

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 (T_{ma}) 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

Production-Line Testing Requirements						
<u>Electric Strength Test Special Constructions - Refer to Generic Inspection Instructions, Part AC for further information.</u>						
Model	Component	Removable Parts	Test probe location	V rms	V dc	Test Time, s
N/A						
<u>Earthing Continuity Test Exemptions - This test is not required for the following models:</u>						
All Models.						
<u>Electric Strength Test Exemptions - This test is not required for the following models:</u>						
<u>Electric Strength Test Component Exemptions - The following solid-state components may be disconnected from the remainder of the circuitry during the performance of this test:</u>						
<u>Sample and Test Specifics for Follow-Up Tests at UL</u>						
Model	Component	Material	Test	Sample(s)	Test Specifics	
N/A						