Ref. Certif. No.

US-24048-A1-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 Switching Power Supply
Name and address of the applicant Nom et adresse du demandeur	XP Power LLC Suite 100, 15641 Red Hill Ave, Tustin, CA 92780 USA
Name and address of the manufacturer Nom et adresse du fabricant	XP Power LLC Suite 100, 15641 Red Hill Ave, 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 LLC, 990 Benecia Ave, Sunnyvale CA 94085, USA ☒ 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)	
Type of Manufacturer's Testing Laboratories used Type de programme du laboratoire d'essais constructeur	
Model / Type Ref. Ref. De type	GCS150PSxxKyy, GCS150PSxxyy, GCS180PSxxyy 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	4786488107-20140916 issued on 2015-04-02

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: 2015-04-27
Original Issue Date: 2014-10-09

Signature:

Jolanta M. Wroblewska

Ref. Certif. No.

US-24048-A1-UL

Model Details:
GCS150PSxxKyy,GCS150PSxxyy (where xx can be any number between 12 and 48 and yy is "-C", "-TF", "-EF" or blank and may be preceded by "-R"; all "-" considered optional; may also be provided with additional suffix "SF" or "S")
GCS180PSxxyy (where xx can be any number between 12 and 48 and yy is "-C", "-TF", "-EF", or blank and may be preceded by "-R"; all "-" considered optional; may also be provided with additional suffix "SF"or "S")

Factories:
XP Power (Kunshan) Limited.,
230, Bin Jiang Nan Road, Zhang Pu Town, Kunshan, Jiangsu 215300
China

Ratings:
GCS150PSxxyy and GCS150PSxxKyy series
Input: 100-240 Vac, 50/60 Hz, 1.8A
Output: See Test Report - Model Differences for details

GCS180PSxxyy series
Input: 100-240 Vac, 50/60 Hz, 2.2A
Output: See Test Report - Model Differences for details

Additional Information:
The original report was modified to include the following changes/additions:
Modify model description, applicant/manufacturer address, critical components table and enclosures information, 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

Date: 2015-04-27
Original Issue Date: 2014-10-09

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. .....:	4786488107-20140916
Date of issue .....:	2014-09-16; Amendment 1: 2015-04-02
Total number of pages .....:	25
CB Testing Laboratory .....:	UL Camas
Address .....:	2600 NW Lake Rd., Camas, WA 98607, USA
Applicant's name .....:	XP Power LLC
Address .....:	Suite 100, 15641 Red Hill Ave, Tustin, CA 92780 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

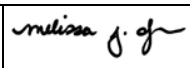
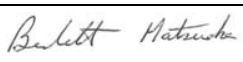
If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.

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.

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 Switching Power Supply
Trade Mark .....:	
Manufacturer.....:	XP Power LLC, Suite 100, 15641 Red Hill Ave, Tustin, CA 92780 USA
Model/Type reference.....:	GCS150PSxxyy and GCS150PSxxKyy (where xx can be any number between 12 and 48 and yy is "-C", "-TF", "-EF" or blank and may be preceded by "-R"; all "-" considered optional; may also be provided with additional suffix "SF" or "S") GCS180PSxxyy(where xx can be any number between 12 and 48 and yy is "-C", "-TF", "-EF", or blank and may be preceded by "-R"; all "-" considered optional; may also be provided with additional suffix "SF"or "S")
Ratings .....:	GCS150PSxxyy and GCS150PSxxKyy series Input: 100-240 Vac, 50/60 Hz, 1.8A Output: See Model Differences for details GCS180PSxxyy series Input: 100-240 Vac, 50/60 Hz, 2.2A Output: See Model Differences for details

Testing procedure and testing location:			
☒	**CB Testing Laboratory:**		
Testing location/ address.....		UL Camas 2600 NW Lake Road, Camas, WA 98607 USA	
☐	**Associated CB Testing Laboratory:**		
Testing location/ address.....			
Tested by (name + signature)		Melissa DeGuia	
Approved by (name + signature)		Bernadette Matsuoka	
☐	**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)		
☐ Testing procedure: SMT/CTF Stage 3 or 4:		
Testing location/ address.....		
Tested by (name + signature)		
Witnessed by (name + signature)		
Approved by (name + signature)		
Supervised by (name + signature).....		

List of Attachments (including a total number of pages in each attachment):

Enclosure (91 pages)

Summary of testing: N/A

Tests performed (name of test and test clause): **Testing location:**

N/A

Summary of compliance with National Differences

List of countries addressed:

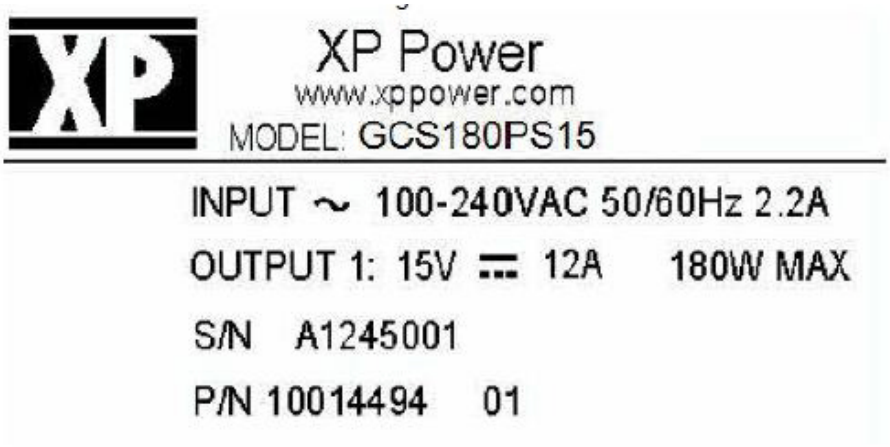
US, CAN, AUSTRIA, REPUBLIC OF KOREA, SWEDEN and UNITED KINGDOM

☒ The product fulfils the requirements of IEC 60601-1:2005, Edition 3 with Am. 1

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.

Labels provided are considered representative of the entire series



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	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)..... :	N/A
Dates tests performed ..... :	N/A
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 (collateral standards only)
- 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 ☐ comma / ☒ point is used as the decimal separator.**	
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** ☐ **Not applicable**
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, USA XP Power (Kunshan) Limited., 230, Bin Jiang Nan Road, Zhang Pu Town, Kunshan, Jiangsu 215300 China

General product information:

Report Summary: The following revisions were made to this Report on 2015-04-02:

Amendment 1:
1. Update the Applicant and Manufacturer address from Santa Ana, CA to Tustin, CA due to a move.
2. Removal of the "-L" option from the suffix list as Flyleads can be provided in any of the models.
3. Revise the CCL Bridging Capacitors (C20, C21) as Optional.
4. Update Technical Description of all Y-capacitors to inculde 'Y2".
5. Add alternate PWB layouts which updated secondary/non-safety critical layout and spacings.

Product Description
The model covered in this report is a component power supply intended for use in Medical Electrical Equipment. It is an open frame power supply intended for building-in Class I or Class II end-products. The Double insulated symbol (symbol 9 of Table D.1 - IEC 6017-5172) is optionally provided. Earthing (ground) symbol (Symbol 6 from Table D.1- IEC 60417-5017) may only be provided for Class I power supplies.

Model Differences

Model GCS150PSxx series and Model GCS180PSxx are identical with the exception to input ratings, power output, the shape of the Primary Heatsink, and minor differences in the PWB layout.

All models in the Model GCS150PSxx series and Model GCS180PSxx 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 Below. The values below are max power output with forced air cooling with a 7cfm fan at 50°C, see Miscellaneous Enclosure 7-02 for Output Rating Table:

Model No.	Output Voltage (Vdc)	Max. Output Current (A)	Max. Output Power (W)
GCS150PS12	10.1 to 13.5	12.5	150
GCS150PS15	13.6 to 17	10.0	150
GCS150PS18	17.1 to 21	8.3	150
GCS150PS24	21.1 to 26	6.3	150
GCS150PS28	26.1 to 31	5.4	150
GCS150PS33	31.1 to 33	4.5	150
GCS150PS36	33.1 to 42	4.2	150
GCS150PS48	42.1 to 54	3.2	150
GCS180PS12	10.1 to 13.5	15.0	180
GCS180PS15	13.6 to 17	12.0	180
GCS180PS18	17.1 to 21	10.0	180
GCS180PS24	21.1 to 26	7.5	180
GCS180PS28	26.1 to 31	6.4	180
GCS180PS33	31.1 to 33	5.5	180
GCS180PS36	33.1 to 42	5.0	180
GCS180PS48	42.1 to 54	3.75	180

See Enclosure - Miscellaneous for de-rated output values for higher ambient.
See Enclosure - Miscellaneous for max Power Outputs based on model, ambient, and forced air cooling.

Units provided with suffix "R" is remote inhibit.
Units provided with suffix "C" is provided with cover.
Units provided with suffix "TF" is provided with top fan.
Units provided with suffix "EF" is provided with end fan.
Units provided with suffix "K" can operate at full power at an ambient of 40°C.
Units provided without suffix "C", "TF" or "EF" is open frame (without cover).
Units provided with additional suffix "SF" to indicate single pole fusing.
Units provided with additional suffix "S" to indicate screw terminal block.

Additional Information

No additional testing was deemed necessary to evaluate the models covered under this Report to IEC 60601-1:2005 Edition 3 with Am.1 based on previously conducted testing and the review of product technical documentation including photos, schematics, wiring diagrams, etc. conducted under separate CB Scheme investigation to IEC 60601-1, 3rd ed issued under CBTR No. E146893-A44-CB-1 and CBTC No. US-21274-UL.

Marking Plate is considered representative of all models covered under this Report.

The clearance distances have additionally been assessed for suitability up to 5000 m elevation.

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 Licenses for component licenses greater than 3 years upon request.

Technical Considerations

- The product was investigated to the following additional standards: ANSI/AAMI ES60601-1:2005/C1:2009 +AM1(R2012) (includes National Differences for USA); CAN/CSA-C22.2 No. 60601-1:14 (includes National Differences for Canada), EN 60601-1:2006 / A1:2013 / A12:2014, IEC 60601-1: 2005, 3rd Edition with Am. 1

- 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)

- 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)

- 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 50% of the Rated Output in 70°C ambient. (See De-rating Curve, Enclosure 7-01 for details)

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.

- Repeat of leakage current testing and consideration of non-frequency weighted leakage current test (Clause 8.7.3e) shall be considered in the end product application.

- 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 Dielectric Strength Test conducted on this power supply was based upon a maximum working voltage of 353 Vpk, 250 Vrms from Primary-Earthed Dead Metal, 528 Vpk, 298 Vrms from Primary-Secondary for Models GCS180PSxx series; and 356 Vpk, 244 Vrms for Primary-Earthed Dead Metal; 509Vpk, 287Vrms from Primary-secondary for Model GCS150PSxx series.

- The output connectors are not acceptable for field connections; they are only intended for connection to mating connectors of the end-use equipment.

- The maximum investigated branch circuit rating is: 20 A

- Model GCS180PSxx series: Power supply provides the following MOPP (means of patient protection): two MOPP based upon a working voltage 298 Vrms, 528 Vpk between Primary to Secondary, one MOPP based upon a working voltage 250 Vrms, 353 Vpk between Primary and Earth/Enclosure, two MOPP based upon a working voltage 48Vdc between secondary to floated earth trace on PWB for BF output consideration, one MOPP based upon a working voltage 250 Vrms between secondary and earthing trace or chassis for BF output consideration.

- Model GCS150PSxx series: Power supply provides the following MOPP (means of patient protection): two MOPP based upon a working voltage 287 Vrms, 509 Vpk between Primary to Secondary, one MOPP based upon a working voltage 244 Vrms, 356 Vpk between Primary and Earth/Enclosure, two MOPP based upon a working voltage 48Vdc between secondary to floated earth trace on PWB for BF output consideration, one MOPP based upon a working voltage 250 Vrms between secondary and earthing trace or chassis for BF output consideration.

- For Class I applications: Unit to be properly bonded to end product main protective earth.

- When installed in a Class I end product, the power supply shall be mounted in a manner that provides, at a minimum, 3.2 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.

- Proper bonding to the Class I end-product main protective earthing termination is required (via mounting holes on the PCB), unless for Class II applications. For Class II applications the primary side mounting pads are isolated from accessible conductive chassis by Reinforced Insulation

- 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, L4 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.
- Unit provided with additional suffix "-SF" are provided with only one fuse in the line side. Consideration for the need for additional fusing to be provided as part of the end product
- 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
- Unit has been subjected to 5 day humidity condition test at 93%, 40°C.

Ref. Certif. No.

US-23765-A1-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 Switching Power Supply
Name and address of the applicant Nom et adresse du demandeur	XP Power LLC 15641 Red Hill Ave., Ste. 100 Tustin, CA 92708 USA
Name and address of the manufacturer Nom et adresse du fabricant	XP Power LLC 15641 Red Hill Ave., Ste. 100 Tustin, CA 92708 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 LLC 990 BENECIA AVE SUNNYVALE CA 94085 UNITED STATES ☒ Additional Information on page 2
Ratings and principal characteristics Valeurs nominales et caractéristiques principales	GCS250PSxxyy series Input: 100-240 Vac, 50/60 Hz, 3A 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	
Model / Type Ref. Ref. De type	GCS250PSxxyy 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 ; 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	4786488108-4 issued on 2015-03-30

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: 2015-04-22
Original Issue Date: 2014-08-15

Signature:

Jolanta M. Wroblewska

Ref. Certif. No.

US-23765-A1-UL

Model Details:
GCS250PSxxyy (where xx can be any number between 12 and 56 and yy is "-C", "-TF", "-EF" or blank; all "-" considered optional; may also be provided with additional suffix "SF", "S", "R" or "L")

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:
Correct report and update Applicant and Manufacturer address.

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: 2015-04-22
Original Issue Date: 2014-08-15

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.....:	**4786488108-4**
Date of issue .....:	**2014-08-06;**
	Amended: 2015-03-30
Total number of pages.....:	**126**
CB Testing Laboratory.....:	**UL Camas**
Address .....:	**2600 NW Lake Road Camas, WA 98607 USA**
Applicant's name.....:	**XP Power LLC**
Address .....:	**15641 Red Hill Ave., Ste. 100 Tustin, CA 92708 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……..:	
Test Report Form No.....:	**IEC60601_1I**
Test Report Form Originator .....:	**UL (US)**
Master TRF .....:	**2014-03**

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 Switching Power Supply	
Trade Mark.....:		
Manufacturer.....:	XP Power LLC 15641 Red Hill Ave., Ste. 100 Tustin, CA 92708 USA	
Model/Type reference.....:	GCS250PSxxyy (where xx can be any number between 12 and 56 and yy is "-C", "-TF", "-EF" or blank; all "-" considered optional; may also be provided with additional suffix "SF", "S", "R" or "L")	
Ratings.....:	GCS250PSxxyy series Input: 100-240 Vac, 50/60 Hz, 3A Output: See Model Differences for details	
Testing procedure and testing location:		
☒ **CB Testing Laboratory:**	UL Camas	
Testing location/ address	2600 NW Lake Road Camas, WA 98607 USA	
☐ **Associated CB Testing Laboratory:**		
Testing location/ address		
Tested by (name + signature).....	Melissa DeGuia	melissa j. deGuia
Approved by (name + signature)	Bernadette Matsuoka	Bernadette Matsuoka
☐ **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)		
☐ **Testing procedure: SMT/CTF Stage 3 or 4:**		
Testing location/ address		

Tested by (name + signature).....		
Witnessed by (name + signature)		
Approved by (name + signature)		
Supervised by (name + signature).....		

List of Attachments (including a total number of pages in each attachment):

Enclosures (57 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.

All testing conducted under the Applicant's IEC 60601-1, 3rd Ed investigation issued under CBTR No. E146893-A49-CB-1, CBTC No. US-22757-UL was consider to cover the requirements of IEC 60601-1, Edition 3 with Am. 1.

Tests performed (name of test and test clause):	**Testing location:**
Power Input Test (4.11) Humidity Preconditioning Treatment (5.7) Voltage or Charge Limitation (8.4.3) Working Voltage Measurement (8.4.2) Dielectric Voltage Withstand (8.8.3) Ball Pressure (8.8.4.1) Temperature Test (11) Abnormal Operation and Single Fault Conditions (13) Transformer Overload and Short-Circuit Tests (15.5.1) Leakage Current Test (8.7)	XP Power LLC Suite 150 1241 E Dyer Road Santa Ana, CA 92705 USA

Summary of compliance with National Differences

List of countries addressed: Austria, Canada, Republic of Korea, Sweden, UK, USA

☒ The product fulfils the requirements of IEC 60601-1, Edition 3 with Am. 1.

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.

See Enclosures – Marking Plate 13-03, 13-04

GENERAL INFORMATION

Test item particulars (see also Clause 6):

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 to medical devices
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) .....:	2013-10-24, 2014-05-01
Dates tests performed .....:	2013-10-24 to 2013-12-11, 2014-05-02 to 2014-05-05

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 (collateral standards only)
- 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 ☐ comma / ☒ point is used as the decimal separator.

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

☐ Not applicable

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 RD ZHANGPU TOWN KUNSHAN JIANGSU 215321 CHINA

Report Summary:

The Report was amended on 2015-03-30 with the following:

1. Correction to the working voltages (Vrms and Vpk) identified in the Insulation Diagram Table. Measured voltages were less than the rated voltage, so requirements were based off of declared ratings.
2. Correct Conditions of Acceptability referring to working voltages based on Correction #1 above.
3. Correction to Working Voltages used to determine test values for Table 8.8.3.
4. Update the Applicant and Manufacturer address from Santa Ana, CA to Tustin, CA due to move effective Jan. 2015.

No testing was conducted as all test information is from original Test Report issued 2014-08-06.

General product information:

The model covered in this report is a component power supply intended for use in Medical Electrical Equipment. It is an open frame power supply intended for building-in Class I or Class II end-products. The Double insulated symbol (symbol 9 of Table D.1 - IEC 6017-5172) is optionally provided. Earthing (ground) symbol (Symbol 6 from Table D.1- IEC 60417-5017) may only be provided for Class I power supplies.

Model Differences:

All models in the Model GCS250PSXX series are identical with exception to the Mains Transformer, T1, shape of Heatsink (SEC) and secondary components/circuitry that allow for different output voltage ratings. See below for minor variations within the series.

Models GCS250PS12 to GCS250PS18 are identical to models GCS250PS24 to GCS250PS56 except for secondary output circuitry and secondary heatsink.

Models GCS250PS24 to GCS250PS36 are identical to models GCS250PS48 to GCS250PS56 except for secondary heatsink.

See below for Model Ratings:

Model GCS250PS12: Output Rated: 10.1 Vdc - 13.5 Vdc, 18.7 A Max., 225 W Max.
Model GCS250PS15: Output Rated: 13.6 Vdc - 17 Vdc, 15 A Max., 225 W Max.
Model GCS250PS18: Output Rated: 17.1Vdc - 21 Vdc, 13.9A Max, 250V Max
Model GCS250PS24: Output Rated: 21.1 Vdc - 26 Vdc, 10.4 A Max., 250 W Max.
Model GCS250PS28: Output Rated: 26.1 Vdc - 31 Vdc, 8.9 A Max., 250 W Max.
Model GCS250PS33: Output Rated: 31.1 Vdc - 33 Vdc, 7.6 A Max., 250 W Max.
Model GCS250PS36: Output Rated: 33.1 Vdc - 42 Vdc, 6.9 A Max, 250 W Max.
Model GCS250PS48: Output Rated: 42.1 Vdc - 54 Vdc, 5.2 A Max., 250 W Max.
Model GCS250PS56: Output Rated: 54.1 Vdc - 63.2 Vdc, 4.5 A Max., 250 W Max.

Units provided with suffix "C" is provided with cover.
Units provided with suffix "TF" is provided with top fan.
Units provided with suffix "EF" is provided with end fan.
Units provided without suffix "C", "TF" or "EF" is open frame (without cover).
Units provided with additional suffix "SF" to indicate single pole fusing.
Units provided with additional suffix "S" to indicate screw terminal block.
Units provided with additional suffix "L" to indicate fly leads.
Units provided with suffix “R” is remote inhibit

See Enclosure - Miscellaneous for max Power Outputs based on model, ambient, and forced air cooling.

Additional Information:

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

No additional testing was deemed necessary to evaluate the models covered under this Report to IEC 60601-1, Edition 3 with Am.1 based on previously conducted testing and the review of product technical documentation including photos, schematics, wiring diagrams, etc. conducted under separate CB Scheme investigation to IEC 60601-1, 3rd ed issued under CBTR No. E146893-A49-CB-1, CBTC No. US-22757-UL.

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 + C1:09 + A2:10)+AM1 (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) +AM1 (2014) (Medical Electrical Equipment - Part 1: General Requirements for Basic Safety and Essential Performance) (includes National Differences for Canada), EN 60601-1 + AM1 (2013) (Medical electrical equipment Part 1: General requirements for basic safety and essential performance), IEC 60601-1, Edition 3 with Am. 1.
- 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 equipment has been evaluated for use in 50°C ambient at Full Rated Output and 50% of the Rated Output in 70°C ambient. (See De-rating Curve, Enclosure 7-01 for details)
- 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)
- The product is Classified only to the following hazards: Shock, Fire, Casualty
- The following accessories were investigated for use with the product: None
- Power Supply was considered Overvoltage Category II (OVCII)

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 current

(clause 8.7.3e) to be considered as part of the end product.

- 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 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 340 Vpk, 240 Vrms for Primary-Earthed Dead Metal; 340Vpk, 240Vrms from Primary-secondary.
- Power supply provides the following MOPP (means of patient protection): two MOPP based upon a working voltage 240 Vrms, 340 Vpk between Primary to Secondary, one MOPP based upon a working voltage 240Vrms, 340 Vpk between Primary and Earth/Enclosure, one MOPP based upon a working voltage 240 Vrms between secondary and earthing trace or chassis for BF output consideration.
- 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.
- The products were tested on a 20 A branch circuit. If used on a branch circuit greater than this, additional testing may be necessary.
- 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, L4 and T1 (Class F, 155°C)
- The PWB is rated 130°C.
- For Class I applications: Unit to be properly bonded to end product main protective earth.
- Units provided with single fuse in Line side, end product to determine the need for additional double pole fusing as part of the end product.
- Unit has been subjected to 5 day humidity condition test at 93%, 40°C.
- When installed in a Class I end product, the power supply shall be mounted in a manner that provides, at a minimum, 3.2 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.
- Proper bonding to the Class I end-product main protective earthing termination is required (via mounting holes on the PCB), unless for Class II applications. For Class II applications the primary side mounting pads are isolated from accessible conductive chassis by Reinforced Insulation
- Forced-air cooling with cover at 7 CFM shall be provided with the end product in order to achieve maximum power output.
- Device has been evaluated for a 5000 m altitude.
- Repeat of leakage current testing and consideration of non-frequency weighted leakage current (clause 8.7.3e) to be considered as part of the end product.

- Fire/ Mechanical/ Electrical Enclosure to be provided as part of the end product.
- 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.

Ref. Certif. No.

US-23991-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 Switching Power Supply
Name and address of the applicant Nom et adresse du demandeur	XP Power LLC Suite 150, 1241 E Dyer Road Santa Ana, CA 92705 USA
Name and address of the manufacturer Nom et adresse du fabricant	XP Power LLC Suite 150, 1241 E Dyer Road Santa Ana, CA 92705 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 LLC 990 BENECIA AVE SUNNYVALE CA 94085 USA ☒ Additional Information on page 2
Ratings and principal characteristics Valeurs nominales et caractéristiques principales	Input Rating: 100-240 Vac, 50/60 Hz, 3A Output Rating: 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	GCS265PSxxyy 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; 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	4786535864-20140925 issued on 2014-09-25

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: 2014-09-30

Signature:

Jolanta M. Wroblewska

Ref. Certif. No.

US-23991-UL

Model Details:
GCS265PSxxyy (where xx can be any number between 12 and 56 and yy is "-C", "-TF", "-EF" or blank; all "-" considered optional; may also be provided with additional suffix "SF", "S", "R" or "L")

Factories:
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

Date: 2014-09-30

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.....:	4786535864-20140925
Date of issue .....:	2014-09-25
	Correction 1: 2014-11-21
Total number of pages.....:	11
CB Testing Laboratory.....:	UL Camas
Address .....:	2600 NW Lake Rd., Camas, WA 98607, USA
Applicant's name.....:	XP Power LLC
Address .....:	Suite 150, 1241 E Dyer Road, Santa Ana, CA 92705 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 ..:	
Test Report Form No.....:	IEC60601_1J
Test Report Form Originator.....:	UL(US)
Master TRF .....:	2014-07

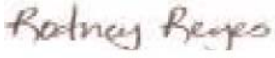
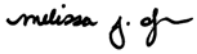
This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

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 Switching Power Supply
Trade Mark.....:	
Manufacturer.....:	XP Power LLC, Suite 150, 1241 E Dyer Road, Santa Ana, CA 92705 USA
Model/Type reference.....:	GCS265PSxxyy (where xx can be any number between 12 and 56 and yy is "-C", "-TF", "-EF" or blank; all "-" considered optional; may also be provided with additional suffix "SF", "S", "R" or "L")
Ratings.....:	Input Rating: 100-240 Vac, 50/60 Hz, 3A Output Rating: See Model Differences for details

Testing procedure and testing location:			
☐	**CB Testing Laboratory:**		
Testing location/ address			
☐	**Associated CB Testing 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)			
☒	**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	
Witnessed by (name + signature)		
Approved by (name + signature)	Tac Pham	
Supervised by (name + signature).....	Melissa DeGuai	

Summary of testing No testing conducted

Summary of compliance with National Differences

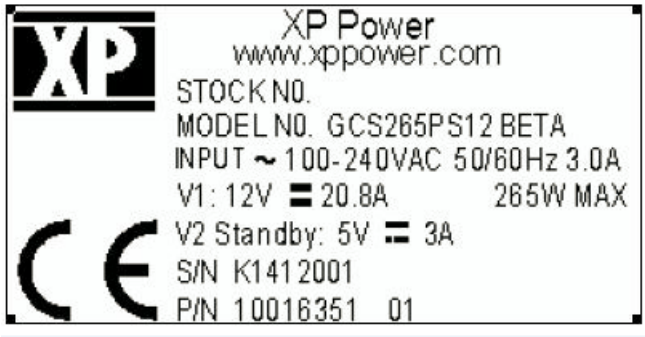
List of countries addressed: Austria, Canada, Republic of Korea, Sweden, United Kingdom and USA

☒ The product fulfils the requirements of IEC 60601-1, Edition 3.1 (2012)

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.

Marking plate below is considered representative of the entire series with the exception that “BETA” is not provided



GENERAL INFORMATION

Test item particulars (see also Clause 6):

Classification of installation and use ..... :	For 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	For building-in
Accessories and detachable parts included.....:	N/A
Other options include .....:	N/A

Testing

Date of receipt of test item(s) .....:	N/A
Dates tests performed .....:	N/A

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 (collateral standards only)
- 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.
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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 ☐ comma / ☒ point is used as the decimal separator.

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**
☐ **Not applicable**

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 RD., ZHANGPU TOWN, KUNSHAN, JIANGSU 215300 CHINA

General product information:

Report Summary
The original report was modified on 2014-11-21 to include the following changes/additions:
Correction 1: Correction to the V1 output current rating of Models GCS265PS15, GCS265PS18, GCS265PS33 and Model GCS265PS36 below.

The product is a component power supplies intended to be used as part of Medical Electrical 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 Model GCS265PSXX series are identical with exception to the Mains Transformer (T1) and secondary components/circuitry that allow for different output voltage ratings.

See Enclosure – Miscellaneous (7-01) for max Power Outputs based on model, ambient, and forced air cooling.

See below for Model Output Ratings:

Model GCS265PS12:
V1: 10.1 Vdc - 13.5 Vdc, 20.8 A Max. (250 W Max);
V2: 5 Vdc, 3A Max (15 W Max);
(Total Power: 265 W Max)

Model GCS265PS15:
V1: 13.6 Vdc - 17 Vdc, 16.7 A Max. (250 W Max);
V2: 5Vdc, 3A Max (15 W Max);
(Total Power: 265 W Max)

Model GCS265PS18:
V1: 17.1 Vdc - 21 Vdc, 13.9 A Max. (250 W Max);
V2: 5Vdc, 3A Max (15 W Max);
(Total Power: 265 W Max)

Model GCS265PS24:
V1: 21.1 Vdc - 26 Vdc, 10.4 A Max. (250 W Max);
V2: 5Vdc, 3A Max (15 W Max);
(Total Power: 265 W Max)

Model GCS265PS28:
V1: 26.1 Vdc - 31 Vdc, 8.9 A Max. (250 W Max);
V2: 5Vdc, 3A Max (15 W Max);
(Total Power: 265 W Max)

Model GCS265PS33:
V1: 31.1 Vdc - 33 Vdc, 7.6 A Max. (250 W Max);
V2: 5Vdc, 3A Max (15 W Max);
(Total Power: 265 W Max)

Model GCS265PS36:
V1: 33.1 Vdc - 42 Vdc, 6.9 A Max. (250 W Max);
V2: 5Vdc, 3A Max (15 W Max);
(Total Power: 265 W Max)

Model GCS265PS48:
V1: 42.1 Vdc - 54 Vdc, 5.2 A Max. (250 W Max);
V2: 5Vdc, 3A Max (15 W Max);

(Total Power: 265 W Max)

Model GCS265PS56:
V1: 54.1 Vdc - 63.2 Vdc, 4.5 A Max. (250 W Max);
V2: 5Vdc, 3A Max (15 W Max);
(Total Power: 265 W Max)

Units provided with suffix "C" is provided with cover.
Units provided with suffix "TF" is provided with top fan.
Units provided with suffix "EF" is provided with end fan.
Units provided without suffix "C", "TF" or "EF" is open frame (without cover).
Units provided with additional suffix "SF" to indicate single pole fusing.
Units provided with additional suffix "S" to indicate screw terminal block.
Units provided with suffix “R” is remote inhibit.
Units provided with additional suffix "L" to indicate fly leads.

Additional Information

The clearance distances have additionally been assessed for suitability up to 5000 m elevation

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

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

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 + C1:09 + A2:10+A1(R2012)) (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)+A1 (2014) (Medical Electrical Equipment - Part 1: General Requirements for Basic Safety and Essential Performance) (includes National Differences for Canada), IEC 60601-1: Edition 3.1, 2012-08, EN 60601-1: 2006 + CORR: 2010+A1 (2013) (Medical electrical equipment Part 1: General requirements for basic safety and essential performance.
- The product was not investigated to the following standards or clauses:: Electromagnetic Compatibility (IEC 60601-1-2), Biocompatibility (ISO 10993-1)
- 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)
- The product is Classified only to the following hazards: Casualty, Fire, Shock
- The degree of protection against harmful ingress of water is: Ordinary
- The mode of operation is: Continuous
- Software is relied upon for meeting safety requirements related to mechanical, fire and shock: No
- The product is suitable for use in the presence of a flammable anaesthetics mixture with air or oxygen or with nitrous oxide: No

Risk Controls/ Engineering Condition of Acceptability

For use only in or with complete equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc. When installed in an end-product, consideration must be given to the following:

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma)

permitted by the manufacturer's specification of: 50°C at 100% of Output Rating, 70°C at 50% of Output Rating. See ILL. 19 (Miscellaneous enclosure 7-01) Power Output Table for additional information regarding power output and the various configurations.

- The maximum continuous power supply output (Watts) relied on forced air cooling from: 7 cfm fan applied 1 inch from input side, blowing inward.
- 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.
- 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)
- Repeat of leakage current testing and consideration of non-frequency weighted leakage current (clause 8.7.3e) to be considered as part of the end product.
- The end product shall ensure that the requirements related to accompanying documents, clause 7.9, are met.
- The input/output connectors are not acceptable for field connections; they are only intended for connection to mating connectors of the end-use equipment.
- Power supply provides the following MOPP (means of patient protection):2 MOPP based upon a working voltage 336 Vpk, 240 Vrms between Primary to Secondary, one MOPP based upon a working voltage 352Vpk, 244 Vrms between Primary and Earth/Enclosure, and 1 MOPP based upon a working voltage 250Vac between secondary to earth trace on PWB.
- The Dielectric Strength Test conducted on this power supply was based upon a maximum working voltage of 352Vpk, 244 Vrms from Primary-Earthed Dead Metal, 336 Vpk, 240 Vrms from Primary-Secondary.
- 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.
- 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.
- The products were tested on a 20 A branch circuit. If used on a branch circuit greater than this, additional testing may be necessary.
- 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, L4, T1 and 5V Standby-Transformer (T1) are Class F, 155°C.
- The PWB is rated 130°C.
- For Class I applications: Unit to be properly bonded to end product main protective earth.
- Unit has been subjected to 5 day humidity condition test at 93%, 40°C.
- Fans: For models with the suffix "EF", the fan provided in this sub-assembly is not intended for operator access., For models with the suffix "TF", the fan provided in this sub-assembly is provided

with a fan guard to reduce the risk of operator contact with the stator.

- Heatsinks are floating and considered live. They should not be accessible in the end-product.
- Clearance spacing evaluated for 5000 m altitude. Additional consideration maybe necessary in the end-use 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.
- The following components require special consideration during end-product Thermal (Heating) tests due to the indicated maximum temperature measurements during component-level testing: Model GC265PS12: PCB@Q1 coil (130°C); C22 (Stand-by board) (105°C); C27 (105°C).
- An investigation of the protective bonding terminals has: Not been conducted
- Overcurrent releases of adequate breaking capacity must be employed in the end product.

Ref. Certif. No.

US-23730-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	Power supply for building-in, switch mode type
Name and address of the applicant Nom et adresse du demandeur	XP POWER L L C SUITE 150 1241 E DYER RD SANTA ANA CA 92705 UNITED STATES
Name and address of the manufacturer Nom et adresse du fabricant	XP POWER L L C SUITE 150 1241 E DYER RD SANTA ANA CA 92705 UNITED STATES
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 LLC 990 BENECIA AVE SUNNYVALE CA 94085 UNITED STATES ☒ Additional Information on page 2
Ratings and principal characteristics Valeurs nominales et caractéristiques principales	Input: 100-240 Vac, 50/60 Hz, 3A Output: See the 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	GCS265PSxxyy 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. 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
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-A139-CB-1 issued on 2014-08-11

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

☒ 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: 2014-08-11

Signature:

Jolanta M. Wroblewska

Ref. Certif. No.

US-23730-UL

Model Details:
GCS265PSxxyy (where xx can be any number between 12 and 56 and yy is "-C", "-TF", "-EF" or blank; all "-" considered optional; may also be provided with additional suffix "SF", "S", "R" or "L")

Factories:
XP POWER (KUNSHAN) LIMITED
230, BIN JIANG NAN ROAD, ZHANG PU TOWN KUNSHAN, JIANGSU 215300
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: 2014-08-11

Signature:

Jolanta M. Wroblewska

Test Report issued under the responsibility of:

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

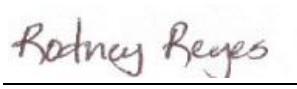
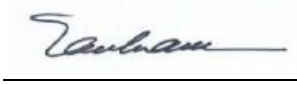
Report Reference No ..... :	E139109-A139-CB-1
Date of issue ..... :	2014-08-11
Total number of pages ..... :	110
CB Testing Laboratory ..... :	UL San Jose
Address ..... :	455 E. Trimble Rd., San Jose, CA, 95131-1230, USA
Applicant's name ..... :	XP POWER L L C
Address ..... :	SUITE 150 1241 E DYER RD SANTA ANA CA 92705 UNITED STATES
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_1C
Test Report Form originator ..... :	SGS Fimko Ltd
Master TRF ..... :	2012-08

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 ..... :	Power supply for building-in, switch mode type
Trade Mark ..... :	
Manufacturer ..... :	XP POWER L L C SUITE 150 1241 E DYER RD SANTA ANA CA 92705 UNITED STATES
Model/Type reference ..... :	GCS265PSxxyy (where xx can be any number between 12 and 56 and yy is "-C", "-TF", "-EF" or blank; all "-" considered optional; may also be provided with additional suffix "SF", "S", "R" or "L")
Ratings ..... :	Input: 100-240 Vac, 50/60 Hz, 3A 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**		
	Tested by (name + signature) ..... :		
	Approved by (+ signature) ..... :		
	Testing location / address..... :		
[ ]	**Testing Procedure: WMT/CTF Stage 2**		
	Tested by (name + signature) ..... :		
	Witnessed by (+ signature)..... :		
	Approved by (+ signature) ..... :		
	Testing location / address..... :		
[x]	**Testing Procedure: SMT/CTF Stage 3 or 4**		
	Tested by (name + signature) ..... :	Rodney reyes	
	Approved by (+ signature) ..... :	Tac Pham	
	Supervised by (+ signature) ..... :	David E. Drewes	
	Testing location / address..... :	XP Power, LLC, 1241 E Dyer Rd, Suite 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

National Differences (41 pages)

Enclosures (71 pages)

Summary Of Testing

Unless otherwise indicated, all tests were conducted at XP Power, LLC, 1241 E Dyer Rd, Suite 150, 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)	
Capacitance Discharge (2.1.1.7)	
SELV Reliability Test Including Hazardous Voltage Measurements (2.2.2, 2.2.3, 2.2.4, Part 22 6.1)	
Limited Current Circuit Measurement (2.4.1, 2.4.2)	
Protective Bonding I (2.6.3.4, 2.6.1).7)	
Humidity (2.9.1, 2.9.2, 5.2.2)	
Determination of Working Voltage; Working Voltage Measurement (2.10.2)	
Thin Sheet Material (2.10.5.9, 2.10.5.10, 2.10.5.6)	
Transformer and Wire /Insulation Electric Strength (2.10.5.13)	
Heating (4.5.1, 1.4.12, 1.4.13)	
Ball Pressure (4.5.5, 4.5)	
Touch Current (Single-Phase; TN/TT System) (5.1, Annex D)	
Touch Current (Polyphase; TN/TT System) (5.1, Annex D)	
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:

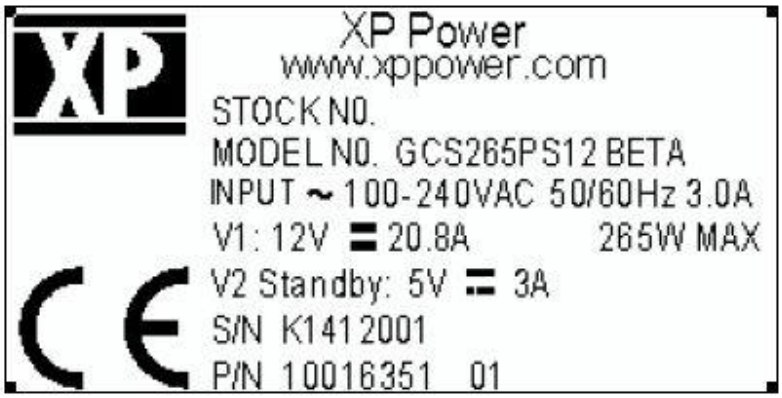
Countries outside the CB Scheme membership may also accept this report.

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, 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

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.



Test item particulars :	
Equipment mobility .....:	for building-in
Connection to the mains .....:	To be determined in end-use product
Operating condition .....:	continuous
Access location .....:	To be determined in end-use product
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 or Class II (Determined by end product)
Considered current rating of protective device as part of the building installation (A) .....:	20
Pollution degree (PD) .....:	PD 2
IP protection class .....:	IPX0
Altitude of operation (m) .....:	5000
Altitude of test laboratory (m) .....:	less than 2000 meters
Mass of equipment (kg) .....:	0.6 kg
Possible test case verdicts:	
- test case does not apply to the test object .....:	N / A
- test object does meet the requirement .....:	P(Pass)
- test object does not meet the requirement .....:	F(Fail)
Testing:	
Date(s) of receipt of test item .....:	2014-02-05
Date(s) of Performance of tests .....:	2014-02-19 to 2014-05-30
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: 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.	Yes
Name and address of Factory(ies):	XP POWER LLC 990 BENECIA AVE SUNNYVALE CA 94085 UNITED STATES

XP POWER (KUNSHAN) LIMITED
230, BIN JIANG NAN ROAD,
ZHANG PU 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 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. Double insulated symbol is optionally provided. Earthing symbol may only be provided for Class I power supplies.

Model Differences

All models in the Model GCS265PSXX series are identical with exception to the Mains Transformer, T1, and secondary components/circuitry that allow for different output voltage ratings.

See below for Model Output Ratings:

Model GCS265PS12:
V1: 10.1 Vdc - 13.5 Vdc, 20.8 A Max. (250 W Max);
V2: 5 Vdc, 3A Max (15 W Max);
(Total Power: 265 W Max)

Model GCS265PS15:
V1: 13.6 Vdc - 17 Vdc, 16.66 A Max. (250 W Max);
V2: 5Vdc, 3A Max (15 W Max);
(Total Power: 265 W Max)

Model GCS265PS18:
V1: 17.1 Vdc - 21 Vdc, 14.7 A Max. (250 W Max);
V2: 5Vdc, 3A Max (15 W Max);
(Total Power: 265 W Max)

Model GCS265PS24:
V1: 21.1 Vdc - 26 Vdc, 10.4 A Max. (250 W Max);
V2: 5Vdc, 3A Max (15 W Max);
(Total Power: 265 W Max)

Model GCS265PS28:
V1: 26.1 Vdc - 31 Vdc, 8.9 A Max. (250 W Max);
V2: 5Vdc, 3A Max (15 W Max);
(Total Power: 265 W Max)

Model GCS265PS33:
V1: 31.1 Vdc - 33 Vdc, 7.5 A Max. (250 W Max);

V2: 5Vdc, 3A Max (15 W Max);
(Total Power: 265 W Max)

Model GCS265PS36:
V1: 33.1 Vdc - 42 Vdc, 6.94 A Max. (250 W Max);
V2: 5Vdc, 3A Max (15 W Max);
(Total Power: 265 W Max)

Model GCS265PS48:
V1: 42.1 Vdc - 54 Vdc, 5.2 A Max. (250 W Max);
V2: 5Vdc, 3A Max (15 W Max);
(Total Power: 265 W Max)

Model GCS265PS56:
V1: 54.1 Vdc - 63.2 Vdc, 4.5 A Max. (250 W Max);
V2: 5Vdc, 3A Max (15 W Max);
(Total Power: 265 W Max)

V2: 5Vdc Standby

Units provided with suffix "C" is provided with cover.
Units provided with suffix "TF" is provided with top fan.
Units provided with suffix "EF" is provided with end fan.
Units provided without suffix "C", "TF" or "EF" is open frame (without cover).
Units provided with additional suffix "SF" to indicate single pole fusing.
Units provided with additional suffix "S" to indicate screw terminal block.
Units provided with suffix “R” is remote inhibit.
Units provided with additional suffix "L" to indicate fly leads.

See Enclosure - Miscellaneous for max Power Outputs based on model, ambient, and forced air cooling.

Additional Information

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

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

Marking label is representative of all models.

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 100% of Output Rating, 70°C at 50% of Output Rating. 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 the end product.
- The product is intended for use on the following power systems: TN, IT
- 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).
- The following accessible locations (with circuit/schematic designation) are within a limited current circuit: Load side of C21 (Pri to Sec bridging capacitor),
- Power supplies covered by this report were evaluated for both Class I and Class II (double insulated). Double insulated symbol is optionally provided. See Conditions of Acceptability for insulation required for Class II. Earthing symbol may only be provided for Class I power supplies. --

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: 240 Vrms, 352 Vpk, Primary-SELV: 256 Vrms, 450 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: 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.
- 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: J1
- 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, L4 and T1 (Class F, 155°C) , 5V Standby - Transformer (T1) (Class F, 155°C) ,
- The following end-product enclosures are required: Mechanical, Fire, Electrical
- The following components require special consideration during end-product Thermal (Heating) tests due to the indicated maximum temperature measurements during component-level testing: Model GC265PS12: PCB@Q1 coil (130°C); C22 (Stand-by board) (105°C); C27 (105°C),
- The maximum continuous power supply output (Watts) relied on forced air cooling from: 7 cfm fan applied 1 inch from input side, blowing inward.,
- The equipment is suitable for direct connection to: AC mains supply. Means of connection willl need to be evaluated in the end product.,
- Fans: For models with the suffix "EF", the fan provided in this sub-assembly is not intended for operator access., For models with the suffix "TF", the fan provided in this sub-assembly is provided with a fan guard to reduce the risk of operator contact with the stator.
- Printed Wiring Board rated 130°C. --
- Heatsinks are floating and considered live. They should not be accessible in the end-product. --
- Touch Current test to be conducted in the end-product evaluation. --

- Clearance spacing evaluated for 5000 m altitude. Additional consideration maybe necessary in the end-use product. --
- End product to determine the need for "Double Pole Fuse" Marking for units provided with double , pole fusing. --
- The equipment may be provided with a fuse in both the Line and Neutral of the primary circuit. --
- Heating test should be repeated in the end-use 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)

Ref. Certif. No.

US-28804-A1-UL

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

CB TEST CERTIFICATE

Product	Component power supply for building-in and supplying regulated power to medical equipment.
Name and address of the applicant	XP POWER LLC 15641 RED HILL AVE., STE 100 TUSTIN, CA 92780 USA
Name and address of the manufacturer	XP POWER LLC 15641 RED HILL AVE., STE 100 TUSTIN, CA 92780 USA
Name and address of the factory Note: *When more than one factory, please report on page 2*	XP POWER INC 990 BENECIA AVE SUNNYVALE, CA 94085 USA ☒ Additional Information on page 2
Ratings and principal characteristics	Input: GCS350PS: 100-240Vac, 50/60, 4.9A, AVPQ150M165170Z: 100-240VAC 50/60Hz 1.9A. Output: See Test Report for Details
Trademark (if any)	XP
Type of Customer's Testing Facility (CTF) Stage used	CTF Stage 3
Model / Type Ref.	AVPQ150M165170Z, GCS350PSxxyy See Page 2
Additional information (if necessary may also be reported on page 2)	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	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	E146893-D1003-3/A1/C1-CB issued on 2017-08-15

This CB Test Certificate is issued by the National Certification Body

☒ 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: 2017-08-24
Original Issue Date: 2016-11-03

Signature:

Jolanta M. Wroblewska

Ref. Certif. No.

US-28804-A1-UL

Model Details:

GCS350PSxxyy where xx can be any number between 12 and 56 and yy is -C, -TF , -EF or blank; all - considered optional; may also be provided with additional suffix SF, S, J

Factories:

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 PHOUC 3 INDUSTRIAL PARK BEN CAT DISTRICT, BINH DUONG
VIETNAM

XP POWER
HORSESHOE PARK PANGBOURNE RG8 7JW
UNITED KINGDOM

Additional Information:

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

- Due to increase of the current limit set point which was caused by lowering the resistance of component R50 from 178ohm to 150ohm

Additional information (if necessary)

☒ 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: 2017-08-24
Original Issue Date: 2016-11-03

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

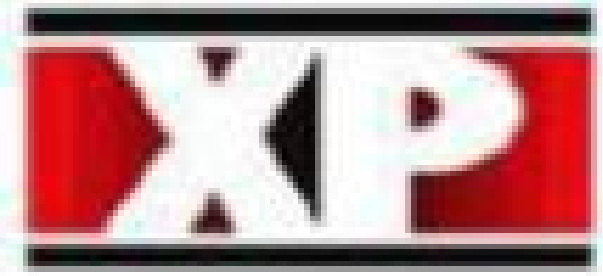
Report Reference No. ..... :	E146893-D1003-3/A1/C1-CB
Date of issue ..... :	2017-08-15
Total number of pages ..... :	238
CB Testing Laboratory ..... :	UL Fremont
Address ..... :	47173 Benicia St., Fremont, CA 94538-7366 USA
Applicant's name ..... :	XP POWER LLC
Address ..... :	15641 RED HILL AVE., STE 100 TUSTIN, CA 92780 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.

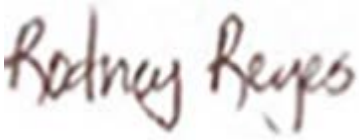
General disclaimer:

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 for building-in and supplying regulated power to medical equipment.
Trade Mark:	Refer to Marking Label enclosure 
Manufacturer:	Same as Applicant
Model/Type reference:	GCS350PSxxyy where xx can be any number between 12 and 56 and yy is -C, -TF , -EF or blank; all - considered optional; may also be provided with additional suffix SF, S, J and AVPQ150M165170Z
Ratings:	Input: GCS350PS: 100-240Vac, 50/60, 4.9A, AVPQ150M165170Z: 100-240VAC 50/60Hz 1.9A. Output: See Model Differences for details

Testing procedure and testing location:		
[ ] CB Testing Laboratory:		
Testing location/ address:		
[ ] Associated CB Testing 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 15641 RED HILL AVE., STE 100, TUSTIN, CA 92780, USA	

Tested by (name + signature):	Rodney Reyes	
Witnessed by (name + signature):	N/A	
Approved by (name + signature):	Ahmad Daoudi / Project Reviewer	
Supervised by (name + signature):	Anthony Moussa / Project Handler	

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 B 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 [X] The product fulfils the requirements of IEC 60601-1: 2005 + CORR. 1:2006 + CORR. 2:2007 + AM1:2012 (or IEC 60601-1: 2012 reprint).

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 Label in the Enclosures section in Appendix A of this report for a copy.

GENERAL INFORMATION	
Test item particulars (see also Clause 6):	
Classification of Installation and Use:	For building-in
Device type (component/sub-assembly/ equipment/ system):	Component
Intended use (Including type of patient, application location):	The model covered in this report is a component power supply intended for use in Medical Equipment. It is an open frame power supply intended for building-in Class I or Class II end-products. Double insulated symbol is optionally provided. Earthing symbol may only be provided for Class I power supplies.
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) .....:	2014-11-06, 2015-03-06, 2016-08-12, 2017-04-04
Dates tests performed .....:	2014-11-18 to 2014-12-18, 2015-03-24, 2016-08-12 to 2016-08-18, 2017-06-09 to 2017-06-12, 2017-08-02
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.	
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 USA 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 PHOUC 3 INDUSTRIAL PARK BEN CAT DISTRICT, BINH DUONG VIETNAM XP POWER HORSESHOE PARK PANGBOURNE RG8 7JW UNITED KINGDOM

GENERAL PRODUCT INFORMATION:

Report Summary

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

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

Product Description

The model covered in this report is a component power supply intended for use in Medical Equipment. It is an open frame power supply intended for building-in Class I or Class II end-products. Double insulated symbol is optionally provided. Earthing symbol may only be provided for Class I power supplies.

Model Differences

Model AVPQ150M165170Z, where Z is optional and may be represented by any letter A-Z corresponding to non-safety related options.

Model AVPQ150M165170Z consist of Model GCS350PS15 mounted on a chassis, connected to an Inlet and Rocker Switch. Output of model GCS350PS15 connects to a secondary board.

All models in the Model GCS350PSXX series are identical with exception to the Mains Transformer, T1 and secondary components/circuitry that allow for different output voltage ratings.

See below for Model Ratings:

Model GCS350PS12: Output Rated: 10.1 Vdc - 13.5 Vdc, 29.2 A Max., 350 W Max.
Model GCS350PS15: Output Rated: 13.6 Vdc - 17 Vdc, 23.3 A Max., 350 W Max.
Model GCS350PS18: Output Rated: 17.1 Vdc - 21 Vdc, 19.4 A Max, 350 W Max.
Model GCS350PS24: Output Rated: 21.1 Vdc - 26 Vdc, 14.6 A Max., 350 W Max.
Model GCS350PS28: Output Rated: 26.1 Vdc - 31 Vdc, 12.5 A Max., 350 W Max.
Model GCS350PS33: Output Rated: 31.1 Vdc - 33 Vdc, 10.6 A Max., 350 W Max.
Model GCS350PS36: Output Rated: 33.1 Vdc - 42 Vdc, 9.72 A Max, 350 W Max.
Model GCS350PS48: Output Rated: 42.1 Vdc - 54 Vdc, 7.29 A Max., 350 W Max.
Model GCS350PS56: Output Rated: 54.1 Vdc - 60 Vdc, 6.25 A Max., 350 W Max.

See Enclosure - Miscellaneous for max Power Outputs based on model, ambient, and forced air cooling.

Units provided with suffix "C" is provided with cover.
Units provided with suffix "TF" is provided with top fan.
Units provided with suffix "EF" is provided with end fan
Units provided without suffix "C", "TF" or "EF" are open frame (without cover).
Units provided with additional suffix "SF" to indicate single pole fusing.
Units provided with additional suffix "S" to indicate screw terminal block.
Units provided with suffix “J” employs dual row output connector (J2)

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 5 000 m elevation for Patient Protection (MOPP) (1.29 correction factor as per Table 8).

The models covered under this Report have been additionally evaluated to EN 60601-1:2006+A1 (2013)/A11:2011/A12:2014. Additional evaluation into EN 60601-1/A11:2011/A12:2014 was considered and deemed not applicable for the devices covered under this Report as they are component power supplies.

This Report is a reissue of CBTR Ref. No. E146893-D1003-2-ULCB, CB Test Certificate Ref. No. US-25067-A1-UL. Based on previously conducted testing and the review of product construction. In addition a new Model AVPQ150M165170Z is being added. Client provided a representative sample for evaluation. Limited testing was conducted.

Report Ref. E146893-D1003-3/A1/C1, Amendment 1: This report should be read in conjunction with Report Ref. E146893-D1003-CB-3-Reissue (CB certificate #US-28804-UL).

Technical Considerations

- The product was investigated to the following standards:

  Main Standard(s):

  IEC 60601-1 Edition 3.1 (2012)

  From Country Differences:

  - Austria: EN 60601-1:2006/A1:2013
  - Korea, Republic of: KS C IEC 60601-1
  - USA: ANSI/AAMI ES60601-1: A1:2012, C1:2009/(R)2012 and A2:2010/(R)2012
  - Canada: CSA CAN/CSA-C22.2 NO. 60601-1:14
  - United Kingdom: BS EN 60601:2006 A1
  - Sweden: SS-EN 60601-1:2006+A11:2011+A1:2013+AC1:2014+A12:2014

  Additional Standards:

  ANSI/AAMI ES60601-1:2005/C1:2009 +AM1(R2012) (includes National Differences for USA); CAN/CSA-C22.2 No. 60601-1:14 (includes National Differences for Canada), EN 60601-1:2006+A1 (2013)/A11:2011/A12:2014, IEC 60601-1: 2012, 3rd Edition with Am. 1

- The following additional investigations were conducted: N/A
- The product was not investigated to the following standards or clauses: Electromagnetic

Compatibility (IEC 60601-1-2), C lause 14, Programmable E lectronic S ystems, B iocompatibility (ISO 10993-1)

- The following accessories were investigated for use with the product: N/A
- Scope of Power Supply evaluation defers the following clauses to the be determined as part of the end product: C lause 7.5 (Safety Signs), C lause 7. 9 (Accompanying D ocuments), C lause 9 (ME Hazard), Clause 10 (Radiation), Clause 14 (PEMS), Clause 16 (ME Systems)
- Scope of P ower S upply e valuation ex cludes t he f ollowing: P atient ap plied par ts c lauses: 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 r elated c lauses: 7. 3.3, 15. 4.3; H and Control related clauses: 8.10.4; O xygen related c lauses: 11. 2.2; F luids 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 pow er s upply Model GCS350PS Series was evaluated for use in am bients ranging f rom 30 deg. C to 7 0 de g. C d epending u pon the c onfiguration. S ee t he O utput R atings T able i n the Enclosures - Miscellaneous section for details.
- The power Supply Model AVPQ150M165170Z was evaluated at ambient temperature range: 55 to 70°C.

Engineering Conditions of Acceptability

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

• T he pow er s upply was e valuated f or us e i n am bients ranging f rom 30 deg. C t o 70 de g. C de pending upon the configuration. See the Output Ratings Table in the Enclosures - Miscellaneous section for details.

• 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.

• R epeat of l eakage c urrent t esting an d c onsideration of non -frequency weighted l eakage t est s hall b e considered in the end product application.

• This power supply was evaluated with Two MOPP between Primary and Secondary for 304Vpk/240Vrms; One MOPP primary and Earth for 340Vpk/240Vrms; Two MOPP between Secondary to Ground for working voltage of 60Vdc and 1 MOPP for working voltage of 240Vrms between Secondary and Earth of BF output considerations.

• 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 maximum investigated branch circuit rating is: 20 A

• The end-product Electric Strength Test to be conducted shall be based upon a maximum working voltage of: P rimary-Earthed D ead Metal: 240 Vrms, 340 V pk; P rimary-SEC: 24 0 V rms, 304 Vpk; S econdary to Ground: 240Vrms, 354Vpk.

• T he following m agnetic devices (e.g. t ransformers or i nductor) ar e pr ovided with a n O BJY2 i nsulation system with the indicated rating greater than Class A (105°C): L1, L4, T1 (Class F, 155°C)

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

• For an open frame (forced air) configuration without the Top or End Fan, the maximum continuous power supply output (Watts) relied on forced air cooling from: 15 cfm fan applied 1 inch from input side, blowing inward.

• 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.

• Models provided with suffix SF only provided with one line side fuse. Consideration should be made in the end-use product to determine the need of double pole fusing.

• The suitability of the breaking capacity of the fuse per Clause 8.11.5 shall be verified in 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.

• Proper bonding to the Class I end-product main protective earthing termination is required (via mounting holes on the PCB), unless for Class II applications. For Class II applications the primary side mounting pads are isolated from accessible conductive chassis by Reinforced Insulation.

• Protective earthing testing shall be conducted in the end product application.

• Model AVPQ150M165170 secondary output of power supply GCS350PS15 is connected to ground.

• The output rating of Model AVPQ150M165170Z when operated at 55C: Output 1: 16.3 Vdc, 6A; Output 2: 5.1Vdc, 10A (149W max).

• The output rating of Model AVPQ150M165170Z when operated at 70C: Output 1: 16.3 Vdc, 3A; Output 2: 5.1Vdc, 5A (75W max).

Report Modifications

Date Modified *(Year-Month-Day)*	Modifications Made (include Report Reference Number)	Modified By
2015-05-08	No testing was considered necessary to update the Model Nomenclature to remove suffix "R" and add suffix "J" for Models employing dual row output connector (J2) due to testing previously performed on the units.	Bernadette Matsuoka
2016-10-28	Report Ref. E146893-D1003-CB-2 is being re-issued . In addition a new Model AVPQ150M165170Z is being added. Client provided a representative sample for evaluation. Limited testing was conducted.	Haydee Gonzalez
2016-11-22	Report Ref. E146893-D1003-3/A0/C0-ULCB was corrected for typographical error on Temperature Table where the load should be 3A instead of 6A when the unit operates at 70C ambient. The CofA's also state the output ratings at 55C and 70C for model AVPQ150M165170Z. The sample receipt dates, testing dates and the list of tests provided in this Correction reflects the original testing.	Haydee Gonzalez
2017-08-15	Amendment 1: Report Ref. E146893-D1003-3/A1/C1 is being amended due to increase of the current limit set point which was caused by lowering the resistance of component R50 from 178ohm to 150ohm. Resistor R50 is not a critical component. Only the input test was considered necessary to verify that that the ratings have not changed. Abnormal tests, followed by dielectric and leakage, were conducted to show that overloading and shorting the outputs would not affect the safety of the device. This report should be read in conjunction with Report Ref. E146893-D1003-CB-3-Reissue (CB certificate #US-28804-UL).	Anthony Moussa

Ref. Certif. No.

US-25064-A1-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 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 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, 4.9A 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	
Model / Type Ref. Ref. De type	GCS350PSxxyy 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	☒ 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-A151-CB-1 issued on 2015-05-31

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: 2015-06-03
Original Issue Date: 2015-04-25

Signature:

Jolanta M. Wroblewska

Ref. Certif. No.

US-25064-A1-UL

Model Details:
GCS350PSxxyy (where xx can be any number between 12 and 56 and yy is "-C", "-EF", "-TF" or blank; all "-" considered optional; may also be provided with additional suffix "J", "S" or "SF")

Factories:
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:
Additionally evaluated to EN 60950-1:2006/ A11:2009/ A1:2010/ A12:2011/ A2:2013. National Differences specified in the CB Test Report.

The original report was modified to include the following changes/additions:
- Deleted "-R" suffix from Model Differences.
- Added ""-J" suffix for models employing dual row output connector (J2)" to Model Differences.

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: 2015-06-03
Original Issue Date: 2015-04-25

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-A151-CB-1
Date of issue ..... :	2015-04-25
Total number of pages ..... :	9
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	:	GCS350PSxxyy (where xx can be any number between 12 and 56 and yy is "-C", “-EF”, "-TF" or blank; all "-" considered optional; may also be provided with additional suffix "J", "S" or "SF")
Ratings	:	Input: 100-240 Vac, 50/60Hz, 4.9A Max. Output: See Model Differences for details.

Testing procedure and testing location:		
[x]	**CB Testing Laboratory**	
	Testing location / address .....:	UL San Jose 455 E. Trimble Rd., San Jose, CA, 95131-1230, USA
[ ]	**Associated CB Test Laboratory**	
	Testing location / address .....:	
	Tested by (name + signature) .....:	Robert Leon
	Approved by (name + signature)....:	Walid Beytoughan
[ ]	**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)....:	
[ ]	**Testing Procedure: SMT/CTF Stage 3 or 4**	
	Testing location / address .....:	
	Tested by (name + signature) .....:	
	Approved by (name + signature)....:	
	Supervised by (name + signature) .:	
[ ]	**Testing Procedure: RMT**	
	Testing location / address .....:	
	Tested by (name + signature) .....:	
	Approved by (name + signature)....:	
	Supervised by (name + signature) .:	

List of Attachments

National Differences (0 pages)

Enclosures (0 pages)

Summary of Testing:

No tests were conducted

Summary of Compliance with National Differences:

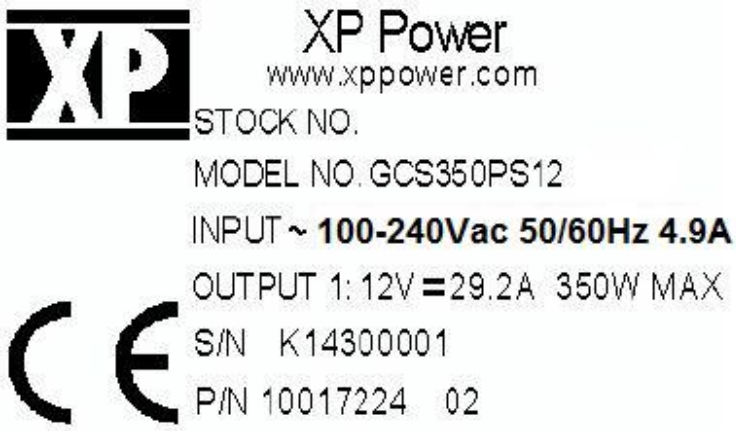
Countries outside the CB Scheme membership may also accept this report.

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

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

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.



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 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 m
Altitude of test laboratory (m) .....:	less than 2000 m
Mass of equipment (kg) .....:	0.4 kg
Possible test case verdicts:	
- test case does not apply to the test object .....:	N / A
- test object does meet the requirement .....:	P(Pass)
- test object does not meet the requirement .....:	F(Fail)
Testing:	
Date(s) of receipt of test item .....:	N/A
Date(s) of Performance of tests .....:	N/A
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 (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

The original report was modified on 2015-05-27 to include the following changes/additions:
- Deleted "-R" suffix from Model Differences.
- Added ""-J" suffix for models employing dual row output connector (J2)" to Model Differences.

Product Description

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

Model Differences

All models in the Model GCS350PSXX series are identical with exception to model designation, Transformer (T1) and secondary components/circuitry that allow for different output voltage ratings.

Model output ratings as follows.
Model GCS350PS12: Output Rated: 10.1 Vdc - 13.5 Vdc, 14.6 A Max., 350 W Max.
Model GCS350PS15: Output Rated: 13.6 Vdc - 17 Vdc, 23.3 A Max., 350 W Max.
Model GCS350PS18: Output Rated: 17.1 Vdc - 21 Vdc, 19.4 A Max, 350 W Max.
Model GCS350PS24: Output Rated: 21.1 Vdc - 26 Vdc, 14.6 A Max., 350 W Max.
Model GCS350PS28: Output Rated: 26.1 Vdc - 31 Vdc, 12.5 A Max., 350 W Max.
Model GCS350PS33: Output Rated: 31.1 Vdc - 33 Vdc, 10.6 A Max., 350 W Max.
Model GCS350PS36: Output Rated: 33.1 Vdc - 42 Vdc, 9.72 A Max, 350 W Max.
Model GCS350PS48: Output Rated: 42.1 Vdc - 54 Vdc, 7.29 A Max., 350 W Max.
Model GCS350PS56: Output Rated: 54.1 Vdc - 60 Vdc, 6.25 A Max., 350 W Max.

Provided with suffix "C" is provided with cover.
Provided with suffix "EF" is provided with end fan.
Provided with suffix "TF" is provided with top fan.
Provided without suffix "C", “EF” or "TF” are open frame (without cover).
Provided with additional suffix "SF" to indicate single pole fusing.
Provided with additional suffix "J" to indicate models with dual row output connector (J2).

See Enclosure Id. 7-08 (Power Output Table) for details

Additional Information

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

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

Marking Plate Label is representative of all models.

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. 70°C at 50% rated load.
- The means of connection to the mains supply is: For building-in. To be evaluated in end-product.
- The product is intended for use on the following power systems: TN / IT
- The equipment disconnect device is considered to be: For building-in. To be evaluated in end-product.
- The product was investigated to the following additional standards: EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013 (which includes all European national differences, including those specified in this Test Report)
- The following accessible locations (with circuit/schematic designation) are within a limited current circuit: Load Side of Bridging Capacitor (C21).
- Power supplies covered by this Test Report were evaluated for both Class I (earthed) and Class II (double insulated). Double insulated symbol is optionally provided. See Conditions of Acceptability for insulation required for Class II. Earthing symbol may only be provided for Class I power supplies. --

Engineering Conditions of Acceptability

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

- The following Production-Line tests are conducted for this product: Electric Strength
- The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-SELV: 280 Vrms / 484 Vpk, Primary-Earthed Dead Metal: 240 Vrms / 400 Vpk
- The following secondary output circuits are at hazardous energy levels: All outputs
- The power supply terminals and/or connectors are: Suitable for factory wiring only
- The maximum investigated branch circuit rating is: 20 A
- The investigated Pollution Degree is: 2
- 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.
- 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) 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): L1, L4, and T1 (Class F / 155°C)
- The following end-product enclosures are required: Electrical / Fire / Mechanical
- The maximum continuous power supply output (Watts) relied on forced air cooling from: 15 CFM Fan applied 1 inch from input side blowing inward.
- The equipment is suitable for direct connection to: AC mains supply. For building-in. To be evaluated in end-product.

- Fans: For models with the suffix "TF", the fan provided in this sub-assembly is provided with a fan guard to reduce the risk of operator contact with the stator.
- Suitable disconnect device is to be provided in the end-product. --
- In accordance with IEC60664-1, Table A2, required clearances were adjusted by multiplying the clearance at sea level by a factor of 1.48 for operating at an altitude of 5000 m. The correction factor is based on barometric pressure of 70 kPa and Overvoltage Category II. If the calculated clearance exceeded the creepage, the creepage was adjusted to the value of clearance. No other additional requirements were considered at this time and are not explicitly addressed in UL 60950-1. --
- Printed Wiring Board rated 130°C. --
- The power supply is provided with a fuse in both the line and neutral of the primary circuit. The need for a marking warning service person of the hazards associated with neutral fusing shall be considered in the end-product. --
- Heatsinks are floating and considered live. Heatsinks should not be accessible in the end-product. --
- Heating (Thermal Requirements) Test was not conducted on power supply with input/output leads. If power supply is provided with input and/or output leads, then temperature on leads must be measured and cannot exceed 105°C. --

Abbreviations used in the report:

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

Indicate used abbreviations (if any)