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:	Power Supply, Built-In DC/DC
Model:	JCA10XXYZZ Where XX is 05, 12, 24, or 48, Y is S or D, ZZ is 01-15.
Rating:	Ratings are for reference only. Input: JCA10XXYZZ Series 4.5 - 9.0 VDC (5 Vdc, 2.4A) 9 - 18 VDC (12 Vdc, 0.95A) 18 - 36 VDC (24 Vdc, 0.5A) 36 - 75 VDC (48 Vdc, 0.24A) 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: Adam Tangocci / Project Handler Reviewed by: Gregory Ray / Reviewer

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 products covered by this report are single and dual output, dc/dc converters. They are provided with input and output connectors (pins) for connection to a source of supply and to the load. All components are mounted on a printed wiring board.

Model Differences

Minor non-safety related changes in circuitry to reflect different input voltages and output voltage and current.

JCA10 Series Output Ratings:
JCA10xxS03: V1: +3.3V 2.42A
JCA10xxS05: V1: +5V 1.60A
JCA10xxS12: V1: +12V 0.83A
JCA10xxS15: V1: +15V 0.66A
JCA10xxD01: V1: +5V 0.8A; V2: -5V 0.8A
JCA10xxD02: V1: +12V 0.42A; V2: -12V 0.42A
JCA10xxD03: V1: +15V 0.33A; V2: -15V 0.33A

All models are rated 50°C at 100% rated output, 70°C at 50% rated output.

Model nomenclature:
XX indicates input voltage (05 for 5V (4.5 - 9.0 Vdc), 12 for 12V (9 - 18 Vdc), etc.)
Y indicates single (S) or dual (D) outputs.
ZZ is a configuration number indicating a specific set of outputs.

Technical Considerations

- Equipment mobility : movable
- Connection to the mains : To be determined in end product
- Operating condition : continuous
- Access location : for building-in
- Over voltage category (OVC) : N/A
- Mains supply tolerance (%) or absolute mains supply values : No direct connection
- Tested for IT power systems : No
- IT testing, phase-phase voltage (V) : N/A

- Class of equipment : All inputs considered SELV, except for 48 Vdc input (Special Application - TNV-2)
- Considered current rating of protective device as part of the building installation (A) : -
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : up to 5000 meters
- Altitude of test laboratory (m) : less than 2000 meters
- Mass of equipment (kg) : 9.6 g
- 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 product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 50°C for 100% rated output, 70°C for 50% rated output.
- The product is intended for use on the following power systems: Regulated DC Power Source.
- 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.

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 source to these dc/dc converters are intended to be supplied from an isolated source, such as a battery, or a source which meets the requirements for basic (ELV) or reinforced (SELV) insulation from primary (mains) or TNV-2 circuitry, depending on output type required. If the input meets all the requirements for ELV, the outputs may be considered ELV. If the input meets all the requirements for SELV or TNV-2, then the outputs may be considered SELV. Output voltages remain within SELV limits, even with internally generated non-SELV voltages, if any.
- The input and output connectors (pins) have not been evaluated for field connections and are only intended for connection to mating connectors of internal wiring inside the end-use product. The acceptability of these and the mating connectors relative to secureness, insulating materials and temperature shall be considered.
- The units shall be installed in compliance with the enclosure, mounting, spacing, casualty, and segregation requirements of the end-use application.
- The following Production-Line tests are conducted for this product: Electric Strength
- The following secondary output circuits are SELV: All outputs
- The following secondary output circuits are at non-hazardous energy levels: All outputs
- The power supply terminals and/or connectors are: Not investigated for field wiring
- The investigated Pollution Degree is: 2
- The following magnetic devices (e.g. transformers or inductor) are provided with an OBJY2 insulation system with the indicated rating greater than Class 105(A): T101 - Class 130(B)
- The following end-product enclosures are required: Electrical, Fire, Mechanical
- The following components require special consideration during end-product Thermal (Heating) tests due to the indicated maximum temperature measurements during component-level testing: Metal enclosure (105°C)

- § Printed Wiring Board rated 130°C.
- § The clearance and creepage distances have additionally been assessed for suitability up to 5000 m elevation.

Additional Information

This report is a Standard upgrade/reissue of CBTR Ref. No.: E317867-A74-CB-1, CB Test Certificate Ref. No. US-21633-UL to IEC 60950-1:2005 (Second Edition), Am1:2009 + Am2:2013. Based on the previously conducted testing and the review of product technical documentation including photos, schematics, wiring diagrams and similar, only the construction review and the review of previous tests was deemed necessary. All required tests were carried out under the original investigation.

In addition, two alternate label systems were added to this report (Brady Worldwide, Type B-423 and 3M, Types 7816 or 7818) based on previous evaluation for this manufacturer under CBTR Ref. No.: E139109-A139, CBTC Ref. No.: US-24981-UL and US-24981-M1-UL.

In addition, the clearance and creepage distances have additionally been assessed for suitability up to 5000 m elevation.

The nameplate Marking Plate is considered representative of the entire series.

Technical Amendment 1:
-Models, Ratings, and Model Differences sections were updated for clarity.
-Ratings: Added statment "Ratings are for reference only."
-Table 1.6.2: Statements added regarding ratings provided and test conducted for reference only.
-Marking plates moved to enclosures.
-UL: The manufacturer submitted representative production samples of these models for construction review and testing. Evaluation and testing were performed for compliance to UL 62368-1 Edition 2 and CSA C22.2 NO. 62368-1-14 - Edition 2. Evaluation specifics can be found under CBTR E317867-A6040-CB-1.
-"Supervised by" section corrected to David E. Drewes.
-CBTL updated from San Jose to UL Fremont.

Additional Standards

The product fulfills the requirements of: CSA C22.2 No. 60950-1-07 2nd Ed. Revised 2014-10-14, EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011 + A2:2013, IEC 60950-1:2005 + A1:2009 + A2:2013, UL 60950-1 2nd Ed. Revised 2014-10-14

Markings and instructions

Clause Title	Marking or Instruction Details
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

Special Instructions to UL Representative

N/A