

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**

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>ème</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

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

**CERTIFICAT D'ESSAI OC**

Power Supply

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

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

XP POWER LLC  
990 BENECIA AVE  
SUNNYVALE CA 94085  
USA

Additional Information on page 2

Input: 100-240 Vac, 2.5 A, 50/60 Hz  
Output : 12-48 Vdc, 12 A max.; not to exceed 148W (See Model  
Differences for details).  
For Model ECM140US24 -XD0145 and 10012197: 24Vdc, 5.8A



ECM140USXX Series, 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)

E146893-A33-CB-1 issued on 2013-11-07

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/nbcnames](http://www.ul.com/nbcnames)

Date: 2013-11-07

Original Issue Date: 2011-12-30

Signature:

Jolanta M. Wroblewska

## Model Details:

ECM140USXX Series (where XX can be any number between 12 to 48 designating the output voltage), all Models may be followed by suffix "-A", may also be followed with additional suffix "S", or "L"),

ECM140US12-A-XA1049

ECM140US24 -XD0145, 10012197

## Factories:

XP POWER (KUNSHAN) LTD

230 BIN JIANG NAN RD

ZHANGPU TOWN, KUNSHAN, JIANGSU 215321

CHINA

## Additional Information:

The original report was modified to include the following changes/additions:

Model and additional voltage added, see test report.

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

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](http://www.ul.com/ncbnames)

Date: 2013-11-07


Original Issue Date: 2011-12-30

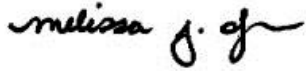

Signature:

Jolanta M. Wroblewska

	Test Report issued under the responsibility of:	
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<b>TEST REPORT</b> <b>IEC 60601-1</b> <b>Medical Electrical Equipment</b> <b>Part 1: General requirements for basic safety and essential performance</b>	
<b>Report Reference No</b> .....	E146893-A33-CB-1
<b>Date of issue</b> .....	2011-12-30
<b>Total number of pages</b> .....	12
<b>CB Testing Laboratory</b> .....	UL Camas
<b>Address</b> .....	2600 N.W. Lake Road, Camas, WA, 98607, USA
<b>Applicant's name</b> .....	XP POWER INC SUITE 150
<b>Address</b> .....	1241 E DYER RD SANTA ANA CA 92705 UNITED STATES
<b>Test specification:</b>	
Standard .....	IEC 60601-1: 2005 + CORR. 1 (2006) + CORR. 2 (2007)
Test procedure .....	CB Scheme
Non-standard test method .....	N/A
<b>Test Report Form No.</b> .....	IEC60601_1G
Test Report Form originator .....	UL LLC
Master TRF .....	Dated 2010-11
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If this test Report is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.	
<b>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.</b>	

<b>Test item description</b> .....	Power Supply
Trade Mark .....	
Manufacturer .....	XP POWER LLC SUITE 150 1241 E DYER RD SANTA ANA CA 92705 UNITED STATES
Model/Type reference .....	ECM140USXX Series (where XX can be any number between 12 to 48 designating the output voltage), all Models may be followed by suffix "-A", may also be followed with additional suffix "S", or "L"), ECM140US12-A-XA1049  ECM140US24 -XD0145, 10012197
Ratings .....	Input: 100-240 Vac, 2.5 A, 50/60 Hz Output : 12-48 Vdc, 12 A max.; not to exceed 148W (See Model Differences for details).  For Model ECM140US24 -XD0145 and 10012197: 24Vdc, 5.8A

<b>Testing procedure and testing location:</b>	
<input checked="" type="checkbox"/> <b>CB Testing Laboratory</b>	
Testing location / address..... :	UL Camas 2600 N.W. Lake Road, Camas, WA, 98607, USA
<input type="checkbox"/> <b>Associated CB Test Laboratory</b>	
Testing location / address..... :	
Tested by (name + signature) .....	Melissa DeGuia 
Approved by (name + signature) ... :	Glenn Luchen 
<input type="checkbox"/> <b>Testing Procedure: TMP</b>	
Tested by (name + signature) .....	_____
Approved by (+ signature) .....	_____
Testing location / address..... :	
<input type="checkbox"/> <b>Testing Procedure: WMT</b>	
Tested by (name + signature) .....	_____
Witnessed by (+ signature)..... :	_____
Approved by (+ signature) .....	_____
Testing location / address..... :	
<input type="checkbox"/> <b>Testing Procedure: SMT</b>	
Tested by (name + signature) .....	_____
Approved by (+ signature) .....	_____
Supervised by (+ signature) .....	_____
Testing location / address..... :	
<input type="checkbox"/> <b>Testing Procedure: RMT</b>	
Tested by (name + signature) .....	_____
Approved by (+ signature) .....	_____
Supervised by (+ signature) .....	_____
Testing location / address..... :	

<b>List of Attachments</b>
National Differences (2 pages)
Enclosures (0 pages)
<b>Summary of Testing:</b>
No tests were conducted
<b>Summary of Compliance with National Differences:</b>
Countries outside the CB Scheme membership may also accept this report.
List of countries addressed: AT, BE, CA, CH, CZ, DE, DK, FI, FR, GB, HU, IL, IT, NL, PL, SE, SI, SK, TR, UA, US

Issue Date: 2011-12-30  
Amendment 3 2013-11-07

Page 4 of 12

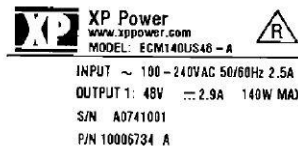
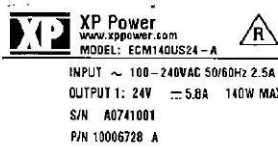
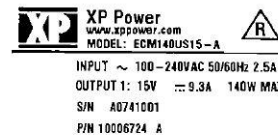
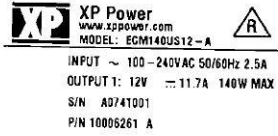
Report Reference #

E146893-A33-CB-1

The product fulfills the requirements of: ANSI/AAMI ES60601-1 (2005 + C1:09 + A2:10), CAN/CSA-C22.2 No. 60601-1 (2008), IEC 60601-1: 2005, EN 60601-1: 2006 + CORR: 2010

### Copy of Marking Plate

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.



<b>Test item particulars (see also Clause 6):</b>	
Classification of installation and use .....	For building-in
Device type (component/sub-assembly/ equipment/ system) .....	Component
Intended use (Including type of patient, application location) .....	Provide regulated power
Mode of operation .....	Continuous
Supply connection .....	For building-in
Accessories and detachable parts included .....	None
Other options include .....	None
<b>Testing:</b>	
Date of receipt of test item(s) .....	N/A
Dates tests performed .....	N/A
<b>Possible test case verdicts:</b>	
- test case does not apply to the test object .....	N / A
- test object does meet the requirement .....	P(Pass)
- test object was not evaluated for the requirement :	N / E
- test object does not meet the requirement .....	F(Fail)
<b>Abbreviations used in the report:</b>	
- normal condition .....	N.C. - single fault condition .....
- means of Operator protection .....	MOOP - means of Patient protection .....
<b>General remarks:</b>	
<p>"(see Attachment #)" refers to additional information appended to the report.                  "(see appended table)" refers to a table appended to the report.</p> <p>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.                  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.</p> <p>Throughout this report a point is used as the decimal separator.</p>	
<b>Manufacturer's Declaration per Sub Clause 6.2.5 of IEC60061-1:</b>	
Yes	
<p>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 .....</p> <p>When differences exist, they shall be identified in the General Product Information section.</p>	
<b>Name and address of Factory(ies):</b>	XP POWER LLC 990 BENEZIA AVE SUNNYVALE CA 94085 UNITED STATES  XP POWER (KUNSHAN) LTD



230 BIN JIANG NAN RD  
ZHANGPU TOWN  
KUNSHAN  
JIANGSU 215321 CHINA

## GENERAL PRODUCT INFORMATION:

### Report Summary

The original report was modified on 2013-11-07 to include the following changes/additions:

1. Add model ECM140US12-A-XA1049 which is identical to Model ECM140US12 except for naming convention for marketing purposes.
2. Evaluation of all models covered under this Report for a maximum operating altitude of 5000m. The required Clearance distances were updated with the appropriate Correction Factor from Table 8. The Dielectric Withstand Test Voltage test value was not affected by this change.
3. Addition of output voltage range as noted in the GPI2, Model Differences section.

### Product Description

The products covered in this report are medical switching power supplies to be used factory installed in an end-use equipment.

### Model Differences

All models covered under the series are similar with exception to the output voltage and current ratings, transformer (T1), minor differences in the secondary circuit component, and PWB layouts. Models with the -A suffix include transformer T2 for 5V standby. Models with additional suffix "S" indicate screw terminal block provided for the input and output connections or suffix "L" indicate leads are provided for the input and output connection.

Models ECM140USXX where XX can be any number between 12 to 48 designating the output voltage range. The configured output voltage should fall within one of the voltage ranges below:

ECM140US12 - 10.1 to 13.5Vdc, 11.7A max., 148W max.  
ECM140US15 - 13.6 to 17Vdc, 9.3A max., 148W max.  
ECM140US18 - 17.1 to 21Vdc, 7.7A max., 148W max.  
ECM140US24 - 21.1 to 26Vdc, 5.8A max., 148W max.  
ECM140US28 - 26.1 to 31Vdc, 5.0A max., 148W max.  
ECM140US48 - 42.1 to 54Vdc, 2.9A max., 148W max.

See Enclosures 7-01 for de-rating curve for ambient temperatures up to 70°C and model output ratings.

Model ECM140US24 -XD0145 is identical to Model ECM140US24, except for changes to Inductor (L1), Secondary to Ground/Floating Mounting Hole Capacitors, and other minor non-safety related component changes.

Model ECM140US24-XD0145 is identical to Model 10012197, with exception to the model designation.

Model ECM140US12-A-XA1049 is identical to Model ECM140US12-A except for model designation for marketing purposes.

### **Additional Information**

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.

Manufacturer to provide up to date IEC Licensed for component licenses greater than 3 years upon request.

In addition to testing covered under IEC 60601-1, 3rd Edition, some tests were conducted as part of the previous UL60601-1, 1st Edition/ IEC 60601-1, 2nd Edition evaluations and the results and methods, as applicable, were considered representative as part of the testing conducted.

Some of the results in this Report are based on a previous CB Scheme Investigation by CSA International, Report Reference No. CB 155548-2004167, CB Certificate No. CA/9544/CSA issued in 2008-03-17.

The label provided is representative of all models covered under this Report.

All models covered under this Report was evaluated for a maximum operating altitude of 5000m. The required Clearance distances were updated with the appropriate Correction Factor from Table 8 in accordance with IEC 60664-1:1992.

### **Technical Considerations**

- The product was investigated to the following additional standards: ANSI/AAMI ES60601-1 (2005 + C1:09 + A2:10) (Medical Electrical Equipment - Part 1: General Requirements for Basic Safety and Essential Performance) (includes Deviations for United States), CAN/CSA-C22.2 No. 60601-1 (2008) (Medical Electrical Equipment - Part 1: General Requirements for Basic Safety and Essential Performance) (includes National Differences for Canada), EN 60601-1: 2006 + CORR: 2010 (Medical electrical equipment Part 1: General requirements for basic safety and essential performance)
- The product was not investigated to the following standards or clauses: Biocompatibility (ISO 10993-1), Clause 14, Programmable Electronic Systems, Electromagnetic Compatibility (IEC 60601-1-2)
- The degree of protection against harmful ingress of water is: Ordinary
- The mode of operation is: Continuous
- The product is suitable for use in the presence of a flammable anesthetics mixture with air or oxygen or with nitrous oxide: No
- 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 for convection cooling. (See De-rating Curve, Enclosure 7-01 for details) --
- The power supply was evaluated for use in 60°C ambient at Full Rated Output and 75% of the Rated Output in 70°C ambient for 10CFM forced air cooling. (See De-rating Curve, Enclosure 7-01 for details) --

### **Engineering Conditions of Acceptability**

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

- 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. --
- Repeat of leakage current testing and consideration of non-frequency weighted leakage to be considered as part of the end product. --
- This power supply was evaluated with Two MOPP between Primary and Secondary; One MOPP primary and Earth (Class I); and One MOPP between Secondary and Ground/Floating Mounting

Holes when mounted with a plastic standoff that meets the creepage and clearance requirements for 1 MOPP at the mounting hole adjacent to the connector J2 --

- 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 available voltage for the secondary outputs does not exceed 25 Vac or 60 Vdc, under normal and single fault conditions. --
- The following secondary output circuits are at hazardous energy levels: Main Power Output --
- The output connectors are not acceptable for field connections; they are only intended for connection to mating connectors of the end-use equipment. --
- The Dielectric Strength Test conducted on this power supply was based upon a maximum working voltage of: Primary-Earthed Dead Metal (Class I units): 339 Vpk, 240 Vrms; Primary-SEC: 488 Vpk, 274 Vrms. --
- For Class I application: Protective bonding testing shall be considered 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): L1 and T1 (Class F, 155°C) --
- Printed Wiring Board rated 130°C. --
- Cleaning test shall be considered as part of end product evaluation. --
- 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. --
- When installed in a Class I end product, the power supply shall be mounted in a manner that provides, at a minimum, 2.5 mm Clearance/4 mm Creepage between the primary sides of power supply and protectively earthed accessible conductive parts. In addition, 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 in a manner that provides sufficient clearance and creepage distance between the hazardous parts and accessible conductive parts. --
- The products were tested on a 20 A branch circuit. If used on a branch circuit greater than this, additional testing may be necessary. --
- Temperature, Leakage Current, Protective Earthing, Dielectric Voltage Withstand, and Interruption of the Power Supply tests should be considered as part of the end product evaluation. --

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

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>ème</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

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

Open Frame AC-DC Power Supply

XP POWER L L C  
SUITE 150, 1241 E DYER RD  
SANTA ANA CA 92705, USA

XP POWER L L C  
SUITE 150, 1241 E DYER RD  
SANTA ANA CA 92705, USA

XP POWER L L C  
990 BENEZIA AVE SUNNYVALE CA 94085  
USA

Additional Information on page 2

Input: 100-240 Vac, 2.5 A, 50/60Hz.  
Output: See Test Report - Model Differences for details.

XP Power



SMT

ECM140USXX  
See Page 2

Additionally evaluated to EN 60950-1:2006 / A11:2009 / A1:2010  
/ A12:2011; National Differences specified in the CB Test Report.

Additional Information on page 2

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

E139109-A126-CB-1 issued on 2013-07-23

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](http://www.ul.com/ncbnames)

Date: 2013-07-24

Signature:

Jolanta M. Wroblewska



Ref. Certif. No.

**US-21983-UL**

**Model Details:**

ECM140USXX (where the XX can be any number between 12 and 48 designating the output voltage), may be provided with additional suffix "-A".

**Factories:**

XP POWER (S) PTE LTD  
LIPO BLDG, #05-01 621 ALJUNIED RD SINGAPORE 389834  
SINGAPORE

XP POWER (KUNSHAN) LTD  
230 BIN JIANG NAN RD ZHANGPU TOWN KUNSHAN JIANGSU 215300  
CHINA

**Additional information (if necessary)**

**Information complémentaire (si nécessaire)**



- 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](http://www.ul.com/ncbnames)


Date: 2013-07-24

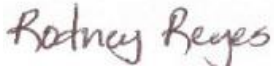


Signature:

Jolanta M. Wroblewska

	<p>Test Report issued under the responsibility of:</p>	
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<p><b>TEST REPORT</b> <b>IEC 60950-1</b> <b>Information technology equipment - Safety -</b> <b>Part 1: General requirements</b></p>	
<b>Report Reference No</b> .....	E139109-A126-CB-1
Date of issue .....	2013-07-23
Total number of pages .....	77
<b>CB Testing Laboratory</b> .....	UL Camas
Address .....	2600 N.W. Lake Road, Camas, WA, 98607, USA
<b>Applicant's name</b> .....	XP POWER L L C
Address .....	SUITE 150 1241 E DYER RD SANTA ANA CA 92705 UNITED STATES
<b>Test specification:</b>	
Standard .....	IEC 60950-1:2005 (2nd Edition); Am 1:2009
Test procedure .....	CB Scheme
Non-standard test method .....	N/A
<b>Test Report Form No.</b> .....	IEC60950_1C
Test Report Form originator .....	SGS Fimko Ltd
Master TRF .....	2012-08
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<b>Test item description</b> .....	Open Frame AC-DC Power Supply
Trade Mark .....	XP Power
	
Manufacturer .....	XP POWER L L C SUITE 150 1241 E DYER RD SANTA ANA CA 92705 UNITED STATES
Model/Type reference .....	ECM140USXX (where the XX can be any number between 12 and 48 designating the output voltage), may be provided with additional suffix "-A".
Ratings .....	Input: 100-240 Vac, 2.5 A, 50/60Hz. Output: See Model Differences for details.

<b>Testing procedure and testing location:</b>	
<input type="checkbox"/>	<b>CB Testing Laboratory</b> Testing location / address..... :
<input type="checkbox"/>	<b>Associated CB Test Laboratory</b> Testing location / address..... : Tested by (name + signature) ..... : _____ Approved by (name + signature) ... : _____
<input type="checkbox"/>	<b>Testing Procedure: TMP</b> Tested by (name + signature) ..... : _____ Approved by (+ signature) ..... : _____ Testing location / address..... :
<input type="checkbox"/>	<b>Testing Procedure: WMT</b> Tested by (name + signature) ..... : _____ Witnessed by (+ signature)..... : _____ Approved by (+ signature) ..... : _____ Testing location / address..... :
<input checked="" type="checkbox"/>	<b>Testing Procedure: SMT</b> Tested by (name + signature) ..... : Rodney Reyes  Approved by (+ signature) ..... : Tac Pham  Supervised by (+ signature) ..... : David E. Drewes  Testing location / address..... : XP Power LLC, Suite 150, 1241 E Dyer Rd, Santa Ana, CA 92705 USA
<input type="checkbox"/>	<b>Testing Procedure: RMT</b> Tested by (name + signature) ..... : _____ Approved by (+ signature) ..... : _____ Supervised by (+ signature) ..... : _____ Testing location / address..... :

<b>List of Attachments</b>	
National Differences (37 pages)	
Enclosures (37 pages)	
<b>Summary Of Testing</b>	
Unless otherwise indicated, all tests were conducted at XP Power LLC, Suite 150, 1241 E Dyer Rd, Santa Ana, CA 92705 USA.	
<b>Tests performed (name of test and test clause)</b>	<b>Testing location / Comments</b>
Guide Information Page - Maximum Output Voltage,	



Current, and Volt Ampere Measurement (1.2.2.1) Input: Single-Phase (1.6.2)	Evaluated under previous CB Scheme investigation. SMT - XP Power, 1590 S. Sinclair St., Anaheim, CA 92806 USA
Durability of Marking (1.7.11)	Evaluated under previous CB Scheme investigation, E139109-A20. UL, 2929 E. Imperial Hwy., Suite 100, Brea, CA 92821 USA
Energy Hazard Measurements (2.1.1.5, 2.1.2, 1.2.8.10)	Additionally evaluated under previous CB Scheme investigation. SMT - XP Power, 1590 S. Sinclair St., Anaheim, CA 92806 USA
Capacitance Discharge (2.1.1.7)	Evaluated under previous CB Scheme investigation. SMT - XP Power, 1590 S. Sinclair St., Anaheim, CA 92806 USA
SELV Reliability Test Including Hazardous Voltage Measurements (2.2.2, 2.2.3, 2.2.4, Part 22 6.1) Humidity (2.9.1, 2.9.2, 5.2.2)	Evaluated under previous CB Scheme investigation. WMT - XP Power LLC, Suite 150, 1241 E Dyer Rd, Santa Ana, CA 92705 USA
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)	Evaluated under previous CB Scheme investigation. SMT - XP Power, 1590 S. Sinclair St., Anaheim, CA 92806 USA
Ball Pressure (4.5.5, 4.5)	Evaluated under previous CB Scheme investigation. SMT - XP Power, 1590 S. Sinclair St., Anaheim, CA 92806 USA
Touch Current (Single-Phase; TN/TT System) (5.1, Annex D)	Evaluated under previous CB Scheme investigation. WMT - XP Power LLC, Suite 150, 1241 E Dyer Rd, Santa Ana, CA 92705 USA
Electric Strength (5.2.2)	Evaluated under previous CB Scheme investigation. SMT - XP Power, 1590 S. Sinclair St., Anaheim, CA 92806 USA
Component Failure (5.3.1, 5.3.4, 5.3.7)	Additionally evaluated under previous CB Scheme investigation. SMT - XP Power, 1590 S. Sinclair St., Anaheim, CA 92806 USA
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:**

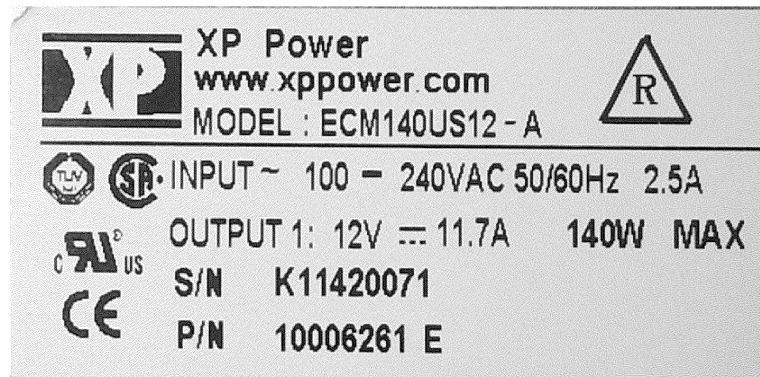
Countries outside the CB Scheme membership may also accept this report.

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

The product fulfills the requirements of: CSA C22.2 No. 60950-1-07 + A1:2011, EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011, UL 60950-1 2nd Ed. Revised 2011-12-19, IEC 60950-1:2005 + A1:2009

**Copy of Marking Plate**

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.



<b>Test item particulars :</b>	
Equipment mobility .....	for building-in
Connection to the mains .....	To be determined in the end system
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 (earthed) 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) .....	5000
Altitude of test laboratory (m) .....	less than 2000 meters
Mass of equipment (kg) .....	0.32
<b>Possible test case verdicts:</b>	
- 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)
<b>Testing:</b>	
Date(s) of receipt of test item .....	2013-06-24
Date(s) of Performance of tests .....	2013-06-25 to 2013-07-12
<b>General remarks:</b>	
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.	
<b>Manufacturer's Declaration per Sub Clause 6.2.5 of IEC60950-1:</b>	
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 .....	Yes
When differences exist, they shall be identified in the General Product Information section.	
<b>Name and address of Factory(ies):</b>	XP POWER L L C 990 BENECIA AVE

SUNNYVALE CA 94085  
UNITED STATES

XP POWER (S) PTE LTD  
LIPO BLDG, #05-01  
621 ALJUNIED RD  
SINGAPORE 389834 SINGAPORE

XP POWER (KUNSHAN) LTD  
230 BIN JIANG NAN RD  
ZHANGPU TOWN  
KUNSHAN  
JIANGSU 215300 CHINA

## GENERAL PRODUCT INFORMATION:

### Report Summary

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

### Product Description

The model covered in this report is a component switching power supply intended for use in Information Technology Equipment. It is an open frame power supply intended for building-in Class I or Class II end-products.

### Model Differences

All models in the series are identical with exception to the Mains Transformer, T1, and minor secondary components that allow for different output voltage ratings. See below for Model Ratings Table for 60°C ambient with 10cfm fan cooling:

Model ECM140US12: Output Rated: 12 Vdc, 11.7 A  
Model ECM140US15: Output Rated: 15 Vdc, 9.3 A  
Model ECM140US18: Output Rated: 18 Vdc, 7.7 A  
Model ECM140US24: Output Rated: 24 Vdc, 5.8 A  
Model ECM140US28: Output Rated: 28 Vdc, 5.0 A  
Model ECM140US48: Output Rated: 48 Vdc, 2.9 A

Models with suffix "-A" provided with optional standby transformer T2.

### Additional Information

The product was investigated by UL for compliance with IEC 60950-1:2005 (2nd Edition); Am 1:2009. Some test results have been accepted based on the CB Test Report previously issued by the following NCB's: -CSA International, 178 Rexdale Boulevard, Toronto, ON M9W 1R3, CB Test Report Ref. No. CB 155548-1978787 (2013965), CB Test Certificate Ref. No. CA/9474/CSA with testing performed under SMT at XP Power Inc., 1590 S. Sinclair St., Anaheim, CA 92806 USA.

-UL Camas, 2600 N.W. Lake Rd., Camas, WA 98607, USA, CB Test Report Ref. No. E139109-A117-CB-1, CB Test Certificate Ref. No. US-19994-UL with testing performed under WMT at XP Power LLC, Suite 150, 1241 E Dyer Rd, Santa Ana, CA 92705 USA.

Additional testing performed under SMT at XP Power LLC, Suite 150, 1241 E Dyer Rd, Santa Ana, CA 92705 USA.

Required values for clearance are adjusted for 5000m (1.48 correction factor as per IEC 60664-1, Table A2).

The need for the additional testing and evaluation shall be determined in the end product investigation.

### Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (T<sub>ma</sub>) permitted by the manufacturer's specification of: Full-rated output load (148W) with 10 CFM fan: 60°C; 81% of output load (120W) with convection cooling: 50°C., ,
- The means of connection to the mains supply is: for building-in, to be determined in the end product.
- The product is intended for use on the following power systems: TN
- The equipment disconnect device is considered to be: for building-in, 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: Primary-Earthed Dead Metal: 246 Vrms, 362 Vpk, Primary-SELV: 240 Vrms, 512 Vpk
- The following secondary output circuits are SELV: All outputs
- The following secondary output circuits are at non-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
- Proper bonding to the end-product main protective earthing termination is: required when the power supply is used in a Class I end product. The power supply will be considered Class II only when protection against electric shock does not rely on Basic Insulation and provides adequate clearance/creepage distance between Primary and SELV components (mounted above chassis/accessible metal parts on Insulating posts etc). Class II units have no reliance upon protective earthing.
- An investigation of the protective bonding terminals has: Not been conducted
- The following input terminals/connectors must be connected to the end-product supply neutral: Input Connector (J1)
- 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): L1, L2, L3,L4, T1, and T2 are Class F (155°C),

- The following end-product enclosures are required: Mechanical, Fire, Electrical
- The maximum continuous power supply output (Watts) relied on forced air cooling from: External fan at 10 cfm applied to power supply input side with inward air-flow direction from 1 inch distance between fan and the unit.
- When mounted inside a chassis, adequate creepage/clearance shall be provided between live parts, including primary and secondary heatsinks, and accessible metal parts. --
- Suitable disconnect device is to be provided in the end system. --
- Leakage and Dielectric Strength testing shall be considered in the end system. --
- Provided with a fuse in both the Line and Neutral of the primary circuit. The need for "CAUTION: Double Pole/Neutral Fusing" marking to be determined in the end product. --
- A suitable connector shall be provided for connector tab (P1) in order to provide at min. Basic Insulation to L2 winding. --
- Suitable connections to the mains supply to be provided in the end system. --
- Required values for clearance are adjusted for 5000m (1.48 correction factor as per IEC 60664-1, Table A2). --

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)