

## US-25102-A1-UL

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST       SYSTEME CEI D'ACCEPTATION MUTUELLE DE         CERTIFICATES FOR ELECTRICAL EQUIPMENT       CERTIFICATS D'ESSAIS DES EQUIPEMENTS		
(IECEE) CB SCHEME	ELECTRIQUES (IECEE) METHODE OC	
CB TEST CERTIFICATE	CERTIFICAT D'ESSAI OC	
Product Produit	Switching Power Supply Series	
Name and address of the applicant Nom et adresse du demandeur	XP POWER L L C 15641 RED HILL AVE, SUITE 100 TUSTIN CA 92780 UNITED STATES	
Name and address of the manufacturer Nom et adresse du fabricant	XP POWER L L C 15641 RED HILL AVE, SUITE 100 TUSTIN CA 92780 UNITED STATES	
Name and address of the factory Nom et adresse de l'usine	XP POWER INC 990 BENECIA AVE SUNNYVALE CA 94085 USA	
Note: When more than one factory, please report on page 2 Note: Lorsque il y plus d'une usine, veuillez utiliser la 2eme page	Additional Information on page 2	
Ratings and principal characteristics Valeurs nominales et caractéristiques principales	See Page 2	
Trademark (if any) Marque de fabrique (si elle existe)	XP	
Type of Manufacturer's Testing Laboratories used Type de programme du laboratoire d'essais constructeur	CTF Stage 3	
Model / Type Ref. Ref. De type	X10-MMMMMMM-PPSSNN, X4-MMMMM-PPSSNN, X5-MMMMM-PPSSNN, X7-MMMMM-PPSSNN, X9-MMMMMM-PPSSNN, XT16- MMMMMMM-PPSSNN, See Page 2	
Additional information (if necessary may also be reported on page 2) Les informations complémentaires (si nécessaire,, peuvent être indiqués sur la 2 <sub>eme</sub> page	Additional Information on page 2	
A sample of the product was tested and found to be in conformity with Un échantillon de ce produit a été essayé et a été considéré conforme à la	IEC 60950-1(ed.2), IEC 60950-1(ed.2);am1, IEC 60950-1(ed.2);am2	
As shown in the Test Report Ref. No. which forms part of this Certificate Comme indiqué dans le Rapport d'essais numéro de référence qui constitue partie de ce Certificat	E139109-A50-CB-3 issued on 2015-12-18	
This CB Test Certificate is issued by the National Certification Body Ce Certificat d'essai OC est établi par l'Organisme <b>National de Certification</b>		
UL (US), 333 Pfingsten Rd IL 60062, Northbrook, USA UL (Demko), Borupvang 5A DK-2750 Ballerup, DENMARK UL (JP), Marunouchi Trust Tower Main Building 6F, 1-8-3 Marunouchi, Chiyoda-ku, Tokyo 100-0005, JAPAN UL (CA), 7 Underwriters Road, Toronto, M1R 3B4 Ontario, CANADA		
Date: 2015-12-23 Signature: Original Issue Date: 2015-04-30	For full legal entity names see www.ul.com/ncbnames	
Jolanta M. Wroblewska		





## US-18323-A2-UL

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME SYSTEME CEI D'ACCEPTATION MUTUELLE DE CERTIFICATS D'ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

**CERTIFICAT D'ESSAI OC** 

Switching Power Supply

SUITE 150, 1241 E DYER RD SANTA ANA CA 92705, USA

SUITE 150, 1241 E DYER RD SANTA ANA CA 92705, USA

Additional Information on page 2

990 BENECIA AVE SUNNYVALE CA 94085

**XP POWER LLC** 

**XP POWER LLC** 

**XP POWER LLC** 

USA

See Page 2

### **CB TEST CERTIFICATE**

Product Produit

Name and address of the applicant Nom et adresse du demandeur

Name and address of the manufacturer Nom et adresse du fabricant

Name and address of the factory Nom et adresse de l'usine

Note: When more than one factory, please report on page 2 Note: Lorsque il y plus d'une usine, veuillez utiliser la 2ºme page

Ratings and principal characteristics Valeurs nominales et caractéristiques principales

Trademark (if any) Marque de fabrique (si elle existe)

Type of Manufacturer's Testing Laboratories used Type de programme du laboratoire d'essais constructeur

Model / Type Ref. Ref. De type

Additional information (if necessary may also be reported on page 2) Les informations complémentaires (si nécessaire,, peuvent être indiqués sur la 2<sup>ème</sup> page

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As shown in the Test Report Ref. No. which forms part of this Certificate Comme indiqué dans le Rapport d'essais numéro de référence qui constitue partie de ce Certificat

This CB Test Certificate is issued by the National Certification Body Ce Certificat d'essai OC est établi par l'Organisme **National de Certification** 





Signature:

UL (US), 333 Pfingsten Rd IL 60062, Northbrook, USA UL (Demko), Borupvang 5A DK-2750 Ballerup, DENMARK

UL (JP), Marunouchi Trust Tower Main Building 6F, 1-8-3 Marunouchi, Chiyoda-ku, Tokyo 100-0005, JAPAN UL (CA), 7 Underwriters Road, Toronto, M1R 3B4 Ontario, CANADA

For full legal entity names see www.ul.com/ncbnames

Date: 2013-12-09 Original Issue Date: 2012-01-06

Jolanta M. Wroblewska

XM10-MMMMMMM-PPSSNN, XM4-MMMMM-PPSSNN, XM5-MMMMM-PPSSNN, XM7-MMMMMPPSSNN, XM9-MMMMMM-PPSSNN See Page 2

Additionally evaluated to EN 60601-1:2006; National Differences specified in the CB Test Report.

Additional Information on page 2

IEC 60601-1(ed.3)

11CA52235 issued on 2013-12-04



## US-18323-A2-UL

Model Details:

XM10-MMMMMMM-PPSSNN, XM4-MMMMM-PPSSNN, XM5-MMMMM-PPSSNN, XM7-MMMMMPPSSNN, XM9-MMMMMM-PPSSNN (Where M can be a combination of 1, 2, 3, 4, 5 or blank and a letter A-Z or blank; where P can be any number 0-9; where S can be any number 0-9; where N can be any number 0-9)

Factories:

XP POWER (KUNSHAN) LTD 230 BIN JIANG NAN ROAD ZHANG PU TOWN KUNSHAN, JIANGSU 215321 CHINA

Ratings:

Input Rated:

XM4-MMMMM-PPSSNN: ~100-240 Vac, 50/60 Hz, 5.6 A XM5-MMMMM-PPSSNN: ~100-240 Vac, 50/60 Hz, 7.0 A XM7-MMMMM-PPSSNN: ~100-240 Vac 50/60 Hz, 10.0 A XM9-MMMMMM-PPSSNN: ~100-240 Vac, 50/60 Hz, 12.7 A XM10-MMMMMMM-PPSSNN: ~100-240 Vac, 50/60 Hz, 14.2 A

Output Rated: See model differences for module details.

Additional Information:

The original report was modified to include the following changes/additions: To add alternate components. See Test Report.

### Additional information (if necessary) Information complémentaire (si nécessaire)

Signature:



- $\times$ UL (US), 333 Pfingsten Rd IL 60062, Northbrook, USA
  - UL (Demko), Borupvang 5A DK-2750 Ballerup, DENMARK
  - UL (JP), Marunouchi Trust Tower Main Building 6F, 1-8-3 Marunouchi, Chiyoda-ku, Tokyo 100-0005, JAPAN

For full legal entity names see www.ul.com/ncbnames

UL (CA), 7 Underwriters Road, Toronto, M1R 3B4 Ontario, CANADA

Date: 2013-12-09 Original Issue Date: 2012-01-06

Carta / h. Wie

Jolanta M. Wroblewska

Issue Date: 2012-01-04 Amendment 2: 2013-12-09 Report No. 11CA52235





Test Report issued under the responsibility of:

## IEC 60601-1 Medical electrical equipment Part 1: General requirements for basic safety and essential performance

Part 1: General requireme	ents for basic safety and essential performance	
Report Reference No:	11CA52235	
Date of issue	2012-01-04 Amendment 2: 2013-12-09	
Total number of pages:	205	
CB Testing Laboratory:	UL San Jose	
Address:	455 E. Trimble Rd., San Jose, CA 95131-1230, USA	
Applicant's name:	XP POWER LLC	
Address:	SUITE 150 1241 E DYER RD	
	SANTA ANA CA 92705	
	UNITED STATES	
Test specification:		
Standard:	IEC 60601-1: 2005 + CORR. 1 (2006) + CORR. 2 (2007)	
Test procedure:	CB Scheme	
Non-standard test method N/A		
Test Report Form No IEC60601_1G		
Test Report Form Originator: UL		
Master TRF:	Dated 2010-11	
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If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo shall be removed		
This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.		
Test item description: Switching Power Supply		
Trade Mark:		

Manufacturer	XP POWER LLC SUITE 150 1241 E DYER RD SANTA ANA CA 92705 UNITED STATES
Model/Type reference:	XM4-MMMMM-PPSSNN, XM5-MMMMM-PPSSNN, XM7- MMMMPPSSNN, XM9-MMMMMM-PPSSNN, XM10-MMMMMMM- PPSSNN (Where M can be a combination of 1, 2, 3, 4, 5 or blank and a letter A-Z or blank; where P can be any number 0-9; where S can be any number 0-9; where N can be any number 0- 9)
Ratings	Input Rated:
	XM4-MMMMM-PPSSNN: ~100-240 Vac, 50/60 Hz, 5.6 A XM5-MMMMM-PPSSNN: ~100-240 Vac, 50/60 Hz, 7.0 A XM7-MMMMM-PPSSNN: ~100-240 Vac 50/60 Hz, 10.0 A XM9-MMMMMM-PPSSNN: ~100-240 Vac, 50/60 Hz, 12.7 A XM10-MMMMMM-PPSSNN: ~100-240 Vac, 50/60 Hz, 14.2 A
	Output Rated: See model differences for module details.

Testing procedure and testing location:		
CB Testing Laboratory:		
Testing location/ address::	ĺ	
Associated CB Test Laboratory:		
Testing location/ address::	ĺ	
Tested by (name + signature):		
Approved by (+ signature):		
Testing procedure: TMP	_	
Tested by (name + signature):		
Approved by (+ signature):		
Testing location/ address:		
Testing procedure: WMT		
Tested by (name + signature):		
Witnessed by (+ signature):		
Approved by (+ signature):		
Testing location/ address::	ĺ	
☑ Testing procedure: SMT		
Tested by (name + signature): Rodney Reyes Rodney Reyes		
Tested by (name + signature): Rodney Reyes       Rodney Reyes         Approved by (+ signature): Tac Pham       Taubam		
Supervised by (+ signature): Melissa DeGuia		
Supervised by (+ signature): Melissa DeGuia		
Testing location/ address : XP Power LLC, 1241 E. Dyer Rd #150, Santa Ana, CA 92705 USA		
Testing procedure: RMT		
Tested by (name + signature):		
Approved by (+ signature):		
Supervised by (+ signature):		
Testing location/ address::		

List of Attachments (including a total number of pages in each attachment):		
Enclosures ( 27 pages)		
Summary of testing		
Unless otherwise indicated, all tests were conducted at XP Pow Ana, CA 92705.	er LLC, 1241 E. Dyer Rd #150, Santa	
In addition to testing covered under IEC 60601-1, 3 <sup>rd</sup> Edition, so previous UL60950-1/ IEC 60950-1 evaluations and the results a considered representative as part of the following tests:		
Tests performed (name of test and test clause):	Testing location:	
Dielectric Voltage Withstand (8.8.3)		
Temperature Test (11.1)		
Mains Transformers (short and overload) (15.5, 13.2.3)		
Summary of compliance with National Differences		
List of countries addressed:		
US, CA, CH		
The product fulfils the requirements of IEC 60601-1: 2005 +	CORR. 1 (2006) + CORR. 2 (2007)	



GENERAL INFORMATION	
Test item particulars (see also Clause 6):	
Classification of installation and use :	Building-in
Device type (component/sub-assembly/ equipment/ system):	Component, Power Supply
Intended use (Including type of patient, application location):	To supply regulated power.
Mode of operation:	Continuous
Supply connection:	Building in, to be determined in the end product
Accessories and detachable parts included:	N/A
Other options include:	N/A
Testing	
Date of receipt of test item(s)	2013-11-07
Dates tests performed	2013-11-08
Possible test case verdicts:	
- test case does not apply to the test object:	N/A
- test object does meet the requirement:	Pass (P)
- test object was not evaluated for the requirement:	N/E
- test object does not meet the requirement:	Fail (F)

F

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Abbreviations used in the report:		
- normal condition:	N.C single fault condition: S.F.C.	
- means of Operator protection:	MOOP - means of Patient protection: MOPP	
General remarks:		
"(see Attachment #)" refers to additional information appended to the report. "(see appended table)" refers to a table appended to the report. The tests 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 testing laboratory. List of test equipment must be kept on file and available for review.		
Additional test data and/or information provided in the	attachments to this report.	
Throughout this report a $\Box$ comma / $oxedow$ point is used as the decimal separator.		
Manufacturer's Declaration per sub-clause 6.2.5 of	IECEE 02:	
The application for obtaining a CB Test Certificate includes more than one factory location 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 :	<ul><li>☑ Yes</li><li>☑ Not applicable</li></ul>	
When differences exist; they shall be identified in the General product information section.		
Name and address of factory (ies)	XP POWER LLC 990 BENECIA AVE SUNNYVALE CA 94085 UNITED STATES	
	XP POWER (KUNSHAN) LTD 230 BIN JIANG NAN ROAD ZHANG PU TOWN KUNSHAN, JIANGSU 215321 CHINA	

### **Report Summary**

The original test report was modified under Amendment 1 to include the following changes/additions:

1. Addition of Module 4X Series

The original test report was modified under Amendment 2 to include the following changes/additions:

1. Add alternate Platform fans by Delta Electronics, Type AFB0612VH-A and Asia Vital Components, Type DK06025B12-S-002

2. Add 5V and 12V Standby Outputs to output electrical ratings.

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

#### **Product Description**

The equipment is a modular ac to dc power supply for building-in. The power supply consists of an input power platform and various factory installed plug-in Output Modules. Each plug-in Output Module is either 2, 3 or 4 slot width.

### General product information:

#### **Model Differences**

All models provided with a power platform and maybe provided with various combinations of Output Modules.

Models within Model XM4, XM5, and XM7 Series are identical, with exception to the output wattage rating. and provided Plug-in output Modules. See output rating table provided below.

Model XM9 Series is similar to XM7 Series with exception to the power platform, number of Output Modules, and the output wattage rating. See output rating table provided below.

Model XM10 Series is similar to XM7 Series with exception to the power platform, number of Output Modules, and the output wattage rating. See output rating table provided below.

Model Series XM7, XM9 and XM10 may be provided with an optional fan control module to vary the fan speed based upon temperature feedback from a temperature sensor IC surface mounted to the fan control module board.

Output Rating:

XM4 Series: Max 400 W (For Input Range: 100-180 Vac) / Max 600 W (For Input Range: 180-240 Vac); up to 5 output modules provided.

XM5 Series: Max 500 W (For Input Range: 100-180 Vac) / Max 700 W (For Input Range: 180-240 Vac); up to 5 output modules provided.

XM7 Series: Max 700 W (For Input Range: 100-180 Vac) / Max 900 W (For Input Range: 180-240 Vac); up to 5 output modules provided.

XM9 Series: Max 900 W (For Input Range: 100-180 Vac) /Max 1100 W (For Input Range: 180-240 Vac); up to 6 output modules provided.

XM10 Series: Max 1000 W (For Input Range: 100-180 Vac) /Max 1200 W (For Input Range: 180-240 Vac); up to 7 output modules provided.

Output Module Ratings:

Modules 1A-1Z: 2 Slot Module, 3.3 to 60 Vdc, Max. 20 A, Max.126 W Modules 2A-2Z: 2 Slot Module, 3.3 to 60 Vdc, Max. 40 A, Max.252 W Modules 3A-3Z: 3 Slot Module, 3.3 to 60 Vdc, Max. 60 A, Max.420 W Modules 4A-4Z: 4 Slot Module, 12.0 to 60 Vdc, Max 62.5A, Max 756W

Modules 5A-5Z: 2 Slot Module, Dual Output: V1=3.3 to 24 Vdc, Max. 10 A, Max, 150 W; V2 = 2.0 to 24 Vdc, Max. 10 A, Max. 150 W

Model Nomenclature for Model XM4-MMMMM-PPSSNN, XM5-MMMMM-PPSSNN, XM7-MMMMMPPSSNN, XM9-MMMMMM-PPSSNN, and XM10-MMMMMMM-PPSSNN Series as follows:

M - indicates module designation PPSSNN - indicates manufacturer configuration code (non-safety related)

Standby Outputs for all models: 5 VDC, 1A max. or 12 VDC, 1A max.

### **Additional Information**

The schematics are kept on file at the CBTL and can be provided by the manufacturer upon request by NCB's/CBTL's.

CB Test certificates for components are included in Licenses Enclosure. In accordance with the current rules of CB Scheme, CB Test certificate is effective for 3 years. Recognizing NCB may challenge the CBTC when certificates are more than 3 years old.

When submitting this Test Report to other Certification Body, the manufacturer is responsible for providing any additional information that the Body may need in order to issue its Mark, including testing for compliance with the applicable collateral standards.

### **Technical Considerations**

- The product was investigated to the following additional standards: ANSI/AAMI ES60601-1:2005/C1:2009 (includes US National standard ANSI/AAMI ES60601-1: 2005 / A2:2010); CAN/CSA-C22.2 No. 60601-1:08 (includes National Differences for Canada), EN 60601-1:2006
- Scope of Power Supply evaluation defers the following clauses to the be determined as part of the end product: Clause 7.5 (Safety Signs), Clause 7.9 (Accompanying Documents), Clause 9 (ME Hazard), Clause 10 (Radiation), Clause 14 (PEMS), Clause 16 (ME Systems)
- Scope of Power Supply evaluation excludes the following: Patient applied parts clauses: 4.6, 7.2.10, 8.3, 8.5.2, 8.5.5, 8.7.4.7-8.7.4.9, 8.9.1.15; Battery related clauses: 7.3.3, 15.4.3; Hand Control related clauses: 8.10.4; Oxygen related clauses: 11.2.2; Fluids related clauses: 11.6.2 11.6.4; Sterilization clause: 11.6.7; Biocompatibility Clause: 11.7 (ISO 10993); Motor related clauses: 13.2.13.3, 13.4; Heating Elements related clause: 13.2; Flammable Anesthetic Mixtures Protection: Annex G
- The product is evaluated only to the following hazards: Casualty, Fire, Shock
- The degree of protection against harmful ingress of water is: Ordinary
- Software is relied upon for meeting safety requirements related to mechanical, fire and shock: No

### **Risk Controls/ Engineering Condition of Acceptability**

• The component shall be considered for compliance with the Marking (clause 7) and Separation (clause

8) requirements as part of the end use application evaluation.

- The power supply was evaluated for use in 50°C ambient at Full Rated Output and 50% of the Rated Output in 70°C ambient.
- Consideration shall be given to measuring the temperature on power electronic components and transformer windings when the power supply is installed in the end-use equipment. The end use product shall ensure that the power supply is used within its ratings.
- Repeat of leakage current testing and consideration of non-frequency weighted leakage test (Clause 8.7.3e) shall be considered in the end product application.
- This power supply was evaluated with Two MOPP between Primary and Secondary; One MOPP primary and Earth.
- This power supply has been evaluated as a continuous operation, ordinary equipment and has not been evaluated for use in the presence of a flammable anesthetic mixture with air, oxygen, or nitrous oxide. The output circuits have not been evaluated for direct patient connection (Type B, BF or CF).
- The end product shall ensure that the requirements related to accompanying documents, clause 7.9, are met.
- The output connectors are suitable for factory wiring only.
- The supply terminal (J1) is suitable for factory wiring. The output terminals and/or, connectors have not been investigated for field wiring. Terminal block (J1) is suitable for copper, wire only, 22-14 AWG, 10 lbs. torque, 110°C.
- The maximum investigated branch circuit rating is: 20 A
- The Electric Strength Test conducted on this power supply was based upon a maximum working voltage of: Primary-Earthed Dead Metal: 240 Vrms, 438 Vpk; Primary-SEC: 249.6 Vrms, 588 Vpk.
- Proper bonding to the end-product main protective earthing termination is required. Protective earthing testing shall be conducted in the end product application
- 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): Platform: T1, Output Modules: T1, T2, and T3 (Class F, 155°C)
- Printed Wiring Board rated 130°C.
- The need for Marking Durability and Marking Legibility Testing shall be considered as part of the end product installation.
- Fire/ Mechanical/ Electrical Enclosure to be provided as part of the end product.
- For Model XM4 Series, the maximum continuous output power shall not to exceed 400 W for input voltages 100-180 Vac or 600 W when the supply voltage is 180-240 Vac, when used with any combination of output modules.
- For Model XM5 Series, the maximum continuous output power shall not to exceed 500 W for input voltages 100-180 Vac or 700 W when the supply voltage is 180-240 Vac, when used with any combination of output modules.
- For Model XM7 Series, the maximum continuous output power shall not to exceed 700 W for input voltages 100-180 Vac or 900 W when the supply voltage is 180-240 Vac, when used with any combination of output modules.
- For Model XM9 Series, the maximum continuous output power shall not to exceed 900 W for input voltages 100-180 Vac or 1100 W when the supply voltage is 180-240 Vac, when used with any combination of output modules.

- For Model XM10 Series, the maximum continuous output power shall not to exceed 1000 W for input voltages 100-180 Vac or 1200 W when the supply voltage is 180-240 Vac, when used with , any combination of output modules.
- End product Risk Management to consider acceptability of automatic resetting thermal switch.
- Protective Earthing Test (Clause 8.6.4) was conducted at 30A. The need for additional Protective Earthing Test at 40A shall to be determined as part of end product evaluation.



## US-19210-M1-UL

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME SYSTEME CEI D'ACCEPTATION MUTUELLE DE CERTIFICATS D'ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

**CERTIFICAT D'ESSAI OC** 

Switching Power Supply Series

SUITE 150, 1241 E DYER RD SANTA ANA CA 92705, USA

SUITE 150, 1241 E DYER RD SANTA ANA CA 92705, USA

Additional Information on page 2

X10-MMMMMMM-PPSSNN

Additional Information on page 2

IEC 60950-1(ed.2), IEC 60950-1(ed.2);am1

E139109-A50-CB-2 issued on 2012-06-21

X4-MMMMM-PPSSNN, X5-MMMMM-PPSSNN,

X7-MMMMM-PPSSNN, X9-MMMMMM-PPSSNN,

X15-MMMMM-PPSSNN/ MMMMM-PPSSNN, See Page 2

Additionally evaluated to EN 60950-1:2006/ A11:2009/ A1:2010/

A12:2011; National Differences specified in the CB Test Report.

**XP POWER INC** 

**XP POWER LLC** 

**XP POWER LLC** 

USA

See Page 2

990 BENECIA AVE SUNNYVALE CA 94085

### **CB TEST CERTIFICATE**

Product Produit

Name and address of the applicant Nom et adresse du demandeur

Name and address of the manufacturer Nom et adresse du fabricant

Name and address of the factory Nom et adresse de l'usine

Note: When more than one factory, please report on page 2 Note: Lorsque il y plus d'une usine, veuillez utiliser la 2<sup>eme</sup> page

Ratings and principal characteristics Valeurs nominales et caractéristiques principales

Trademark (if any) Marque de fabrique (si elle existe)

Type of Manufacturer's Testing Laboratories used Type de programme du laboratoire d'essais constructeur

Model / Type Ref. Ref. De type

Additional information (if necessary may also be reported on page 2) Les informations complémentaires (si nécessaire,, peuvent être indiqués sur la 2<sup>ème</sup> page

A sample of the product was tested and found to be in conformity with Un échantillon de ce produit a été essayé et a été considéré conforme à la

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This CB Test Certificate is issued by the National Certification Body Ce Certificat d'essai OC est établi par l'Organisme **National de Certification** 





UL (US), 333 Pfingsten Rd IL 60062, Northbrook, USA

- UL (Demko), Borupvang 5A DK-2750 Ballerup, DENMARK UL (JP), Marunouchi Trust Tower Main Building 6F, 1-8-3 Marunouchi, Chiyoda-ku, Tokyo 100-0005, JAPAN
- UL (CA), 7 Underwriters Road, Toronto, M1R 3B4 Ontario, CANADA

For full legal entity names see www.ul.com/ncbnames

Date: 2012-12-18 Signature: Original Issue Date: 2012-06-22

Jolanta M. Wroblewska





Test Report issued under the responsibility of:



TEST REPORT IEC 60950-1 Information technology equipment - Safety - Part 1: General requirements		
Report Reference No E139109-A50-CB-2		
Date of issue:	2012-06-21	
Total number of pages:	163	
CB Testing Laboratory:	UL San Jose	
Address	455 E. Trimble Rd., San Jose, CA, 95131-1230, USA	
Applicant's name: Address	SUITE 150	
Test specification:		
Standard	IEC 60950-1:2005 (2nd Edition); Am 1:2009	
Test procedure:	CB Scheme	
Non-standard test method:	N/A	
Test Report Form No.	IEC60950_1B	
Test Report Form originator:	SGS Fimko Ltd	
Master TRF	2010-04	

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This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

Test item description	Switching Power Supply Series
Trade Mark:	
Manufacturer:	XP POWER LLC SUITE 150 1241 E DYER RD SANTA ANA CA 92705 UNITED STATES
Model/Type reference:	X4-MMMMM-PPSSNN, X5-MMMMM-PPSSNN, X7-MMMMM- PPSSNN, X9-MMMMMM-PPSSNN, X10-MMMMMMM-PPSSNN, and X15-MMMMM-PPSSNN/ MMMMM-PPSSNN (Where M can be blank or a combination of a number 1, 2, 3, 4, or 5 and a letter A-Z; where P can be any number 0-9 or blank: where S can be any number 0-9 or blank: where N can be any number 0-9 or blank; "-" provided optionally) Model X7-3D3J3J-230003-XD0142A (P/N 10011368)
Ratings:	Input rated: X4-MMMM-PPSSNN: 100-240 Vac, 50/60/440 Hz, 5.6 A X5-MMMM-PPSSNN: 100-240 Vac, 50/60/440 Hz, 7.0 A X7-MMMM-PPSSNN: 100-240 Vac, 50/60/440 Hz, 10.0 A X7-3D3J3J-230003-XD0142A: 100-240 Vac, 50/60/440 Hz, 12.0 A X9-MMMMM-PPSSNN: 100-240 Vac, 50/60/440 Hz, 12.7 A X10-MMMMMM-PPSSNN: 100-240 Vac, 50/60/440 Hz, 14.2 A X15-MMMMM-PPSSNN/ MMMMM-PPSSNN: 100-240 Vac, 50/60 Hz, 20 A
	Output rated: See model differences for details.

Testin	g procedure and testing location:		
[]	CB Testing Laboratory		
	Testing location / address		
[]	Associated CB Test Laboratory		
	Testing location / address::		
	Tested by (name + signature) :		
	Approved by (name + signature):		
[]	Testing Procedure: TMP		
	Tested by (name + signature) :		
	Approved by (+ signature)		
	Testing location / address::		
[]	Testing Procedure: WMT		
	Tested by (name + signature) :		
	Witnessed by (+ signature):		
	Approved by (+ signature):		
	Testing location / address:		
[X]	Testing Procedure: SMT		
	Tested by (name + signature) :	Rodney Reyes	Rotney Reyes
	Approved by (+ signature):	Tac Pham	Rotney Reyes
	Supervised by (+ signature):	Gregory Ray	Hugery Ray
	Testing location / address:	XP Power LLC, 1241 E Dye 92705 USA	er Rd, Suite 150, Santa Ana CA
[]	Testing Procedure: RMT		
	Tested by (name + signature) :		
	Approved by (+ signature):		
	Supervised by (+ signature):		
	Testing location / address:		
1 : - + - +	Attackments		
	Attachments		
	al Differences (37 pages)		
	ures (284 pages)		
Unless	a <b>ry Of Testing</b> otherwise indicated, all tests were con A 92705 USA.	ducted at XP Power LLC, 124	41 E Dyer Rd, Suite 150, Santa
Tests performed (name of test and test clause) Testing location / Comments		g location / Comments	
	Input: Single-Phase (1.6.2)	Evalua	ated under previous investigation

Capacitance Discharge (2.1.1.7)	Evaluated under previous investigation
Touch Current (2.1.1.9, IEC60065 9.1.1)	Evaluated under previous investigation
SELV Reliability Test Including Hazardous Voltage Measurements (2.2.2, 2.2.3, 2.2.4, Part 22 6.1)	
Protective Bonding II (2.6.3.4, 2.6.1)	Evaluated under previous investigation
Humidity (2.9.1, 2.9.2, 5.2.2)	Evaluated under previous investigation
Determination of Working Voltage; Working Voltage Measurement (2.10.2)	
Transformer and Wire /Insulation Electric Strength (2.10.5.13)	Evaluated under previous investigation
Ball Pressure (4.5.5, 4.5)	Evaluated under previous investigation
Touch Current (Single-Phase; TN/TT System) (5.1, Annex D)	Evaluated under previous investigation
Electric Strength (5.2.2)	
Component Failure (5.3.1, 5.3.4, 5.3.7)	
Abnormal Operation (5.3.1 - 5.3.9)	
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 th	is report.
List of countries addressed: AT, BE, BG, CA, CH, CN, CZ, DE, DK JP, KR, NL, PL, PT, RO, SE, SI, SK, UK, US	, ES, EU, FI, FR, GB, GR, HU, IE, IL, IT,
The product fulfills the requirements of: CSA C22.2 No. 60950-1-0 + A11:2009 + A12:2011, UL 60950-1 2nd Ed. Revised 2011-12-19	

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

Test item particulars :		
Equipment mobility	for building-in	
Connection to the mains	To be determined in the end system	
Operating condition	continuous	
Access location	operator accessible	
Over voltage category (OVC)		
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)		
Pollution degree (PD)	PD 2	
IP protection class	IP X0	
Altitude of operation (m)	3048	
Altitude of test laboratory (m)	<2000	
Mass of equipment (kg)	2.25	
Possible test case verdicts:		
- test case does not apply to the test object	N / A	
- test object does meet the requirement		
- test object does not meet the requirement	F(Fail)	
Testing:		
Date(s) of receipt of test item	2012-03-01	
Date(s) of Performance of tests	2012-03-02 to 2012-03-29	
General remarks:		
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 testing laboratory.		
"(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 6.25 of IECEE 02:The application for obtaining a CB Test Certificate includes more than one factory and adeclaration form the Manufacturer stating that the sample(s) submitted for evaluation is (are)Yesrepresentative 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 990 BENEC		

SUNNYVALE CA 94085 UNITED STATES

XP POWER (KUNSHAN) LTD 230 BIN JIANG NAN RD ZHANGPU TOWN KUNSHAN, JIANGSU 215321 CHINA

FORTRON SOURCE (CHINA) CORP (III) JUYUAN INDUSTRIAL PARK TANGWEI FUYONG BAO'AN SHENZHEN, GUANGDONG 518103 CHINA

### **GENERAL PRODUCT INFORMATION:**

### **Report Summary**

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

### **Product Description**

The equipment is a modular ac to dc power supply for building-in. The power supply consisting of an input power platform and various plug-in Output Modules. Each plug-in Output Module is either 2, 3 or 4 slot width. Each power platform supports 10-14 slots per platform, in any combination of 2, 3 or 4 slot plug-in modules.

### Model Differences

All models provided with a power platform and maybe provided with various combinations of Output Modules.

Models within Model X4, X5, and X7 Series are identical, with exception to the output wattage rating. and provided Plug-in output Modules. See output rating table provided below.

Model X9 Series is similar to X7 Series with exception to the power platform, number of output module slots, and the output wattage rating. See output rating table provided below.

Model X10 Series is similar to X7 Series with exception to the power platform, number of output module slots, and the output wattage rating. See output rating table provided below.

Model X7-3D3J3J-230003-XD0142A is identical to X7 series except cooling fan mounted externally (airflow outward) and alternate PWB.

Model X15 is a two output module bay design that consists of platforms and can accommodate the same output modules as the X7 Series.

#### Output Rating:

X4 Series: Max 400 W (100-180 Vac input)/Max 600 W (180-240Vac input): up to 5 output modules provided. X5 Series: Max 500 W (100-180 Vac input)/Max 700 W (180-240 Vac input): up to 5 output modules provided. X7 Series: Max 700 W (100-180 Vac input)/Max 900 W (180-240 Vac input): up to 5 output modules provided.

X9 Series: Max 900 W (100-180 Vac input)/Max 1100 W (180-240 Vac input): up to 6 output modules provided.

X10 Series: Max 1000 W (100-180 Vac input)/Max 1200 W (180-240 Vac input): up to 7 output modules provided.

X7-3D3J3J-230003-XD0142A (100-240Vac, 12A input): Rated Output 5Vdc/60A; 12Vdc/28A; 12Vdc/28A; Max 772W.

X15 Series: Max 1500 W (100-180 Vac input)/Max 2500 W (180-240 Vac input): up to 10 output modules provided.

Output Module Ratings:

Modules 1A-1Z: 2 Slot Module, 3.3 to 60 Vdc, Max. 20 A, Max. 126 W Modules 2A-2Z: 2 Slot Module, 3.3 to 60 Vdc, Max. 40 A, Max. 252 W Modules 3A-3Z: 3 Slot Module, 3.3 to 60 Vdc, Max. 60 A, Max. 420 W Modules 4A-4Z: 4 Slot Module, 12.0 to 60 Vdc, Max 62.5A, Max 756W Modules 5A-5Z: 2 Slot Module, Dual Output: V1=3.3 to 24 Vdc, Max. 10 A, Max, 150 W: V2 = 2.0 to 24 Vdc, Max. 10 A, Max. 150 W

### Additional Information

This report is a reissue of CBTR Ref. No. E139109-A50-CB-1, CB Test Certificate Ref. No. US/15287A/UL, US/15287B/UL, US/15287A2/UL and US/15287A3/UL. Based on the previously conducted testing and the review of product construction, only limited tests were deemed necessary to add Module 4x series.

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.

The clearance distances have additionally been assessed for suitability up to 3048 m elevation (1.15 correction factor per IEC 60664-1, Table A2).

### **Technical Considerations**

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: Full-rated output load: 50°C. 75% of output load: 60°C. Half-rated output load: 70°C.
- 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 equipment disconnect device is considered to be: determined in the end-product.,
- The product was investigated to the following additional standards: EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 (which includes all European national differences, including those specified in this test report).

### 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: For Model X4, X5, X7, X9, and X10 Series:, Primary-Earthed Dead Metal: 240 Vrms, 438 Vpk, Primary-SELV: 268 Vrms, 588 Vpk, , For Model X15 Series:, Primary-SELV: 230 Vrms, 691 Vpk
- The following secondary output circuits are SELV: All outputs
- 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: All Models except Model X15 Series: 20 A, Model X15 Series: 30 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, except for Models X4, X5 and X7 Series provided with an appliance inlet.
- The following input terminals/connectors must be connected to the end-product supply neutral: Terminal marked "N" on the supply connector (J1), except when provided with an appliance inlet.
- 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): Platform: T1; Modules: T1, T2, and T3 (Class F)
- The following end-product enclosures are required: Mechanical, Fire
- The equipment is suitable for direct connection to: AC mains supply
- Printed Wiring Boards rated min 130°C. Electrolytic Capacitors rated min 105°C. All inductors, providing Functional Insulation are suitable up to 130°C. --
- The equipment is provided with double pole/neutral fusing and suitably marked. --
- The supply terminal (J1) is suitable for factory wiring. The output terminals and/or connectors have not been investigated for field wiring. Terminal block (J1) is suitable for copper wire only, 22-14 AWG, 10 lbs. torque, 110°C. --

- For Model X4 Series, the maximum continuous output power shall not to exceed 400 W for input voltages 100-180 Vac or 600 W when the supply voltage is 180-240 Vac, when used with any combination of output modules. --
- For Model X5 Series, the maximum continuous output power shall not to exceed 500 W for input voltages 100-180 Vac or 700 W when the supply voltage is 180-240 Vac, when used with any combination of output modules. --
- For Model X7 Series, the maximum continuous output power shall not to exceed 700 W for input voltages 100-180 Vac or 900 W when the supply voltage is 180-240 Vac, when used with any combination of output modules. --
- For Model X9 Series, the maximum continuous output power shall not to exceed 900 W for input voltages 100-180 Vac or 1100 W when the supply voltage is 180-240 Vac, when used with any combination of output modules. --
- For Model X10 Series, the maximum continuous output power shall not to exceed 1000 W for input voltages 100-180 Vac or 1200 W when the supply voltage is 180-240 Vac, when used with any combination of output modules. --
- For Model X15 Series, the maximum continuous output power shall not to exceed 1500 W for input voltages 100-180 Vac or 2500 W when the supply voltage is 180-240 Vac, when used with any combination of output modules. --
- For Model X15 Series: Suitably rated branch protection to be provided as part of the end-product. --

 Abbreviations used in the report:

 - normal condition

 - normal condition

 - operational insulation

 OP

 - basic insulation between parts of opposite

 - supplementary insulation

 - double insulation

 Indicate used abbreviations (if any)



IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

SYSTEME CEI D'ACCEPTATION MUTUELLE DE CERTIFICATS D'ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

# **CB TEST CERTIFICATE CERTIFICAT D'ESSAI OC**

Product Produit	Power supply Power Supply (switch mode type for building-in)		
Name and address of the applicant Nom et adresse du demandeur	XP Power, Inc. 1590 Sinclair Street Anaheim CA 92806-5933, USA		
Name and address of the manufacturer Nom et adresse du fabricant	XP Power, Inc., 1590 Sinclair Street, Anaheim CA 92806-5933, USA		
Name and address of the factory Nom et adresse de l'usine	XP Power, Inc., 1590 Sinclair Street, Anaheim CA 92806-5933, USA For further information please see attachment		
Rating and principal characteristics Valeurs nominales et caractéristiques principales	Input Voltage: Input Frequency:50/60 Input Current:	100-240 VAC Hz 5.6 A (X4 series), 7A (X5 series), 10 A (X7 series), 12.7 A (X9 series), 14.2 A (X10 series)	
	Protection Class: Temperature, Ambient:	I (at end use) 50°C at full load, 70°C at 50% of full load as specified by manufacturer	
	For further Model Details, ple	ease see attachment.	
Trade mark (if any)	ХР		
Marque de fabrique (si elle existe) Model/type Ref. Ref. de type	X4, X5, X7, X9, X10 Series (See the attachment for the model number details)		
Additional information (if necessary) Information complémentaire (si nécessaire)	CBTL		
A sample of the product was tested and found to be in conformity with Un échantillon de ce produit a été essayé et a été considéré conforme à la	IEC 61010-1:2001		
as shown in the Test Report Ref. No. which form part of this certificate comme indiqué dans le Rapport d'essais numéro	TÜV SÜD Product Service 095-703106-000		
de référence qui constitue une partie de ce certificat			
CB Test Certificate is issued by the National Cert ertificat d'essai OC est établi par l'Organisme <b>N</b> a			

CB-1 03.06

Date.

2008-01-14

CB 08 01 57396 041

**Ralph Fischer** 

Tisch

TÜV SÜD Product Service GmbH · Certification Body · Ridlerstrasse 65 · D-80339 München



**Product Service** 



# Additional factory information:

Name and address of the factory Nom et adresse de l'usine	(59319)	XP-Power 990 Benecia Ave Sunnyvale CA 94085, USA
	(53974)	XP Power (s) pte Ltd. 621 Aljunied Rd #05-01 Lipo Factory 389834 Singapore
	(61401)	Fortron XP Power (Kunshan) Limited 10, Dong Huan Road, Zhang Pu Town Kunshan City, 215337, Jiang Shu Province People's Republic Of China
	(30668)	Fortron/Source (China) Corp Unit 25, Zone 37, Shenzhen, Bao'an Guangdong 518104, China
	(52681)	Fortron Source (China) Ju-Yuan Industrial Park, Tang – Wei, Fu-Yong Town, Bao – An, Shenzhen, Guangdong, P.R. China

### **MODEL NUMBER CONFIGURATION:**

X4, X5, X7 series can be followed by up to 5 output module XY; X9, X10 series can be followed by up to 6 output models XY; where XY indicating the power module specific codes (see PART B for list), where X can be 2, 3 or 5 and Y can be A to Z.

### RATED INPUT POWER:

X5 series: 500 W max (100-180 V), 700 W max (180-240 V), X7 series: 700 W max (100-180 V), 900 W max (180-240 V), X9 Series: 900 W max (100-180 V), 1100W max (180-240V), X10 Series: 1000 W max (100-180 V), 1200W max (180-240V)

PART A: AC-DC Power Platform, Input rated 100-240 VAC, 50/60/440 Hz, as follows:

Signature:

Model	Max Input Current (A)	Max Output Power (W) (100-180V)	Max Output Power (W) (180-240V)
X4 Series	5.6	400	600
X5 Series	7	500	700
X7 Series	10	700	900
X9 Series	12.7	900	1100
X10 Series	14.2	1000	1200

**Ralph Fischer** 

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**PART B:** Each DC-DC power module receives the 380 V DC buss and provides reinforced insulation to the SELV outputs. Each model is provided with screw type terminal blocks for connection to the output load. DC-DC Output Modules are rated as follows:

Module codes	Slot wide	Voltage (V1)/Current	Voltage (V2)/ Current
2C	2	3.3V/40.0A	
3C	3	3.3V/60.0A	**
2D	2	5.0V/40.0A	
3D	3	5.0V/60.0A	
2J	2	12.0V/17.0A	
3J	3	12.0V/25.0A	
2L	2	15.0V/14.0A	
3L	3	15.0V/20.0A	**
2P	2	24.0V/10.5A	
3P	3	24.0V/17.0A	
2Q	2	28.0V/9.0A	
3Q	3	28.0V/14.0A	
2U	2	36.0V/7.0A	
3U	3	36.0V/11.0A	
2W	2	48.0V/5.2A	
3W	3	48.0V/8.5A	
2Y	2	60.0V/4.2A	
3Y	3	60.0V/7.0A	
5A	2	5.0V/10.0A	5.0V/10.0A
5D	2	12.0V/10.0A	12.0V/8.0A
5E	2	15.0V/8.0A	15.0V/6.0A
5F	2	15.0V/8.0A	12.0V/8.0A
5K	2	15.0V/10.0A	15.0V/10.0A
5N	2	24.0V/6.0A	5.0V/10.0A

Notes:

1. The model designations described above, may be provided with additional suffixes denoting minor mechanical options, system configuration options and/or extra low voltage secondary circuit options.

2. For protective earthing this equipment relies on the bonding of the chassis to the earthed chassis of the end product.

**Ralph Fischer** Signature:

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