

# CERTIFICATE OF COMPLIANCE

**Certificate Number** 20190111-E317867  
**Report Reference** E317867-A40-UL  
**Issue Date** 2019-JANUARY-11

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

**This certificate confirms that  
representative samples of**

(Power Supplies for Information Technology Equipment Including Electrical Business Equipment), (Power Supplies for Use in Audio/Video, Information and Communication Technology Equipment)  
Switching Power Supply for building-in  
Models:VFT150PSXX

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 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).

**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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## UL TEST REPORT AND PROCEDURE

<b>Standard:</b>	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)
<b>Certification Type:</b>	Component Recognition
<b>CCN:</b>	QQGQ2, QQGQ8 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)
<b>Complementary CCN:</b>	QQJQ2, QQJQ8 (Power Supplies for Use in Audio/Video, Information and Communication Technology Equipment)
<b>Product:</b>	Switching Power Supply for building-in
<b>Model:</b>	VFT150PSXX
<b>Rating:</b>	Where XX is 05, 12, 15, 24, or 48. INPUT : 100-240~2.5A 50/60Hz  OUTPUT: Forced Cooling VFT150PS05: 5 Vdc, 24 A VFT150PS12: 12 Vdc, 12.50 A VFT150PS15: 15 Vdc, 10 A VFT150PS24: 24 Vdc, 6.25 A VFT150PS48: 48 Vdc, 3.13 A  Convection Cooling VFT150PS05: 5 Vdc, 16 A VFT150PS12: 12 Vdc, 8.3 A VFT150PS15: 15 Vdc, 6.7 A VFT150PS24: 24 Vdc, 4.2 A VFT150PS48: 48 Vdc, 2.1 A
<b>Applicant Name and Address:</b>	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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2019-01-02

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 product is a AC/DC switching mode power supply with open-frame type, and it is intended for building-in from factory installation as a component of the end product Information Technology Equipment (ITE).

### Model Differences

All models with the Model VFT150PSXX series are identical with exception for output ratings and transformer secondary construction.

Maximum Output Load conditions:

Convictional Cooling at Tma=50°C :

VFT150PS05: 5 Vdc, 16 A  
VFT150PS12: 12 Vdc, 8.3 A  
VFT150PS15: 15 Vdc, 6.7 A  
VFT150PS24: 24 Vdc, 4.2 A  
VFT150PS48: 48 Vdc, 2.1 A

Convictional Cooling at Tma=65°C :

VFT150PS05: 5 Vdc, 8 A  
VFT150PS15: 15 Vdc, 3.35 A

Convictional Cooling at Tma=70°C :

VFT150PS12: 12 Vdc, 4.15 A  
VFT150PS24: 24 Vdc, 2.1 A  
VFT150PS48: 48 Vdc, 1.05 A

Force air cooling at Tma=50°C :

VFT150PS05: 5 Vdc, 24 A  
VFT150PS12: 12 Vdc, 12.5A  
VFT150PS15: 15 Vdc, 10 A  
VFT150PS24: 24 Vdc, 6.25 A  
VFT150PS48: 48 Vdc, 3.13 A

Force air cooling at Tma=65°C :

VFT150PS05: 5 Vdc, 12 A  
VFT150PS15: 15 Vdc, 5 A

Force air cooling at Tma=70°C :  
VFT150PS12: 12 Vdc, 6.25A  
VFT150PS24: 24 Vdc, 3.125A  
VFT150PS48: 48 Vdc, 1.565 A

#### Technical Considerations

- Equipment mobility : movable
- Connection to the mains : not directly connected to the mains
- Operating condition : continuous
- Access location : for building-in
- Over voltage category (OVC) : OVC II
- Mains supply tolerance (%) or absolute mains supply values : +10%, -10% (manufacturer declared)
- Tested for IT power systems : Yes
- IT testing, phase-phase voltage (V) : 230
- Class of equipment : Class I or Class II (Determined by end product)
- 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) : up to 3048 m
- Altitude of test laboratory (m) : at sea level
- Mass of equipment (kg) : 0.35 kg
- The product is intended for use on the following power systems: TT, TN, IT
- According to IEC60664-1, Table A2, required Clearances have been adjusted by multiplying the clearance at sea level by a factor of 1.15 for operating at an altitude of 3048 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.
- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: Conventional cooling: 50°C for all models at 100% loading; 70°C for VFT150PS12, VFT150PS24, VFT150PS48 at 50% loading; 65°C for VFT150PS05, VFT150PS15 at 50% loading. Forced Air cooling: 50°C for all models at 100% loading; 70°C for VFT150PS12, VFT150PS24, VFT150PS48 at 50% loading; 65°C for VFT150PS05, VFT150PS15 at 50% loading
- 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 following accessible locations (with circuit/schematic designation) are within a limited current circuit: After C3 and C4

#### 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:

- End-product shall provide an external forced air cooling, 10 CFM minimum, located by T2, distance from T2 is 10 cm, the air-flow direction is from fan to T2.
- 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-

SELV: 265Vrms, 433Vpk

- The following secondary output circuits are SELV: all secondary outputs
- The following secondary output circuits are at hazardous energy levels: VFT150PS15, 15V output.
- The following secondary output circuits are at non-hazardous energy levels: VFT150PS05, 5V output; VFT150PS12, 12V output; VFT150PS24, 24V output; VFT150PS48, 48V output;
- The following secondary output circuits are Limited Current Circuits: After C3 and C4
- The following output terminals were referenced to earth during performance testing: pin 10, 11, 12 for VFT150PS05, VFT150PS12, VFT150PS15; pin 10, 11 for VFT150PS24, VFT150PS48
- 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
- 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 magnetic devices (e.g. transformers or inductor) are provided with an OBJ2 insulation system with the indicated rating greater than Class 105 (A): T2, class B
- The following end-product enclosures are required: Electrical, Mechanical, Fire
- The clearance and creepage distances have additionally been assessed for suitability up to 3048 m elevation, except for China (up to 2000 m elevation).
- Printed Wiring Board rated 130°C.

#### **Additional Information**

This report is a Standard upgrade/reissue of CBTR Ref. No.: E317867-A40-CB-3, CB Test Certificate Ref. No. DK-38341-UL and DK-38341-A1-UL to IEC 60950-1:2005 (Second Edition), Am1:2009 + Am2:2013. Based on the previously conducted testing and the review of product technical documentation including photos, schematics, wiring diagrams and similar, only the construction review and the review of previous tests was deemed necessary. All required tests were carried out under the original investigation.

In addition, two alternate label systems were added to this report (Brady Worldwide, Type B-423 and 3M, Types 7816 or 7818) based on previous evaluation for this manufacturer under CBTR Ref. No.: E139109-A139, CBTC Ref. No.: US-24981-UL and US-24981-M1-UL.

The clearance and creepage distances have additionally been assessed for suitability up to 3048 m elevation.

Unit is not intended for use in tropical conditions.

Marking label represents all models covered by this report.

#### **Technical Amendment 1:**

-Models and ratings sections were updated for clarity.

-Measurement points for reference only removed from temperature table.

-UL: The manufacturer submitted representative production samples of these models for construction review and testing. Evaluation and testing were performed for compliance to UL 62368-1 Edition 2 and CSA C22.2 NO. 62368-1-14 - Edition 2. Evaluation specifics can be found under CBTR E317867-A6026-CB-1.

#### **Correction:**

Corrections to 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:

- CB: Client testing location was corrected to XP Power Ltd.
- CB: Project Handler and Reviewer signatures were updated to refer to original CBTR.
- UL: Project Handler and Reviewer names corrected due to ULtraLink limitations.

**Additional Standards**

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

**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 identification	Listee's or Recognized company's name, Trade Name, Trademark or File Number
1.7.1 Power rating - Model	Model Number
1.7.6 Fuses - Non-operator access/soldered-in fuses	Unambiguous reference to service documentation for instructions for replacement of fuses replaceable only by service personnel

**Special Instructions to UL Representative**

Inspect the transformer(s) listed in BD1.1 per AA1.1– (C). When the tests are conducted at other location, inspect test record and specification sheet provided by the component manufacturer. Verify the specification sheet indicates 100% routine test specified in BD1.1 be conducted at the component manufacturer.

**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
VFT150PSX X	--	--	Primary - SELV	300 0	4200	1

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

All models

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

N/A

**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:**

N/A

**Sample and Test Specifics for Follow-Up Tests at UL**

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