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 for building-in
Model:	VCS100USXX Where XX is 05, 12, 15, 24, 36, 48.
Rating:	Input : 100-240Vac2.0A 50/60Hz VCS100US05 Output: 5V dc 14.00A VCS100US12 Output: 12V dc 8.33A VCS100US15 Output: 15V dc 6.67A VCS100US24 Output: 24V dc 4.17A VCS100US36 Output: 36V dc 2.78A VCS100US48 Output: 48V dc 2.08A
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 unit is a switching type open frame power supply which electronic components mounted on PWB for installing to Information Technology Equipment (ITE).

Model Differences

All Models are similar in construction except for output ratings, transformer secondary windings, some trimming secondary components, and model designation.

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) : OVC II
- Mains supply tolerance (%) or absolute mains supply values : +10%, -10% (manufacturer declared)
- Tested for IT power systems : Yes
- IT testing, phase-phase voltage (V) : 230
- Class of equipment : Class I or Class II (Determined in end-product)
- Considered current rating of protective device as part of the building installation (A) : 20
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : Up to 5000
- Altitude of test laboratory (m) : less than 2000
- Mass of equipment (kg) : 0.62
- 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).
- 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.

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 50°C (100% full load) and 70°C (50% full load)
- The means of connection to the mains supply is: to be considered in end product.
- The product is intended for use on the following power systems: TN and IT
- The following accessible locations (with circuit/schematic designation) are within a limited current circuit: After CY08
- LEDs provided in the product are considered low power devices: Yes

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:

- Earthing test is necessary to be considered in end system.
- Heatsink temperature are above accessible limit of 70°C, when tested at 50% loading condition and results shifted to Tma=70°C. (60950-1, table 4B, temperature limits part 2). Compliances shall be confirmed in end product usage. Parts inside the equipment that are hot and may be touched shall be marked with (60417-2-IEC-5041) adjacent to the part.
- The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-Earthed Dead Metal: 243Vrms, 350Vpk, Primary-SELV: 227 Vrms, 433 Vpk.
- The following Production-Line tests are conducted for this product: Electric Strength and Earthing Continuity Tests
- The following secondary output circuits are SELV: All secondary output
- The following secondary output circuits are at non-hazardous energy levels: All secondary output
- The following secondary output circuits are Limited Current Circuits: After CY08
- The following output terminals were referenced to earth during performance testing: CN01 -ve pin
- 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: Been conducted
- The following input terminals/connectors must be connected to the end-product supply neutral: CN01 pin 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): Transformer T01 - Class 130(B)
- The following end-product enclosures are required: Mechanical, Fire, Electrical
- The equipment is suitable for direct connection to: AC mains supply
- The following LEDs operate within the exempt group per IEC 62471: Risk Exempt Group
- Printed Wiring Board rated 130°C.
- The clearance and creepage distances have additionally been assessed for suitability up to 5000 m elevation. An additional evaluation may be necessary if installed at an elevation greater than 5000 meters.

Additional Information

This report is a Standard upgrade/reissue of CBTR Ref. No.: E317867-A41-CB-2, CB Test Certificate Ref.

No. US-21401-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. It has been determined the product continues to comply with the standard. No additional testing was deemed necessary for this upgrade/reissue.

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.

The clearance and creepage distances have additionally been assessed for suitability up to 5000 m elevation.

The label is a draft of an artwork for marking plate pending approval by National Certification Bodies and it shall not be affixed to products prior to such an approval.

There are CB test certificates older than 3 years; these components have been evaluated as part of end-product to Amendment 1 requirements and are compliant. Acceptance of the component CBTCs older than 3 years will be up to the discretion of the target country NCB.

Technical Amendment 1:
-Models and ratings sections were updated for clarity.
-Bleeder resistors were updated for 60950 and 62368 in the critical components table.
-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-A6033-CB-1.

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 - 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 - Rating	Rated current and voltage and type located on or adjacent to fuse or fuseholder.
1.7.6 Fuses -	Unambiguous reference to service documentation for instructions for

Non-operator access/soldered-in fuses	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	T01	--	Primary Pin to Secondary Pin	3000	4242	1

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

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

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Electric Strength Test Component Exemptions - The following solid-state components may 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
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