Ref. Certif. No.

US-25084-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

CB TEST CERTIFICATE

CERTIFICAT D'ESSAI OC

Product Produit	Component power supply
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 USA
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 USA
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 2ème page*	XP POWER INC 990 BENECIA AVE SUNNYVALE CA 94085-2804 USA ☒ Additional Information on page 2
Ratings and principal characteristics Valeurs nominales et caractéristiques principales	Input: 100-240Vac, 50/60, 3.1A Max; Output: See Test Report for details
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	SMT
Model / Type Ref. Ref. De type	CHD250PSXXYY See Page 2
Additional information (if necessary may also be reported on page 2) Les informations complémentaires (si nécessaire,, peuvent être indiqués sur la 2ème page	Additionally evaluated to EN 60601-1:2006/ A1:2013/ A12:2014. National Differences specified in the CB Test Report. ☐ 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 60601-1(ed.3), IEC 60601-1(ed.3);am1
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	E146893-D1002-1-ULCB issued on 2015-03-31

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: 2015-04-29

Signature:

Jolanta M. Wroblewska

Ref. Certif. No.

US-25084-UL

Model Details:
CHD250PSXXYY (where the "XX" can be any number between 12 to 48 indicating main output voltage, "YY" can be SF or blank indicating Single Fuse), may also be provided with additional suffixes "-S", "-C", "-L", and/or "A"

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

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

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

- [x] 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: 2015-04-29

Signature:

Jolanta M. Wroblewska

Test Report issued under the responsibility of:

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

Report Reference No.....:	E146893-D1002-1-ULCB
Date of issue.....:	2015-03-31
Total number of pages.....:	343
CB Testing Laboratory.....:	UL Camas
Address.....:	2600 N.W. Lake Road, Camas, WA, 98607, USA
Applicant's name .....:	XP POWER LLC
Address.....:	15641 Red Hill Ave., Ste. 100 Tustin, CA 97280 USA
Test specification:	
Standard .....:	IEC 60601-1: 2005 + CORR. 1:2006 + CORR. 2:2007 + AM1:2012 (or IEC 60601-1: 2012 reprint)
Test procedure.....:	CB Scheme
Non-standard test method……..:	N/A
Test Report Form No.....:	IEC60601_1J
Test Report Form Originator.....:	UL(US)
Master TRF.....:	2014-07

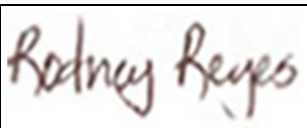
This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

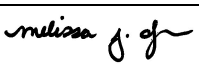
General disclaimer:

The test results presented in this report relate only to the object tested.

This report shall not be reproduced, except in full, without the written approval of the Issuing CB testing laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test item description:	Component power supply
Trade Mark:	Refer to Marking Label enclosure
Manufacturer:	Same as Applicant
Model/Type reference:	CHD250PSXXYY, (where the "XX" can be any number between 12 to 48 indicating main output voltage, "YY" can be SF or blank indicating Single Fuse), may also be provided with additional suffixes "-S", "-C", "-L", and/or "A"
Ratings:	Input: 100-240Vac, 50/60Hz, 3.1A Max; Output: See Model Differences & Miscellaneous Enclosure for details

Testing procedure and testing location:		
[ ] CB Testing Laboratory:		
Testing location/ address:	UL Camas 2600 N.W. Lake Road, Camas, WA, 98607, USA	
[ ] Associated CB Testing Laboratory:		
Testing location/ address:		
Tested by (name + signature):	Bernadette Matsuoka	
Approved by (name + signature):	Melissa DeGuia	
[ ] Testing procedure: TMP/CTF Stage 1:		
Testing location/ address:		
Tested by (name + signature):		
Approved by (name + signature):		
[ ] Testing procedure: WMT/CTF Stage 2:		
Testing location/ address:		
Tested by (name + signature):		
Witnessed by (name + signature):		
Approved by (name + signature):		
[X] Testing procedure: SMT/CTF Stage 3 or 4:		
Testing location/ address:	XP POWER LLC, 15641 Red Hill Ave., Ste. 100, Tustin, CA 97280, USA	
Tested by (name + signature):	RODNEY REYES	
Witnessed by (name + signature):		

Approved by (name + signature):	TAC PHAM	
Supervised by (name + signature):	MELISSA DEGUIA	

List of Attachments (including a total number of pages in each attachment): Refer to Appendix A of this report. All attachments are included within this report.
Summary of testing
Tests performed (name of test and test clause): Testing location: *Refer to the Test List in Appendix D of this report if testing was performed as part of this evaluation.*
Summary of compliance with National Differences List of countries addressed: Austria, Korea, Republic of, USA, Canada, United Kingdom, Sweden

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.

Refer to the enclosure(s) titled Marking Plate in the Enclosures section in Appendix A of this report for a copy.

GENERAL INFORMATION	
Test item particulars:	
Classification of Installation and Use:	Building-in
Device Type:	Component
Intended Use Statement:	Component power supply intended to provided regulated power to medical equipment
Mode of Operation:	Continuous
Supply Connection:	For building-in
Accessories and detachable parts included:	None
Other Options Include:	None
Testing	
Date of receipt of test item(s) .....:	2014-06-06, 2015-02-25
Dates tests performed .....:	2014-06-13 to 2015-03-25
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)
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 point is used as the decimal separator. The Critical Component Table is located at the end of the Test Tables.	
Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:2012	
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 .....:	Yes
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 Sunnyvale CA 94085-2804 USA XP POWER (VIETNAM) CO LTD LOT D - 4Q - CN MY PHUOC 3 INDUSTRIAL PARK BEN CAT DISTRICT BINH DUONG VIETNAM XP POWER (KUNSHAN) LTD 230 BIN JIANG NAN RD ZHANGPU TOWN KUNSHAN JIANGSU, 215321 CHINA

GENERAL PRODUCT INFORMATION:

Report Summary

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

Refer to the Report Modifications page for any modifications made to this report.

Product Description

The product is a component AC-DC power supply for building-in, open frame type provided with a metal chassis, incorporating primary and SELV components.

Model Differences

All models in the Model CHD250PSXXYY 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 at 50°C.

Output Ratings:

CHD250PS12: 10.1Vdc to 13.5Vdc, 20.8A Max., 250 W Max.

CHD250PS15: 13.6Vdc to 17Vdc, 16.7A Max. 250 W Max.

CHD250PS18: 17.1Vdc to 21Vdc, 13.9A Max. 250 W Max.

CHD250PS24: 21.1Vdc to 26Vdc, 10.4A Max. 250 W Max.

CHD250PS28: 26.1Vdc to 31Vdc, 8.93A Max. 250 W Max.

CHD250PS33: 31.1Vdc to 33Vdc, 7.58A Max. 250 W Max.

CHD250PS36: 33.1Vdc to 42Vdc, 6.94A Max. 250 W Max.

CHD250PS48: 42.1Vdc to 54Vdc, 5.2A Max. 250 W Max.

See Miscellaneous enclosure Power Output Table for additional information regarding power output and the various configurations.

Suffix "SF" indicates single fuse provided in the line side of the primary.

Units provided with suffix "-C" provided with cover.

Units provided with suffix "-S" provided with screw terminal.

Units provided with suffix "-L" provided with input leads.

Units provided with suffix "-A" provided with 5V Stand-by output rated 5Vdc, 1A.

Additional Information

Marking label is representative of all models.

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

The required clearance values have been assessed for suitability up to 5000 m elevation

The testing was conducted at XP POWER LLC, 1241 E DYER RD, SUITE 150, SANTA ANA, CA 92705,

USA. The client moved to 15641 Red Hill Ave., Ste. 100, Tustin, CA 97280 in December 2014 and has been re-audited as an SMT at this location.

Technical Considerations

- The product was investigated to the following additional standards: ANSI/AAMI ES60601-1:2005/(R)2012, CSA CAN/CSA-C22.2 NO. 60601-1:14, EN 60601-1:2006/A1:2013/A12:2014
- The following additional investigations were conducted: None
- The product was not investigated to the following standards or clauses: Electromagnetic Compatibility (IEC 60601-1-2), Clause 14, Programmable Electronic Systems, Biocompatibility (ISO 10993-1)
- The following accessories were investigated for use with the product: None
- 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
- 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
- The power supply was evaluated for use in 50°C ambient at Full Rated Output and see Enclosure Miscellaneous for additional ratings and various configurations

Engineering Conditions of Acceptability

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

The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-Secondary: 292 Vrms, 478 Vpk, Primary-Earthed Dead Metal: 240 Vrms, 420 Vpk and for Models CHD250PSXXYY, where XX is 5 to 36, Secondary to Ground at 250Vrms, 354Vpk

The power supply terminals and/or connectors are: Not investigated for field wiring

The maximum investigated branch circuit rating is: 20A

The investigated Pollution Degree is: 2

Proper bonding to the end-product main protective earthing termination is: Required

An investigation of the protective bonding terminals has: Not been conducted

The following input terminals/connectors must be connected to the end-product supply neutral: Input

Connector (CON1) N terminal.

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): T1, T2, T3, T1-Standby (Class F, 155°C)

The following end-product enclosures are required: Mechanical, Fire, Electrical

Suitable disconnect device is to be provided in the end system

Temperature, Leakage and Dielectric Strength testing shall be considered in the end system

Printed Wiring Board rated 130°C.

Heatsinks are floating and considered live. They should not be accessible in the end-product

Heating test was not conducted on unit with input/output leads. If unit is provided with input and/or output leads, then temperature on leads must be measured and cannot exceed 105°C

These components have been judged on the basis of the required spacings in the ANSI/AAMI ES60601-1 (2005 + C1:09 + A2:10 +A1:2012) (Medical Electrical Equipment - Part 1: General Requirements for Basic Safety and Essential Performance), CAN/CSA-C22.2 No. 60601-1 (2008) + CSA C22.2 No. 60601-1:2014 (Medical Electrical Equipment - Part 1: General Requirements for Basic Safety and Essential Performance), which covers the end-use product for which the component was designed, IEC 60601-1, Edition 3.1, EN 60601-1:2006/A1:2013/A12:2014

Clearance spacing evaluated for 5000 m altitude. Additional consideration maybe necessary in the end-use product

Units provided with additional suffix “SF”, provided with only one fuse. The need for additional fusing shall be determined as part of the end product

The power supplies were evaluated as having 2 MOPP between primary-to-secondary for 292Vrms, 478Vpk, and 1 MOPP between primary-to-ground for 240Vac and 420Vpk. Models CHD250PSXX-YY where XX is 12 to 36 only were also evaluated for 2 MOPP between secondary to ground for working voltage of 42Vdc and 1 MOPP for a working voltage of 250Vrms between secondary and earth for BF output considerations.

Overcurrent releases of adequate breaking capacity must be employed in the end product

The legibility and durability of Marking Test shall be conducted as part of the end product investigation.

Ref. Certif. No.

US-24655-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

CB TEST CERTIFICATE

CERTIFICAT D'ESSAI OC

Product Produit	Switching Power Supply
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, USA
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, USA
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 2ème page*	XP POWER INC 990 BENECIA AVE SUNNYVALE CA 94085-2804 UNITED STATES ☒ Additional Information on page 2
Ratings and principal characteristics Valeurs nominales et caractéristiques principales	Input: 100-240 Vac; 50/60Hz; 3.1 Max. Output: See Model Differences for details.
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	SMT
Model / Type Ref. Ref. De type	CHD250PSXXYY See Page 2
Additional information (if necessary may also be reported on page 2) Les informations complémentaires (si nécessaire,, peuvent être indiqués sur la 2ème page	Additionally evaluated to EN 60950-1:2006 / A11:2009 / A1:2010 / A12:2011 / A2:2013; National Differences specified in the CB Test Report. ☐ 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-A144-CB-1 issued on 2015-02-17

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: 2015-02-17

Signature:

Jolanta M. Wroblewska

Ref. Certif. No.

US-24655-UL

Model Details:
CHD250PSXXYY (where the "XX" can be any number between 12 to 48 indicating main output voltage, "YY" can be SF or blank indicating Single Fuse), may also be provided with additional suffixes "-S", "-C", "-L", and/or "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 215321
CHINA

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

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

Date: 2015-02-17

Signature:

Jolanta M. Wroblewska

Test Report issued under the responsibility of:

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

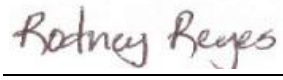
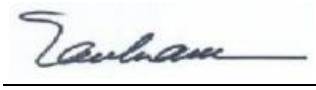
Report Reference No ..... :	E139109-A144-CB-1
Date of issue ..... :	2015-02-17
Total number of pages ..... :	85
CB Testing Laboratory ..... :	UL San Jose
Address ..... :	455 E. Trimble Rd., San Jose, CA, 95131-1230, USA
Applicant's name ..... :	XP POWER L L C
Address ..... :	15641 RED HILL AVE, SUITE 100 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

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.

General disclaimer

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

Test item description ..... :	Switching Power Supply
Trade Mark ..... :	
Manufacturer ..... :	XP POWER L L C 15641 RED HILL AVE, SUITE 100 TUSTIN CA 92780 UNITED STATES
Model/Type reference ..... :	CHD250PSXXYY, (where the "XX" can be any number between 12 to 48 indicating main output voltage, "YY" can be SF or blank indicating Single Fuse), may also be provided with additional suffixes "-S", "-C", "-L", and/or "A".
Ratings ..... :	Input: 100-240 Vac, 50/60Hz, 3.1 Max. Output: See Model Differences for details.

Testing 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/CTF Stage 1**	
	Testing location / address .....:	
	Tested by (name + signature) .....:	
	Approved by (name + signature)....:	
[ ]	**Testing Procedure: WMT/CTF Stage 2**	
	Testing location / address .....:	
	Tested by (name + signature) .....:	
	Witnessed by (name + signature) ..:	
	Approved by (name + signature)....:	
[x]	**Testing Procedure: SMT/CTF Stage 3 or 4**	
	Testing location / address .....:	XP Power LLC, Suite 150, 1241 E. Dyer Rd., Santa Ana, CA 92705 USA
	Tested by (name + signature) .....:	Rodney Reyes 
	Approved by (name + signature)....:	Tac Pham 
	Supervised by (name + signature) .:	Gregory Gatt 
[ ]	**Testing Procedure: RMT**	
	Testing location / address .....:	
	Tested by (name + signature) .....:	
	Approved by (name + signature)....:	
	Supervised by (name + signature) .:	

List of Attachments
National Differences (48 pages)
Enclosures (89 pages)
Summary Of Testing Unless otherwise indicated, all tests were conducted at XP Power LLC, Suite 150, 1241 E. Dyer Rd., Santa Ana, CA 92705 USA.
Tests performed (name of test and test clause) **Testing location / Comments**

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

Input: Single-Phase (1.6.2)

Durability of Marking (1.7.11)

Energy Hazard Measurements (2.1.1.5, 2.1.2, 1.2.8.10)

Capacitance Discharge (2.1.1.7)

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

Protective Bonding I (2.6.3.4, 2.6.1)

Humidity (2.9.1, 2.9.2, 5.2.2)

Determination of Working Voltage; Working Voltage Measurement (2.10.2)

Transformer and Wire /Insulation Electric Strength (2.10.5.13)

Heating (4.5.1, 1.4.12, 1.4.13)

Ball Pressure (4.5.5, 4.5)

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

Electric Strength (5.2.2)

Component Failure (5.3.1, 5.3.4, 5.3.7)

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

Power Supply Output Short-Circuit/Overload (5.3.7)

Summary of Compliance with National Differences:

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

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

The product fulfills the requirements of: 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 - Refer to Enclosure titled Marking Plate for copy.

Test item particulars :	
Equipment mobility ..... :	for building-in
Connection to the mains ..... :	for building-in
Operating condition ..... :	continuous
Access location ..... :	for building-in
Over voltage category (OVC) ..... :	OVC II
Mains supply tolerance (%) or absolute mains supply values ..... :	+10%, -10%
Tested for IT power systems ..... :	Yes
IT testing, phase-phase voltage (V) ..... :	230
Class of equipment ..... :	Class I
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) ..... :	0.394 without cover; 0.582 with cover
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 ..... :	2014-12-22
Date(s) of Performance of tests ..... :	2015-01-12
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 IECEE 02:	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 SUNNYVALE CA 94085-2804 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 215321 CHINA

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

GENERAL PRODUCT INFORMATION:

Report Summary

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

Product Description

The models covered in this report are component power supplies intended for use in Information Technology Equipment. They are open frame power supplies intended for building-in.

Model Differences

All models in the Model CHD250PSXX-YY 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 at 50°C:

Output Ratings:
CHD250PS12: 10.1Vdc to 13.5Vdc, 20.8A Max., 250 W Max.
CHD250PS15: 13.6Vdc to 17Vdc, 16.7A Max. 250 W Max.
CHD250PS18: 17.1Vdc to 21Vdc, 13.9A Max. 250 W Max.
CHD250PS24: 21.1Vdc to 26Vdc, 10.4A Max. 250 W Max.
CHD250PS28: 26.1Vdc to 31Vdc, 8.93A Max. 250 W Max.
CHD250PS33: 31.1Vdc to 33Vdc, 7.58A Max. 250 W Max.
CHD250PS36: 33.1Vdc to 42Vdc, 6.94A Max. 250 W Max.
CHD250PS48: 42.1Vdc to 54Vdc, 5.2A Max. 250 W Max.

See Miscellaneous enclosure Power Output Table for additional information regarding power output and the various configurations.

Suffix "SF" indicates single fuse provided in the line side of the primary.

Units provided with suffix "-C" provided with cover.

Units provided with suffix "-S" provided with screw terminal.

Units provided with suffix "-L" provided with input leads.

Units provided with suffix "-A" provided with 5V Stand-by output rated 5Vdc, 0.5A.

Additional Information

The required clearance values have been assessed for suitability up to 5000 m elevation (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.

The nameplate markings provided as an Enclosure - Marking Plate are considered representative of the entire series.

The power supply series covered by this report employ Double/Reinforced Insulation between Primary and Secondary circuits.

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 50°C at full rated load and 70°C at half rated load. See Miscellaneous enclosure - "Power Output Table" for additional information regarding power output and the various configurations.
- The means of connection to the mains supply is: for building-in, to be determined in end-product.
- The product is intended for use on the following power systems: TN, IT
- The equipment disconnect device is considered to be: for building-in, to be determined in end-product.
- The product was investigated to the following additional standards: EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013 (which includes all European national differences, including those specified in this test report).

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, Earthing Continuity
- The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-SELV: 289 Vrms, 475 Vpk, Primary-Earthed Dead Metal: 240 Vrms, 420 Vpk
- The following secondary output circuits are at hazardous energy levels: All
- The power supply terminals and/or connectors are: Not investigated for field wiring
- The maximum investigated branch circuit rating is: 20A
- The investigated Pollution Degree is: 2
- Proper bonding to the end-product main protective earthing termination is: Required
- An investigation of the protective bonding terminals has: Not been conducted
- The following input terminals/connectors must be connected to the end-product supply neutral: Input Connector (CON1) N terminal.
- 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): T1, T2, T3, T1-Standby (Class F, 155°C)

- The following end-product enclosures are required: Mechanical, Electrical
- Suitable disconnect device is to be provided in the end system. --
- Temperature, Leakage and Dielectric Strength testing shall be considered in the end system. --
- According to IEC60664-1, Table A2, required Clearances have been adjusted by multiplying the clearance at sea level by a factor of 1.48 for operating at an altitude of 5000 meters. The correction factor is based on barometric pressure of 70kPa and Overvoltage Category II. If the calculated Clearance exceeded the Creepage, the Creepage was adjusted to the value of clearance. No other additional requirements were considered at this time as they are not explicitly addressed in UL 60950-1. --
- Printed Wiring Board rated 130°C. --
- The equipment is provided with a fuse in both the Line and Neutral of the primary circuit. The need for a marking warning service person of the hazards associated with neutral fusing shall be considered in the end-product. --
- Heatsinks are floating and considered live. They should not be accessible in the end-product. --
- Heating test was not conducted on unit with input/output leads. If unit is provided with input and/or output leads, then temperature on leads must be measured and cannot exceed 105°C. --

Abbreviations used in the report:

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

Indicate used abbreviations (if any)