + A11:2009 + A12:2010 + A12:2011 (which includes all European national differences, including those specified in this test report).
- § The following are available from the Applicant upon request: Specific data sheets for LED indicators that are class I and operate at wavelength in the 400-710 nm range.,
- § LEDs provided in the product are considered low power devices: Yes
- § Per manufacturer specifications, the Electric Strength Test from input to ground conducted at 2000Vac.

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, Earthing Continuity
- § The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-Earthed Dead Metal: 277 V_{rms}, 390 V_{pk}, Primary-SELV: 360 V_{rms}, 534 V_{pk},
- § The following secondary output circuits are SELV: All outputs
- § The following secondary output circuits are at hazardous energy levels: Power output
- § The following secondary output circuits are at non-hazardous energy levels: 5V Standby output
- § 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 following input terminals/connectors must be connected to the end-product supply neutral: AC-N (J1)
- § 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-L3, L50, T201, T301-T303, and L301 (Class F) ,

- § The following end-product enclosures are required: Electrical, Fire, Mechanical
- § The following LEDs operate within the exempt group per IEC 62471: Indicating LED.
- § Fans: The fan provided in this sub-assembly is not intended for operator access.
- § GDT, meeting basic insulation, provided in series with Line to Ground VDR in order to meet the requirements of sub-clause 1.5.9.4.
- § Temperature, Leakage, Earthing, and Dielectric to be considered as part of the end product investigation.
- § Required values for clearance are adjusted for 5000m(1.48 correction factor as per IEC 60664-1, Table A2)
- § Unit was evaluated as a component for building-in, the need for markings and marking durability testing shall be determined as part of the end product.
- § Output terminals V+ and V- are provided with multiple pole terminals (3) rated 20 A per pole totaling up to no more than a maximum of 50 A device output. ,

Additional Information

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

The nameplate markings provided as an Enclosure - Marking Plate are considered representative of the entire series.

The power supply series covered by this report employ Double/Reinforced Insulation between Primary and Secondary circuits.

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, UL 60950-1 2nd Ed. Revised 2011-12-19, IEC 60950-1:2005 + A1:2009

Markings and instructions

Clause Title	Marking or Instruction Details
Power rating - Ratings	Ratings (voltage, frequency/dc, current)
Power rating - Company identification	Listee's or Recognized company's name, Trade Name, Trademark or File Number
Power rating - Model	Model Number
Fuses - Non-operator access/soldered-in fuses	Unambiguous reference to service documentation for instructions for replacement of fuses replaceable only by service personnel
Terminals for external primary power supply	Capital letter "N" located adjacent to a terminal intended exclusively for

conductors	connection of the primary power neutral conductor
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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
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N/A

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

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

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:

Sample and Test Specifics for Follow-Up Tests at UL

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