



Test Report issued under
the responsibility of:



TEST REPORT
IEC 60950-1
Information technology equipment - Safety -
Part 1: General requirements

Report Reference No: E139109-A173-CB-1

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CB Testing Laboratory: UL Fremont

Address: 47173 Benicia Street, Fremont, CA, 94538, USA

Applicant's name: XP POWER L L C
15641 RED HILL AVE, SUITE 100

Address: TUSTIN CA 92780
UNITED STATES

Test specification:

Standard: IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013

Test procedure: CB Scheme

Non-standard test method: N/A

Test Report Form No.: IEC60950_1F

Test Report Form originator: SGS Fimko Ltd

Master TRF: Dated 2014-02

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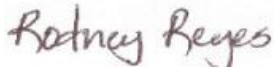
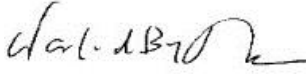
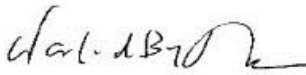
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General disclaimer

The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test item description	Power supply for building-in, switch mode type
Trade Mark	
Manufacturer	XP POWER L L C 15641 RED HILL AVE, SUITE 100 TUSTIN CA 92780 UNITED STATES
Model/Type reference	ECF40USXX Series, where XX can be any number between 12 and 48 designating the output voltage, may also be followed by suffix SF.
Ratings	Input: 100-240 Vac, 50/60Hz, 1.2A Max. Output: See Model Differences for details.

Testing procedure and testing location:	
<input type="checkbox"/>	CB Testing Laboratory Testing location / address:
<input type="checkbox"/>	Associated CB Test Laboratory Testing location / address: Tested by (name + signature): _____ Approved by (name + signature).....: _____
<input type="checkbox"/>	Testing Procedure: TMP/CTF Stage 1 Testing location / address: Tested by (name + signature): _____ Approved by (name + signature).....: _____
<input type="checkbox"/>	Testing Procedure: WMT/CTF Stage 2 Testing location / address: Tested by (name + signature): _____ Witnessed by (name + signature) ...: _____ Approved by (name + signature).....: _____
<input checked="" type="checkbox"/>	Testing Procedure: SMT/CTF Stage 3 or 4 Testing location / address: XP POWER LLC, 15641 RED HILL AV, SUITE 100, TUSTIN, CA 92780 USA Tested by (name + signature): Rodney Reyes/Tester  Approved by (name + signature).....: Walid Beytoughan/Approver  Supervised by (name + signature) ..: Walid Beytoughan/Reviewer 
<input type="checkbox"/>	Testing Procedure: RMT Testing location / address: Tested by (name + signature): _____ Approved by (name + signature).....: _____ Supervised by (name + signature) ..: _____

List of Attachments	
National Differences (49 pages)	
Enclosures (64 pages)	
Summary Of Testing	
Unless otherwise indicated, all tests were conducted at XP POWER LLC, 15641 RED HILL AV, SUITE 100, TUSTIN, CA 92780 USA.	
Tests performed (name of test and test clause)	Testing location / Comments

Guide Information Page - Maximum Output Voltage, Current, and Volt Ampere Measurement (1.2.2.1)

Input: Single-Phase (1.6.2)

Energy Hazard Measurements (2.1.1.5, 2.1.2, 1.2.8.10)

Capacitance Discharge (2.1.1.7)

SELV Reliability Test Including Hazardous Voltage Measurements (2.2.2, 2.2.3, 2.2.4, Part 22 6.1)

Limited Current Circuit Measurement (2.4.1, 2.4.2)

Protective Bonding I (2.6.3.4, 2.6.1)

Humidity (2.9.1, 2.9.2, 5.2.2)

Determination of Working Voltage; Working Voltage Measurement (2.10.2)

Thin Sheet Material (2.10.5.9, 2.10.5.10, 2.10.5.6)

Transformer and Wire /Insulation Electric Strength (2.10.5.13)

Heating (4.5.1, 1.4.12, 1.4.13)

Ball Pressure (4.5.5, 4.5)

Touch Current (Single-Phase; TN/TT System) (5.1, Annex D)

Electric Strength (5.2.2)

Component Failure (5.3.1, 5.3.4, 5.3.7)

Transformer Abnormal Operation (5.3.3, 5.3.7b, Annex C.1)

Power Supply Output Short-Circuit/Overload (5.3.7)

Summary of Compliance with National Differences:

Countries outside the CB Scheme membership may also accept this report.

List of countries addressed: AT, BE, BG, BY, CA, CH, CN, CZ, DE, DK, ES, EU, FI, FR, GB, GR, HU, IE, IL, IT, JP, KR, NL, NO, PL, PT, RO, SE, SG, SI, SK, UA, US

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

Copy of Marking Plate - Refer to Enclosure titled Marking Plate for copy.

Test item particulars :

Equipment mobility	for building-in
Connection to the mains	for building-in
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	Yes
IT testing, phase-phase voltage (V)	230
Class of equipment	To be 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)	5000 m
Altitude of test laboratory (m)	17 m
Mass of equipment (kg)	0.07 kg

Possible test case verdicts:

- test case does not apply to the test object : N / A
- test object does meet the requirement : P(Pass)
- test object does not meet the requirement : F(Fail)

Testing:

Date(s) of receipt of test item	2017-02-10
Date(s) of Performance of tests	2017-02-14 to 2017-03-24

General remarks:

"(see Enclosure #)" refers to additional information appended to the report.
 "(see appended table)" refers to a table appended to the report.

Throughout this report a point is used as the decimal separator.

Manufacturer's Declaration per Sub Clause 4.2.5 of IEC 60950-1:

Yes

The application for obtaining a CB Test Certificate includes more than one factory and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided

When differences exist, they shall be identified in the General Product Information section.

Name and address of Factory(ies): XP POWER INC
 990 BENEZIA AVE
 SUNNYVALE CA 94085
 UNITED STATES

 XP POWER (KUNSHAN) LTD

230 BIN JIANG NAN RD
ZHANGPU TOWN
KUNSHAN
JIANGSU 215321 CHINA

XP POWER (VIETNAM) CO LTD
LOT D - 4Q - CN
MY PHUOC 3 INDUSTRIAL PARK
BEN CAT DISTRICT
BINH DUONG VIETNAM

XP POWER PLC
HORESHOE PARK
PANGBOURNE
RG87 JW UNITED KINGDOM

GENERAL PRODUCT INFORMATION:

Report Summary

All applicable tests according to the referenced standard(s) have been carried out.

Product Description

The models covered in this Test Report are component AC-DC power supplies intended for use in Information Technology Equipment. The switching power supplies are open frame type intended for building-in.

Model Differences

All models in the ECF40USXX series are identical with exception to model designation, Transformer (T1) and secondary components/circuitry that allow for different output voltage ratings.

Model output ratings as follows.

Model ECF40US12: Output Rated: 10.1 Vdc - 13.5 Vdc, 3.34 A Max., 40 W Max.

Model ECF40US15: Output Rated: 13.6 Vdc - 17 Vdc, 2.67 A Max., 40 W Max.

Model ECF40US18: Output Rated: 17.1 Vdc - 21 Vdc, 2.23 A Max., 40 W Max.

Model ECF40US24: Output Rated: 21.1 Vdc - 26 Vdc, 1.67 A Max., 40 W Max.

Model ECF40US28: Output Rated: 26.1 Vdc - 31 Vdc, 1.43 A Max., 40 W Max.

Model ECF40US36: Output Rated: 33.1 Vdc - 42 Vdc, 1.11 A Max., 40 W Max.

Model ECF40US48: Output Rated: 42.1 Vdc - 54 Vdc, 0.83 A Max., 40 W Max.

Additional Information

The switching power supply series covered by this Test Report used Double/Reinforced Insulation between Primary and Secondary circuits.

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

Technical Considerations

- 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. 70°C at 50% rated load.

- The means of connection to the mains supply is: For building-in. To be evaluated in end-product.
- The product is intended for use on the following power systems: TN / IT
- The equipment disconnect device is considered to be: For building-in. To be evaluated in end-product.
- The product was investigated to the following additional standards: EN 60950-1:2006 + A11:2009 + A12:2010 + 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 Bridging Capacitor (CY1).

Engineering Conditions of Acceptability

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-SELV: 240 Vrms / 340 Vpk, Primary-Earthed Dead Metal: 240 Vrms / 340 Vpk
- The following secondary output circuits are at hazardous energy levels: All outputs
- 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
- 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): TR1 (Class F / 155°C)
- The following end-product enclosures are required: Electrical / Fire / Mechanical
- Suitable disconnect device is to be provided in the end-product. --
- In accordance with IEC60664-1, Table A2, required clearances were adjusted by multiplying the clearance at sea level by a factor of 1.48 for operating at an altitude of 5000 m. The correction factor is based on barometric pressure of 70 kPa 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 and are not explicitly addressed in UL 60950-1. --
- Printed Wiring Board rated 130°C. --
- The power supply is 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. --
- Heating (Thermal Requirements) Test was not conducted on power supply with input/output leads. If power supply is provided with input and/or output leads, then temperature on leads must be measured and cannot exceed 105°C. --

Abbreviations used in the report:

- normal condition	N.C.	- single fault condition	S.F.C
- operational insulation	OP	- basic insulation	BI
- basic insulation between parts of opposite polarity:	BOP	- supplementary insulation	SI
- double insulation	DI	- reinforced insulation	RI

Indicate used abbreviations (if any)