

CERTIFICATE OF COMPLIANCE

Certificate Number E139109
Report Reference E139109-A6091-UL
Issue Date 2020-JULY-24

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

Models/Product

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: See addendum page

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

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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.

Products

AC-DC Power Supply
HPL5K0TSxxx Series, where x can be 0 to 9 which represents rated output voltage.

Standards

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

CAN/CSA C22.2 No. 62368-1-14, Audio/video, information and communication technology equipment Part 1: Safety requirements



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UL TEST REPORT AND PROCEDURE

Standard:	UL 62368-1, 2nd Ed, 2014-12-01 (Audio/video, information and communication technology equipment Part 1: Safety requirements) CAN/CSA C22.2 No. 62368-1-14, 2nd Ed-(Audio/video, information and communication technology equipment Part 1: Safety requirements)
Certification Type:	Component Recognition
CCN:	QQJQ2, QQJQ8 (Power Supplies for Use in Audio/Video, Information and Communication Technology Equipment)
Complementary CCN:	QQGQ2, QQGQ8 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)
Product:	AC-DC Power Supply
Model:	HPL5K0TSxxx Series, where x can be 0 to 9 which represents rated output voltage.
Rating:	Input: 3 Phase (3W+PE), 50/60Hz 200-240V, 19A MAX/PHASE Output: HPL5K0TS060: 0-60Vdc (0-63Vdc)/83.3A MAX, 5000W MAX. HPL5K0TS100: 0-100Vdc (0-105Vdc)/50A MAX, 5000W MAX. HPL5K0TS200: 0-200Vdc (0-210Vdc)/25A MAX, 5000W MAX. All Models are provided with an isolated 5Vsb/2A output.
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.

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

Prepared By: Robert Leon / Project Handler

Reviewed By: Walid Beytoughan / 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 equipment is a 3-Phase (3W+PE) AC to DC isolating power supply for building-in. The power supply with up to a 5000 watt rated output is provided with a metal enclosure housing and several PWBs with various critical components intended for use in Information Technology Equipment. The main outputs are considered ES3 and PS3 circuits. The 5Vsb auxiliary output is an isolated output for control and monitoring of the equipment's operation and is considered a ES1 and PS1 circuit.

Model Differences

All models provided within the series are identical with the exception of the output rating, mains transformer windings and minor secondary components.

Test Item Particulars

Classification of use by	Skilled person
Supply Connection	AC Mains
Supply % Tolerance	+10%/-10%
Supply Connection – Type	For Building-In
Considered current rating of protective device as part of building or equipment installation	30 A; building;
Equipment mobility	for building-in
Over voltage category (OVC)	OVC II
Class of equipment	Class I
Access location	N/A
Pollution degree (PD)	PD 2
Manufacturer's specified maximum operating ambient (°C)	The product was submitted and evaluated for use at the maximum ambient temperature (T _{ma}) permitted by the manufacturer's specification of: 50°C for 100% load and 70°C for 50%load.
IP protection class	IPX0
Power Systems	TN IT - 230 V L-L
Altitude during operation (m)	5000 m
Altitude of test laboratory (m)	17 m
Mass of equipment (kg)	5.5kg

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (T_{ma}) permitted by the manufacturer's specification of : The product was submitted and evaluated for use at the maximum ambient temperature (T_{ma}) permitted by the manufacturer's specification of: 50°C for 100% load and 70°C at 50% load.
- The product is intended for use on the following power systems : TN
- Considered current rating of protective device as part of the building installation (A) : 30
- Mains supply tolerance (%) or absolute mains supply values : +10%/-10%
- The equipment disconnect device is considered to be : N/A
- The product was investigated to the following additional standard : EN 62368-1:2014 + A11:2017
- 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 for all countries. 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 UL/IEC 60950-1.
- The internal wiring is certified Appliance Wiring Material rated VW-1 and/or FT-1 which were considered equivalent to the tests of IEC60332-1-2 and IEC60332-1-3. The final acceptability of the internal wiring may be determined under the discretion of the receiving NCB.

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 : Earthing Continuity and Electric Strength
- The following output circuits are at ES1 energy levels : 5Vsb
- The following output circuits are at ES3 energy levels : 60Vdc, 100Vdc, 200Vdc
- The following output circuits are at PS1 energy levels : 5Vsb
- The following output circuits are at PS3 energy levels : 60Vdc, 100Vdc, 200Vdc
- The maximum investigated branch circuit rating is : 30 A
- The investigated Pollution Degree is : 2
- The following end-product enclosures are required : Mechanical, Electrical, Fire
- 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) : T101, T102, T103, T104, T106 Class F (155)
- The equipment is suitable for direct connection to : AC mains supply
- The power supply was evaluated to be used at altitudes up to : "5,000 m"
- The end-product Electric Strength (ES) Test is to be based upon a Mains Transient Voltage of 2500Vpk as shown in Table 13, OVII, 300V Mains.
- The fan provided in this sub-assembly is provided with a fan guard that is integral to the chassis to reduce the risk of operator contact with the stator.
- An investigation of the protective earthing connection has been conducted. All units must be connected directly to the building mains protective earthing connection.
- These component power supplies employ VDRs connected to ground in series with a GDT. The GDT was not evaluated for basic insulation. They are to be installed within an end-product which will be installed within a rack system. Permanent connection to earth is guaranteed by means of the overall rack configuration and the Pluggable Type B power distribution unit (PDU) which powers the individual sub-components within the rack.

Additional Information

This report is based on CBTR Ref. No. E139109-A6006-CB-2, CB Test Certificate No. US-34563-UL. Based

on the previous investigation, a limited evaluation and test program was conducted as part of this report.


Component licenses provided may be older than 3 years old. Manufacturer to provide updated license upon request.

Nameplate markings provided were considered representative of the entire series. Testing of the marking label for durability was conducted previously for this manufacturer as part of CBTR E139109-A141, CBTC US-24246-UL.

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	Listee's or Recognized companys name, Trade Name, Trademark or File Number
Equipment identification marking – model identification	Model Number
Equipment rating marking – ratings	"Input Ratings (voltage, frequency/dc, current/power)", "Output Ratings (voltage, frequency/dc, current/power)"
Fuses – replaceable by skilled person	F1, F2, F3, Ratings "16A, 500V", located on or adjacent to fuse or in service manual.
Class I equipment -Terminal for main protective earthing	Provided adjacent to the main protective earthing terminal  (IEC 60417-5019)

Special Instructions to UL Representative

Enclosed electrical schematics, trace layouts, component layouts, transformer diagrams, inductor diagrams, and enclosure diagrams are for engineering use only and may only be used by the field representative for reference. Verify that Transformers (T101, T102, T103, T104, T600) are subjected to 100% Production Line Electric Strength Test between Primary/Secondary, minimum 2800 Vac or 4000 Vdc.

BD1.0						
TABLE: Production-Line Testing Requirements						
BD1.1						
Electric Strength Test Special Constructions – Refer to Generic Inspection Instructions, Part AC for further information.						
Model	Component	Removable parts	Test probe location	Test V rms	Test V dc	Test Time, s
HPL5K0TSX XX Series	T101, T102, T103, T104, T600	N/A	Primary/Chassis	1770	2500	1
HPL5K0TSX XX Series	T101, T102, T103, T104, T600	N/A	Primary/Secondary	2800	4000	1
BD1.2						
Earthing Continuity Test Exemptions – This test is not required for the following models:						
-						
BD1.3						
Electric Strength Test Exemptions – This test is not required for the following models:						
-						
BD1.4						
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.						
GT1, GT2						

BE1.0					
Sample and Test Specifics for Follow-Up Tests at UL					
Model	Component	Material	Test	Sample (s)	Test Specifics
-	-	-	-	-	-