



Test Report issued under the responsibility of:



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

Report Reference No: E139109-A7-CB-4
Date of issue: 2015-07-27
Total number of pages: 69

CB Testing Laboratory: UL San Jose
Address: 455 E. Trimble Rd., San Jose, CA, 95131-1230, 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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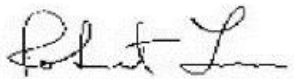

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General disclaimer

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Test item description	Power supply for building-in, switch mode type
Trade Mark	XP 
Manufacturer	XP POWER L L C 15641 RED HILL AVE, SUITE 100 TUSTIN CA 92780 UNITED STATES
Model/Type reference	ECM100USXX, ECM100USXX*, ECM100USXX 3X5, ECM100USXX-DC 3X5, ECM100US33 >2413, where XX can be any number between 03 to 48 designating the output voltage
Ratings	Input: 100-240 Vac, 50/60 Hz, 2.2 A Output: 3-48 Vdc, 20 A max, not to exceed 100 W (See Enclosure Miscellaneous for details) For Model ECM100USXX-DC 3X5 only: Input: 106-333 Vdc, 1.14 A Output: 48 Vdc, 1.5A

Testing procedure and testing location:	
<input checked="" type="checkbox"/> CB Testing Laboratory	Testing location / address: UL San Jose 455 E. Trimble Rd., San Jose, CA, 95131-1230, USA
<input type="checkbox"/> Associated CB Test Laboratory	Testing location / address:
	Tested by (name + signature): Robert Leon 
	Approved by (name + signature).....: Luis Martinez 
<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 type="checkbox"/> Testing Procedure: SMT/CTF Stage 3 or 4	Testing location / address:
	Tested by (name + signature): _____
	Approved by (name + signature).....: _____
	Supervised by (name + signature) ..: _____
<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 (29 pages)	
Enclosures (39 pages)	
Summary Of Testing	
Unless otherwise indicated, all tests were conducted at UL San Jose 455 E. Trimble Rd., San Jose, CA, 95131-1230, USA.	
Tests performed (name of test and test clause)	Testing location / Comments
Input: Single-Phase (1.6.2)	All required testing was carried out under

Capacitance Discharge (2.1.1.7)	CB Test Report Reference: E139109-A7-CB-2, issued on 2010-04-23) (Cert. No. US/14310A/UL and US/14311A/UL). All required testing was carried out under CB Test Report Reference: E139109-A7-CB-2, issued on 2010-04-23) (Cert. No. US/14310A/UL and US/14311A/UL).
SELV Reliability Test Including Hazardous Voltage Measurements (2.2.2, 2.2.3, 2.2.4, Part 22 6.1)	All required testing was carried out under CB Test Report Reference: E139109-A7-CB-2, issued on 2010-04-23) (Cert. No. US/14310A/UL and US/14311A/UL).
Humidity (2.9.1, 2.9.2, 5.2.2)	All required testing was carried out under CB Test Report Reference: E139109-A7-CB-2, issued on 2010-04-23) (Cert. No. US/14310A/UL and US/14311A/UL).
Determination of Working Voltage; Working Voltage Measurement (2.10.2)	All required testing was carried out under CB Test Report Reference: E139109-A7-CB-2, issued on 2010-04-23) (Cert. No. US/14310A/UL and US/14311A/UL).
Transformer and Wire /Insulation Electric Strength (2.10.5.13)	All required testing was carried out under CB Test Report Reference: E139109-A7-CB-2, issued on 2010-04-23) (Cert. No. US/14310A/UL and US/14311A/UL).
Heating (4.5.1, 1.4.12, 1.4.13)	All required testing was carried out under CB Test Report Reference: E139109-A7-CB-2, issued on 2010-04-23) (Cert. No. US/14310A/UL and US/14311A/UL).
Touch Current (Single-Phase; TN/TT System) (5.1, Annex D)	All required testing was carried out under CB Test Report Reference: E139109-A7-CB-2, issued on 2010-04-23) (Cert. No. US/14310A/UL and US/14311A/UL).
Electric Strength (5.2.2)	All required testing was carried out under CB Test Report Reference: E139109-A7-CB-2, issued on 2010-04-23) (Cert. No. US/14310A/UL and US/14311A/UL).
Component Failure (5.3.1, 5.3.4, 5.3.7)	All required testing was carried out under CB Test Report Reference: E139109-A7-CB-2, issued on 2010-04-23) (Cert. No. US/14310A/UL and US/14311A/UL).
Abnormal Operation (5.3.1 - 5.3.9)	All required testing was carried out under CB Test Report Reference: E139109-A7-CB-2, issued on 2010-04-23) (Cert. No. US/14310A/UL and US/14311A/UL).
Transformer Abnormal Operation (5.3.3, 5.3.7b, Annex C.1)	All required testing was carried out under CB Test Report Reference: E139109-A7-CB-2, issued on 2010-04-23) (Cert. No. US/14310A/UL and US/14311A/UL).
Power Supply Output Short-Circuit/Overload (5.3.7)	All required testing was carried out under CB Test Report Reference: E139109-A7-

CB-2, issued on 2010-04-23) (Cert. No. US/14310A/UL and US/14311A/UL).

Summary of Compliance with National Differences:

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

List of countries addressed: AT, BE, CA, CH, CZ, DE, DK, ES, EU, FI, FR, GB, GR, HU, IE, KR, NL, PL, PT, SE, SI, SK, US

The product fulfills the requirements of: EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011 + A2:2013

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	No
IT testing, phase-phase voltage (V)	N/A
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)	20A
Pollution degree (PD)	PD 3
IP protection class	IPX0
Altitude of operation (m)	Up to 2000
Altitude of test laboratory (m)	less than 2000 meters
Mass of equipment (kg)	0.25 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	2009-08-05, 2010-04-16
Date(s) of Performance of tests	2009-08-05 to 2009-08-06, 2010-04-20

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 BENECIA AVE
 US
 SUNNYVALE CA 94085-2804
 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 VIET NAM

XP POWER PLC
HOESHOE 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

Models covered in this report are component power supply intended for use in Information Technology Equipment. The need for the additional testing and evaluation shall be determined in the end product investigation.

Magnetic device, transformer T1 employs an (OBJY3), electrical insulation system designated Class 155 °F, max temp rise 115°C

The open frame power supply, no enclosure or chassis, is for building-in Class I or Class II end-products. Double insulated symbol is optionally provided. Earthing symbol may only be provided for Class I power supplies.

The open frame power supplies covered by this report employ Double/Reinforced Insulation between Primary and Secondary circuits.

When installed in a Class I end product, the power supply shall be mounted in a manner that provides, at a minimum, 2 mm Clearance between the primary side of power supply and protectively earthed accessible conductive parts. Also, when installed in a Class I end product, the protective bonding terminal of the power supply shall be reliably connected to the main protective earthing terminal of the end product.

When installed in a Class II end product, the power supply shall be mounted, on insulating posts, in a manner that provides, at a minimum, 4 mm Clearance between the power supply and any accessible conductive parts.

Single fault testing was conducted with the fuses specified in the critical component list (Wickmann-Werke, Type 374). These fuses were determined to be acceptable based on this testing and are subject to accepting NCB approval.

Model ECM100USXX-DC 3X5 is intended to be powered by a secondary DC source and was not evaluated

for direct connection to a DC Mains supply.

Model Differences

EMC100USXX Models are identical to ECM100USXX* models except for the PWB Layout, minor secondary components (C43) and the following:

- a) Model ECM100USXX* is intended for Class I installation only.
- b) Model ECM100USXX is intended for either Class I or Class II Installation

EMC100USXX Models are identical to ECM100(3*5)XX Models except for the physical size of the PWB and the addition of a functional earth trace to the ECM100(3*5)XX PWB layout.

Model ECM100US33>2413 is identical to Model ECM100USXX except for the PWB Layout and the Primary and Secondary Connectors are located on the opposite side of the PWB

Model ECM100USXX-DC 3X5 is similar to Model ECM100USXX 3X5 except for different input ratings (DC input).

Additional Information

Sample marking plate labels, which represent all models have been provided in Enclosure Miscellaneous. Individual units will be marked in accordance with the Output Ratings, also provided in Enclosure Miscellaneous.

This report is a re-issue of CB Test Report (Cert. No. US/14310A/UL and US/14311A/UL), Test Report Reference: E139109-A7-CB-2, issued on 2010-04-23). All required testing was carried out under the original investigation. No testing was required to upgrade the report to IEC 60950-1, Second Edition including Amendment 2.

CB Licenses have been updated over three years to the report.

Technical Considerations

- 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).
- Power supplies covered by this report were evaluated for both Class I and Class II (double insulated). Double insulated symbol is optionally provided. Earthing symbol may only be provided for Class I power supplies. --
- The means of connection to the mains supply is: For building in --
- The product is intended for use on the following power systems: TN --
- The product was submitted and evaluated for use at the maximum ambient temperature (T_{ma}) permitted by the manufacturer's specification of: 40°C --
- The equipment disconnect device is considered to be: To be determined in the end-product. --

Engineering Conditions of Acceptability

When installed in an end-product, consideration must be given to the following:

- A suitable main disconnect device shall be provided in the end product. --
- To be considered in the end use application: open frame power supply, no enclosure or chassis, for building-in Class I or Class II end-products. Model ECM100USXX* is for Class I end products only, all other Models covered by this report can be installed in Class I or Class II end products. , --

- The end-product Electric Strength Test is to be based upon a maximum working voltage of: Entire series = 250 Vrms (340Vpk) --
- The following output terminals were referenced to earth during performance testing: 0 V terminals. --
- The maximum investigated branch circuit rating is: 20 A --
- An investigation of the protective earthing terminal has: Not been conducted --
- The following input terminals/connectors must be connected to the end-product supply neutral: AC N --
- The following end-product enclosures are required: , Fire, , Electrical --
- The following magnetic devices are provided with an OBJ3 insulation system with the indicated rating greater than Class A (105°C): T1 (Class F, 155°C). Heating test shall be conducted in the end-product. --
- Heatsinks are floating and considered live. They should not be accessible in the end-product. --
- The power supply shall be mounted on insulating posts that provide a minimum of 4 mm Clearance between the power supply and accessible conductive parts when installed in a Class II end product. --
- The power supply shall be mounted in a manner that provides, at a minimum, 2 mm Clearance between the power supply and protectively earthed accessible conductive parts when mounted in a Class I end product. Also, the protective bonding terminal of the power supply shall be reliably bonded to the main protective earthing terminal of the end product when installed in a Class I end product. --
- The power supplies covered by this report have a fuse in the neutral of the primary circuit. The need for a marking to warn a service person of the hazards associated with neutral fusing shall be considered in the end product. --
- Consideration to repeating the Touch Current test should be given in the end-product evaluation. --
- Model ECM100USXX-DC 3X5 is intended to be powered by a secondary DC source and was not evaluated for direct connection to a DC Mains supply. --
- 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: 250 Vrms, 340Vpk; Primary-Earthed Dead Metal: 250Vrms, 340Vpk. --
- The following secondary output circuits are SELV: All outputs --
- The following secondary output circuits are at non-hazardous energy levels: Entire Series outputs. --
- 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: 3 --
- Proper bonding to the end-product main protective earthing termination is: Required when used in Class I application. --

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)