UL TEST REPORT AND PROCEDURE

Standard:	UL 60950-1, 2nd Edition, 2019-05-09 (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 Supplies
Model:	CCB250PSXX (where XX = represents the output voltage between 12, 15, 24, 36, 48, maybe followed with additional suffix "SF")
Rating:	Input: 100-240 Vac, 50/60 Hz, 3.2 A Output: See Model Differences for Output Ratings 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 / Project Handler Reviewed By: Walid Beytoughan / 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 product is a component AC-DC power supply for building-in, open frame type provided with a metal chassis, incorporating primary and SELV components.

The main PWB is secured to the chassis studs by multiple machine screws.

Model Differences

The power supplies in the series are differentiated by the output voltage and current ratings, number of turns of primary/secondary windings in the Transformers (T3 (Power)) and minor differences in the secondary circuit components.

See below for Model Ratings Table for 50°C Below:

Model CCB250PS12: Output Rated: 12 Vdc, 20.8 A (250 W); Stand-by: 5 V, 0.5A
Model CCB250PS15: Output Rated: 15 Vdc, 16.7 A (250 W); Stand-by: 5 V, 0.5A
Model CCB250PS24: Output Rated: 24 Vdc, 10.4 A (250 W); Stand-by: 5 V, 0.5A
Model CCB250PS28: Output Rated: 28 Vdc, 8.9 A (250 W); Stand-by: 5 V, 0.5A
Model CCB250PS36: Output Rated: 36 Vdc, 6.9 A (250 W); Stand-by: 5 V, 0.5A
Model CCB250PS48: Output Rated: 48 Vdc, 5.2 A (250 W); Stand-by: 5 V, 0.5A

See Enclosure-Miscellaneous for details.

Additional suffix "SF" provided for units provided with only one fuse in the line and no fuse in the neutral.

Test Item Particulars

Mass of equipment (kg)	0.8
Equipment mobility	for building-in
Connection to the mains	To be determined in the end-use product.
Operating condition	continuous
Access location	To be determined in the end-use product.

Over voltage category (OVC)	OVC II
Mains supply tolerance (%) or absolute mains supply values	+10%, -10%
Tested for IT power systems	No
IT testing, phase-phase voltage (V)	N/A
Class of equipment	Class I (earthed)
Considered current rating of protective device as part of the building installation (A)	5.0 A
Pollution degree (PD)	PD 2
IP protection class	IP X0
Altitude of operation (m)	3048
Altitude of test laboratory (m)	40

Technical Considerations

- 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).
- 1.2 The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 50°C at full rated load and 70°C at half rated load (See Enclosure - Miscellaneous for de-rating curve details).
- 1.4 The product is intended for use on the following power systems: TN
- 1.5 The equipment disconnect device is considered to be: determined in the end-product.
- According to IEC60664-1, Table A2, required Clearances have been adjusted by multiplying the clearance at sea level by a factor of 1.15 for operating at an altitude of 3048 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:

- Consideration to repeating Heating and Touch Current Tests should be given in the end-product evaluation.
- 1.2 The following Production-Line tests are conducted for this product: Electric Strength
  Earthing Continuity
- 1.3 The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-Earthed Dead Metal: 242 Vrms, 344 Vpk
  Primary-SELV: 322 Vrms, 670 Vpk
- 1.5 The following secondary output circuits are SELV: All outputs
- 1.6 The following secondary output circuits are at hazardous energy levels: Power output
- 1.11 The power supply terminals and/or connectors are: Not investigated for field wiring
- 1.12 The maximum investigated branch circuit rating is: 20 A
- 1.13 The investigated Pollution Degree is: 2
- 1.15 Proper bonding to the end-product main protective earthing termination is: Required
- 1.16 An investigation of the protective bonding terminals has: Not been conducted
- 1.17 The following input terminals/connectors must be connected to the end-product supply neutral: CON4 (N)
- 1.18 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): PFC, L3, L2, L5, L6 and T1-T5 (Class F)
- 1.19 The following end-product enclosures are required: Mechanical
  Fire
  Electrical

Additional Information

This report is a Standard upgrade/reissue of CBTR Ref. No.: E139109-A87-CB-1, CB Test Certificate Ref. No.US-17818-UL and No.US-17818-A1-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.

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).

Marking label is representative of all models.

These products carry complimentary certification to UL 62368-1 AUDIO/VIDEO, INFORMATION AND COMMUNICATION TECHNOLOGY EQUIPMENT - PART 1: SAFETY REQUIREMENTS- Edition 2 - Issue Date 2014/12/01 / CSA C22.2 NO. 62368-1-14 AUDIO/VIDEO, INFORMATION AND COMMUNICATION TECHNOLOGY EQUIPMENT - PART 1: SAFETY REQUIREMENTS- Edition 2 - Issue Date 2014/12/01.

Amendment 1 (Technical):
1. Added alternate Bleeder Resistor (R16), (Tzai Yuan Enterprise Co Ltd, MGUL1/4W Series) to Table 1.5.1.

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, IEC 60950-1:2005 + A1:2009, UL 60950-1 2nd Ed. Revised 2011-12-19

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
2.7.6 Warning to service personnel	"CAUTION: Double pole/neutral fusing"

Special Instructions to UL Representative

Units provided with optional fuse, F2, should also be provided with the "CAUTION: Double pole/neutral fusing". The marking is not required for single pole fused units.

BD1.0	TABLE: Production-Line Testing Requirements					
BD1.1	**Electric Strength Test Special Constructions – Refer to Generic Inspection Instructions, Part AC for further information.**					
Model	Component	Removable parts	Test probe location	Test V rms	Test V dc	Test Time, s
All Models	Transformer, T1	-	Primary to Secondary	3000	4242	1
BD1.2	**Earthing Continuity Test Exemptions – This test is not required for the following models:**					
	All Models					
BD1.3	**Electric Strength Test Exemptions – This test is not required for the following models:**					
	-					
BD1.4	**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:**					
	-					

BE1.0	Sample and Test Specifics for Follow-Up Tests at UL				
Model	Component	Material	Test	Sample (s)	Test Specifics
-	-	-	-	-	-