

## UL TEST REPORT AND PROCEDURE

<b>Standard:</b>	UL 60950-1, 2nd Edition, 2011-12-19 (Information Technology Equipment - Safety - Part 1: General Requirements) CSA C22.2 No. 60950-1-07, 2nd Edition, 2011-12 (Information Technology Equipment - Safety - Part 1: General Requirements)
<b>Certification Type:</b>	Component Recognition
<b>CCN:</b>	QQGQ2, QQGQ8 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)
<b>Product:</b>	Power Supply, Built-In DC/DC
<b>Model:</b>	JCA04XXYZZ and JCA06XXYZZ Series (where XX = 05, 12, 24, or 48, Y= S or D, ZZ = two digit number, 01-15), JCA0605D01#30041-01
<b>Rating:</b>	Input voltage:  JCA04XXYZZ Series 5Vdc (4.5-9.0Vdc), 1000mA 12Vdc (9 - 18Vdc), 440mA 24Vdc (18 - 36Vdc), 220mA 48Vdc (36 -75Vdc), 110mA  JCA06XXYZZ Series 5Vdc (4.5-9.0Vdc), 1450mA 12Vdc (9 - 18Vdc), 600mA 24Vdc (18 - 36Vdc), 300mA 48Vdc (36 -75Vdc), 150mA  JCA0605D01#30041-01: 6.25-16Vdc, 1450mA  Output: See Model Differences for details.
<b>Applicant Name and Address:</b>	XP POWER LTD 401 COMMONWEALTH DR HAW PAR TECHNOCENTRE LOBBY B, #02-02 SINGAPORE 149598 SINGAPORE

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.

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Report Reference #

E317867-A32-UL

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**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.

JCA04 Series output loading condition:

Model	V1	Rated	V2	Rated
JCA04xxS03	+3.3V	1.22		
JCA04xxS05	+5V	0.8		
JCA04xxS12	+12V	0.34		
JCA04xxS15	+15V	0.28		
JCA04xxD01	+5V	0.4	- 5V	0.4
JCA04xxD02	+12V	0.17	-12V	0.17
JCA04xxD03	+15V	0.14	-15V	0.14

JCA06 Series output loading condition:

Model	V1	Rated	V2	Rated
JCA06xxS03	+3.3V	1.52		
JCA06xxS05	+5V	1.0		
JCA06xxS12	+12V	0.50		
JCA06xxS15	+15V	0.40		
JCA06xxD01	+5V	0.5	- 5V	0.5
JCA0605D01#30041-01	+5.75V	0.5	- 5.75V	0.5
JCA06xxD02	+12V	0.25	-12V	0.25
JCA06xxD03	+15V	0.20	-15V	0.20

Input: xx indicates input voltage: 05 for 5V (4.5-9.0Vdc), 12 for 12V (9 - 18Vdc), 24 for 24V (18 - 36Vdc) and

48 for 48V (36 -75Vdc).

Special model JCA0605D01#30041-01 has input rating range of 6.25-16Vdc, 1450mA.

#### Technical Considerations

- § Equipment mobility : for building-in
- § Connection to the mains : N/A
- § 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 : 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) : 3048
- § Altitude of test laboratory (m) : <2000
- § Mass of equipment (kg) : 0.02
- § The product was submitted and evaluated for use at the maximum ambient temperature (T<sub>ma</sub>) permitted by the manufacturer's specification of: 75°C
- § The product is intended for use on the following power systems: Regulated DC Power Source.
- § 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).

#### 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 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 end-product enclosures are required: Fire, Mechanical
- § 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 machine. 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.
- § Unit was tested with a 1.0 Listed fuse placed at input.
- § The need for humidity testing shall be determined as part of the end product.

**Additional Information**

This Test Report is a reissue of CBTR Ref. No. E317867-A32-CB-1, CB Test Certificate Ref. No. DK-19044 and DK-19044-A1. 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 complies with the IEC 60950-1:2005 + A1:2009 standard. All tests conducted per 2nd ed of IEC 60950-1 were considered representative of the corresponding tests required by IEC 60950-1, 2nd ed including Amendment 1.

The clearance distances have additionally been assessed for suitability up to 3048 m elevation (1.15 correction factor as per IEC 60664-1, Table A2).

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

**Additional Standards**

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

**Markings and instructions**

Clause Title	Marking or Instruction Details
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