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)
Complementary CCN:	QQJQ2, QQJQ8 (Power Supplies for Use in Audio/Video, Information and Communication Technology Equipment)
Product:	Switching Power Supply
Model:	CCB200PSXXYY (where the "XX" can be any number between 12 to 56 indicating main output voltage, "YY" can be SF or blank indicating Single Fuse), may also be provided with additional suffixes "-S", "-C", "-L", and/or "A".
Rating:	Input: 100-240 Vac, 50/60Hz, 2.4 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: Scott Corley Reviewed by: Gregory Ray

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

Model Differences

All models in the Model CCB200PSXX-YY Series are identical with exception to the Mains Transformer (T1) and minor secondary components that allow for different output voltage ratings. See below for Model Ratings at 70°C Table Below:

Output Ratings:
CCB200PS12: 10.1Vdc to 13.5Vdc, 16.7A Max., 200 W Max.
CCB200PS15: 13.6Vdc to 17Vdc, 13.3A Max. 200 W Max.
CCB200PS18: 17.1Vdc to 21Vdc, 11.1A Max. 200 W Max.
CCB200PS24: 21.1Vdc to 26Vdc, 8.3A Max. 200 W Max.
CCB200PS28: 26.1Vdc to 31Vdc, 7.1A Max. 200 W Max.
CCB200PS33: 31.1Vdc to 33Vdc, 6.1A Max. 200 W Max.
CCB200PS36: 33.1Vdc to 42Vdc, 5.6A Max. 200 W Max.
CCB200PS48: 42.1Vdc to 54Vdc, 4.2A Max. 200 W Max.
CCB200PS56: 54.1Vdc to 56Vdc, 3.6 A Max. 200 W Max

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

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

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

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

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

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

Technical Considerations

- Equipment mobility : for building-in
- Connection to the mains : for building-in

- Operating condition : continuous
- Access location : for building-in
- Over voltage category (OVC) : OVC II
- Mains supply tolerance (%) or absolute mains supply values : +10%, -10%
- Tested for IT power systems : Yes
- IT testing, phase-phase voltage (V) : 230
- Class of equipment : Class I
- Considered current rating of protective device as part of the building installation (A) : 20 A
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : 5000
- Altitude of test laboratory (m) : less than 2000 meters
- Mass of equipment (kg) : 0.394 without cover; 0.582 with cover
- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 70°C at full rated load and 85°C at half rated load. See Miscellaneous enclosure Power Output Table for additional information regarding power output and the various configurations.
- The means of connection to the mains supply is: for building-in, to be determined in end-product.
- The product is intended for use on the following power systems: IT TN
- The equipment disconnect device is considered to be: for building-in, to be determined in end-product.
- The product was investigated to the following additional standards: EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013 (which includes all European national differences, including those specified in this test report). UL 62368-1, 2nd Ed, 2014-12-01; CAN/CSA C22.2 No. 62368-1-14, 2nd Ed.
- According to IEC60664-1, Table A2, required Clearances have been adjusted by multiplying the clearance at sea level by a factor of 1.48 for operating at an altitude of 5000 meters. The correction factor is based on barometric pressure of 70kPa and Overvoltage Category II. If the calculated Clearance exceeded the Creepage, the Creepage was adjusted to the value of clearance. No other additional requirements were considered at this time as they are not explicitly addressed in 60950-1.

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:

- Suitable disconnect device is to be provided in the end system.
- Temperature, Leakage and Dielectric Strength testing shall be considered in the end system.
- Printed Wiring Board rated 130°C.
- The equipment is provided with a fuse in both the Line and Neutral of the primary circuit. The need for a marking warning service person of the hazards associated with neutral fusing shall be considered in the end-product.
- Heatsinks are floating and considered live. They should not be accessible in the end-product.
- Heating test was not conducted on unit with input/output leads. If unit is provided with input and/or output leads, then temperature on leads must be measured and cannot exceed 105°C.
- 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: 244 Vrms, 353 Vpk Primary-SELV: 338 Vrms, 562 Vpk
- The following secondary output circuits are SELV: All outputs, except model CCB200PS56.
- The following secondary output circuits are at hazardous energy levels: All Outputs
- The power supply terminals and/or connectors are: Not investigated for field wiring
- 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: Input Connector (CON1) N terminal.
- The following magnetic devices (e.g. transformers or inductor) are provided with an OBJY2 insulation system with the indicated rating greater than Class A (105°C): T1, T2 (Class F, 155°C),
- The following end-product enclosures are required: Electrical, Mechanical, Fire
- UL 62368-1 Capacitance Discharge - Safeguards against capacitor discharge after disconnection of a connector (clause 5.5.2.2) shall be evaluated in the end-product.
- UL 62368-1 The following output circuits are at PS3 energy levels : All DC Outputs
- UL 62368-1 The following output circuits are at ES1 energy levels: All outputs, except model CCB200PS56
- UL 62368-1 The following output circuits are at ES2 energy levels: 56 Vdc Output Circuit (model CCB200PS56)
- UL 62368-1 Prospective Touch Current and Voltage testing to be conducted in the end-product evaluation.

Additional Information

This CB Report is a reissue of CBTR Ref. No. E139109-A120-CB-1 (issued on 2013-03-11), CB Test Certificate Ref. Nos. US-21070-UL, US-21070-A1-UL and US-21070-A2-UL. Based on previously conducted testing and the review of product technical documentation including photos, schematics, wiring diagrams and similar, it has been determined that the product complies with the standard. All required testing was carried out under the original investigation. No testing was required to upgrade the report to IEC 60950-1, Second Edition, Amendment 2.

The required clearance values have been assessed for suitability up to 5000 m elevation (1.48 correction factor as per IEC 60664-1, Table A2).

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

The nameplate markings provided as an Enclosure - Marking Plate are considered representative of the entire series. The word "BETA" on the marking label is not a part of the model designation.

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

Additional Standards

The product fulfills the requirements of: EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011 + A2:2013; UL 62368-1, 2nd Ed, 2014-12-01; CAN/CSA C22.2 No. 62368-1-14, 2nd Ed.

Markings and instructions

Clause Title	Marking or Instruction Details
1.7.1 Power rating - Ratings	Ratings (voltage, frequency/dc, current)
1.7.1 Power rating - Company identification	Listee's or Recognized company's name, Trade Name, Trademark or File Number
1.7.1 Power rating - Model	Model Number
1.7.6 Fuses - Non-operator access/soldered-in fuses	Unambiguous reference to service documentation for instructions for replacement of fuses replaceable only by service personnel

Special Instructions to UL Representative

N/A

Production-Line Testing Requirements

Electric Strength Test Special Constructions - Refer to Generic Inspection Instructions, Part AC for further information.

Model	Component	Removable Parts	Test probe location	V rms	V dc	Test Time, s
All Models	T1	--	Pri/Sec	3000	4200	1

Earthing Continuity Test Exemptions - This test is not required for the following models:

All Models

Electric Strength Test Exemptions - This test is not required for the following models:

N/A

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:

N/A

Sample and Test Specifics for Follow-Up Tests at UL

Model	Component	Material	Test	Sample(s)	Test Specifics
N/A					