

CERTIFICATE OF COMPLIANCE

Certificate Number 2015-04-10-E146893
Report Reference E146893-D1001-2-ULCB
Issue Date 2015-04-10
Issued to: XP POWER LLC
15641 Red Hill Ave., Ste. 100
Tustin, CA 97280 USA

**This is to certify that
representative samples of**

Component power supply for use in Medical Electrical
Equipment

CCL400PSXXYY (where XX = can be any number between 12
to 48 indicating main output voltage, "YY" can be SF or blank
indicating Single Fuse), may also be provided with additional
suffixes "-C", "-L".

Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

Standard(s) for Safety:

ANSI/AAMI ES60601-1:2005/(R)2012, CSA CAN/CSA-C22.2
NO. 60601-1:14, IEC 60601-1 Edition 3.1 (2012)

Additional Information:

See the UL Online Certifications Directory at
www.ul.com/database for additional information.

Only those products bearing the UL Certification Mark should be considered as being covered by UL's
Certification and Follow-Up Service.

Recognized components are incomplete in certain constructional features or restricted in
performance capabilities and are intended for use as components of complete equipment
submitted for investigation rather than for direct separate installation in the field. The final
acceptance of the component is dependent upon its installation and use in complete equipment
submitted to UL LLC.

Look for the UL Certification Mark on the product.

This is to certify that representative samples of the product as specified on this certificate were tested
according to the current UL requirements.

B. Mahlenz *Joe Hoseney*

Bruce Mahrenholz, Assistant Chief Engineer, Global Inspection and Field Services, UL LLC
Joseph Hoseney, General Manager, Director of Sales – Canada, UNDERWRITERS LABORATORIES OF CANADA INC.

Helena Y. Wolf

Helena Y. Wolf, Director, Global Market Access Operations, UL LLC

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Customer Service Representative www.ul.com/contactus



Description

UL TEST REPORT AND PROCEDURE

Standard:	ANSI/AAMI ES60601-1:2005/(R)2012, CSA CAN/CSA-C22.2 NO. 60601-1:14, IEC 60601-1 Edition 3.1 (2012)
Certification Type:	Component Recognition
CCN:	QQHM2, QQHM8
Product:	Component power supply for use in Medical Electrical Equipment
Model:	E146893-D1001-2-ULCB
Rating:	Input: 100-240Vac, 50/60Hz, 5A max. Output: See Model Differences for details
Applicant Name and Address:	XP POWER LLC 15641 Red Hill Ave., Ste. 100 Tustin, CA 97280, USA

This is to certify that representative samples of the products covered by this Test Report have been investigated in accordance with the above referenced Standards. The products have been found to comply with the requirements covering the category and the products are judged to be eligible for Follow-Up Service under the indicated Test Procedure. The manufacturer is authorized to use the UL Mark on such products which comply with this Test Report and any other applicable requirements of UL LLC ('UL') in accordance with the Follow-Up Service Agreement. Only those products which properly bear the UL Mark are considered as being covered by UL's Follow-Up Service under the indicated Test Procedure.

The applicant is authorized to reproduce the referenced Test Report provided it is reproduced in its entirety.

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

Prepared by: Wojciech Poleszak

Reviewed by: Melissa J. DeGuia

Supporting Documentation

The following documents located at the beginning of this Procedure supplement the requirements of this Test Report:

A. Authorization - The Authorization page may include additional Factory Identification Code markings.

B. Generic Inspection Instructions -

- i. **Part AC** details important information which may be applicable to products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of this Test Report.
- ii. **Part AE** details any requirements which may be applicable to all products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of each Test Report.
- iii. **Part AF** details the requirements for the UL Certification Mark which is not controlled by the technical standard used to investigate these products. Products are permitted to bear only the Certification Mark(s) corresponding to the countries for which it is certified, as indicated in each Test Report.

Product Description

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

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

Model Differences

All models in the Model CCL400PSXX-YY Series are identical with exception to the Mains Transformer (T1) and minor secondary components that allow for different output voltage ratings. See below for Model Ratings:

Output Ratings:

CCL400PS12: 10.1Vdc to 13.5Vdc, 33.3A Max., (400 W Max); Stand-by 5V, 0.5A, (2.5W Max)
 CCL400PS15: 13.6Vdc to 17Vdc, 26.7A Max. (400 W Max); Stand-by 5V, 0.5A, (2.5W Max)
 CCL400PS18: 17.1Vdc to 21Vdc, 22.2A Max. (400 W Max); Stand-by 5V, 0.5A, (2.5W Max)
 CCL400PS24: 21.1Vdc to 26Vdc, 16.7A Max. (400 W Max); Stand-by 5V, 0.5A, (2.5W Max)
 CCL400PS28: 26.1Vdc to 31Vdc, 14.3A Max. (400 W Max); Stand-by 5V, 0.5A, (2.5W Max)
 CCL400PS33: 31.1Vdc to 33Vdc, 12.1A Max. (400 W Max); Stand-by 5V, 0.5A, (2.5W Max)
 CCL400PS36: 33.1Vdc to 42Vdc, 11.1A Max. (400 W Max); Stand-by 5V, 0.5A, (2.5W Max)
 CCL400PS48: 42.1Vdc to 54Vdc, 8.3A Max. (400 W Max); Stand-by 5V, 0.5A, (2.5W Max)

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

Units provided with suffix "-SF" provide with single fuse.

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

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

Additional Information

Marking label is representative of all models.

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

The required clearance values have been assessed for suitability up to 5000 m elevation 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-D1001-1-ULCB, CB Test Certificate Ref. No. US-24818-

UL, Issued 2015-03-17. Based on the previously conducted testing and the review of product technical documentation including photos, schematics, wiring diagrams and similar, has been determined that the product continues to comply with the standard.

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)/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), Clause 14, Programmable Electronic Systems, Biocompatibility (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: Clause 7.5 (Safety Signs), Clause 7.9 (Accompanying Documents), Clause 9 (ME Hazard), Clause 10 (Radiation), Clause 14 (PEMS), Clause 16 (ME Systems)
- Scope of Power Supply evaluation excludes the following:
 - Patient applied parts clauses: 4.6, 7.2.10, 8.3, 8.5.2, 8.5.5, 8.7.4.7-8.7.4.9, 8.9.1.15
 - Battery related clauses: 7.3.3, 15.4.3
 - Hand Control related clauses: 8.10.4
 - Oxygen related clauses: 11.2.2
 - Fluids related clauses: 11.6.2 – 11.6.4
 - Sterilization clause: 11.6.7
 - Biocompatibility Clause: 11.7 (ISO 10993)
 - Motor related clauses: 13.2.13.3, 13.4
 - Heating Elements related clause: 13.2
- The product is evaluated only to the following hazards: Casualty, Fire, Shock
- The degree of protection against harmful ingress of water is: Ordinary
- Software is relied upon for meeting safety requirements related to mechanical, fire and shock: No
- The power supply was evaluated for use in 50°C ambient at Full Rated Output and 50% of the Rated Output in 70°C ambient.

Engineering Conditions of Acceptability

For use only in or with complete equipment where the acceptability of the combination is determined by UL LLC. 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.
-
- The power supply was evaluated for use in 50°C ambient at Full Rated Output and 50% of the Rated Output in 70°C ambient.
-
- Consideration shall be given to measuring the temperature on power electronic components and transformer windings when the power supply is installed in the end-use equipment. The end use product shall ensure that the power supply is used within its ratings.
-
- Repeat of leakage current testing and consideration of non-frequency weighted leakage test shall be considered in the end product application.
-
- This power supply was evaluated with Two MOPP between Primary and Secondary; One MOPP primary and Earth.
-
- This power supply has been evaluated as a continuous operation, ordinary equipment and has not been evaluated for use in the presence of a flammable anesthetic mixture with air, oxygen, or nitrous

oxide. The output circuits have not been evaluated for direct patient connection (Type B, BF or CF).

-
- The end product shall ensure that the requirements related to accompanying documents, clause 7.9, are met.
-
- The available voltage for the secondary outputs does not exceed 42.4 Vac peak or 60 Vdc, under normal and single fault conditions.
-
- The output connectors are suitable for factory wiring only.
-
- The maximum investigated branch circuit rating is: 20 A
-
- The Electric Strength Test conducted on this power supply was based upon a maximum working voltage of: Primary-Earthed Dead Metal: 240 Vrms, 392 Vpk; Primary-SEC: 240 Vrms, 392 Vpk.
-
- Proper bonding to the end-product main protective earthing termination is required. Protective earthing testing shall be conducted in the end product application.
-
- The following magnetic devices (e.g. transformers or inductor) are provided with an OBJ2 insulation system with the indicated rating greater than Class A (105°C): T1, T2, T3, T4 (Class F, 155°C)
-
- Printed Wiring Board rated 130°C
-
- The need for Marking Durability and Marking Legibility Testing shall be considered as part of the end product installation.
-
- Fire/ Mechanical/ Electrical Enclosure to be provided as part of the end product.
-
- 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.

CERTIFICATE OF COMPLIANCE

Certificate Number 20150115-E139109
Report Reference E139109-A142-UL
Issue Date 2015-JANUARY-15

Issued to: XP POWER L L C
Suite 150
1241 E DYER RD
Santa Ana CA 92705

**This is to certify that
representative samples of**

COMPONENT - POWER SUPPLIES, INFORMATION
TECHNOLOGY EQUIPMENT INCLUDING ELECTRICAL
BUSINESS EQUIPMENT

Switching Power Supplies – Models CCL400PSXXYY
(where XX = can be any number between 12 to 48
indicating main output voltage, "YY" can be SF or blank
indicating Single Fuse), may also be provided with
additional suffixes "-C", "-L".

Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

Standard(s) for Safety: UL 60950-1 and CAN/CSA C22.2 No. 60950-1-07 -
Standards for Information Technology Equipment - Safety -
Part 1: General Requirements.

Additional Information: See the UL Online Certifications Directory at
www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's
Certification and Follow-Up Service.

Recognized components are incomplete in certain constructional features or restricted in performance
capabilities and are intended for use as components of complete equipment submitted for investigation rather
than for direct separate installation in the field. The final acceptance of the component is dependent upon its
installation and use in complete equipment submitted to UL LLC.

Look for the UL Certification Mark on the product.



Bruce Mahrenholz, Assistant Chief Engineer, Global Inspection and Field Services

UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please
contact a local UL Customer Service Representative at www.ul.com/contactus



UL TEST REPORT AND PROCEDURE

Standard:	UL 60950-1, 2nd Edition, 2014-10-14 (Information Technology Equipment - Safety - Part 1: General Requirements) CAN/CSA C22.2 No. 60950-1-07, 2nd Edition, 2014-10 (Information Technology Equipment - Safety - Part 1: General Requirements)
Certification Type:	Component Recognition
CCN:	QQGQ2, QQGQ8 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)
Product:	Switching Power Supplies
Model:	CCL400PSXXYY (where XX = can be any number between 12 to 48 indicating main output voltage, "YY" can be SF or blank indicating Single Fuse), may also be provided with additional suffixes "-C", "-L".
Rating:	Input: 100-240 Vac, 50/60 Hz, 5A Max Output: See Model Differences for details
Applicant Name and Address:	XP POWER L L C 15641 RED HILL AVE. SUITE 100 TUSTIN, CA 92780 UNITED STATES

This is to certify that representative samples of the products covered by this Test Report have been investigated in accordance with the above referenced Standards. The products have been found to comply with the requirements covering the category and the products are judged to be eligible for Follow-Up Service under the indicated Test Procedure. The manufacturer is authorized to use the UL Mark on such products which comply with this Test Report and any other applicable requirements of UL LLC ('UL') in accordance with the Follow-Up Service Agreement. Only those products which properly bear the UL Mark are considered as being covered by UL's Follow-Up Service under the indicated Test Procedure.

The applicant is authorized to reproduce the referenced Test Report provided it is reproduced in its entirety.

UL authorizes the applicant to reproduce the latest pages of the referenced Test Report consisting of the first page of the Specific Technical Criteria through to the end of the Conditions of Acceptability.

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

Prepared by: Robert Leon

Reviewed by: Randy Johnson

Supporting Documentation

The following documents located at the beginning of this Procedure supplement the requirements of this Test Report:

- A. Authorization - The Authorization page may include additional Factory Identification Code markings.
- B. Generic Inspection Instructions -
 - i. Part AC details important information which may be applicable to products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of this Test Report.
 - ii. Part AE details any requirements which may be applicable to all products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of each Test Report.
 - iii. Part AF details the requirements for the UL Certification Mark which is not controlled by the technical standard used to investigate these products. Products are permitted to bear only the Certification Mark(s) corresponding to the countries for which it is certified, as indicated in each Test Report.

Product Description

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

Model Differences

All models in the Model CCL400PSXX-YY Series are identical with exception to the Mains Transformer (T1) and minor secondary components that allow for different output voltage ratings. See below for Model Ratings:

Output Ratings:

CCL400PS12: 10.1Vdc to 13.5Vdc, 33.33A Max., (400 W Max); Stand-by 5V, 0.5A, (2.5W Max)
CCL400PS15: 13.6Vdc to 17Vdc, 26.66A Max. (400 W Max); Stand-by 5V, 0.5A, (2.5W Max)
CCL400PS18: 17.1Vdc to 21Vdc, 22.22A Max. (400 W Max); Stand-by 5V, 0.5A, (2.5W Max)
CCL400PS24: 21.1Vdc to 26Vdc, 16.67A Max. (400 W Max); Stand-by 5V, 0.5A, (2.5W Max)
CCL400PS28: 26.1Vdc to 31Vdc, 14.28A Max. (400 W Max); Stand-by 5V, 0.5A, (2.5W Max)
CCL400PS33: 31.1Vdc to 33Vdc, 12.12A Max. (400 W Max); Stand-by 5V, 0.5A, (2.5W Max)
CCL400PS36: 33.1Vdc to 42Vdc, 11.11A Max. (400 W Max); Stand-by 5V, 0.5A, (2.5W Max)
CCL400PS48: 42.1Vdc to 54Vdc, 8.33A Max. (400 W Max); Stand-by 5V, 0.5A, (2.5W Max)

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

Units provided with suffix "-SF" provide with single fuse.

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

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

Technical Considerations

- 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
- 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
- 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.
- 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: IT, TN
- 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 are available from the Applicant upon request: Schematics

Engineering Conditions of Acceptability

For use only in or with complete equipment where the acceptability of the combination is determined by UL LLC. 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: 172 Vrms, 392 Vpk; Primary-SELV: 172 Vrms, 392 Vpk
- The following secondary output circuits are SELV: All.
- The following secondary output circuits are at hazardous energy levels: All
- 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
- 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: Transformers T1, T2, T3, T4 (Class F, 155°C)
- The following end-product enclosures are required: Electrical, Fire
- The equipment is suitable for direct connection to: AC mains supply. Means of connection will need to be evaluated in the end product.
- Printed Wiring Board rated 130°C.
- Touch Current test to be conducted in the end-product evaluation.
- According to IEC60664-1, required clearances have been adjusted by multiplying the clearance at sea level by a factor of 1.48 for operating at an altitude of 5000 meters. The correction factor is based on barometric pressure of 70kPa and Overvoltage Category II. If the calculated clearance exceeded the creepage, the creepage was adjusted to the value of clearance.

- 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.

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.

Additional Standards

The product fulfills the requirements of: CSA C22.2 No. 60950-1-07 + A1:2011 + A2:2014, EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011 + A2:2013, UL 60950-1 2nd Ed. Revised 2014-10-17, IEC 60950-1:2005 + A1:2009 + A2:2013

Markings and instructions

Clause Title	Marking or Instruction Details
Power rating - Ratings	Ratings (voltage, frequency/dc, current)
Power rating - Company identification	Listee's or Recognized company's name, Trade Name, Trademark or File Number
Power rating - Model	Model Number

Special Instructions to UL Representative

N/A