

UL TEST REPORT AND PROCEDURE

Standard:	UL 62368-1, 2nd Ed, 2014-12-01 (Audio/video, information and communication technology equipment Part 1: Safety requirements) CAN/CSA C22.2 No. 62368-1-14, 2nd Ed (Audio/video, information and communication technology equipment Part 1: Safety requirements)
Certification Type:	Component Recognition
CCN:	QQJQ2, QQJQ8 (Power Supplies for Use in Audio/Video, Information and Communication Technology Equipment)
Complementary CCN:	QQGQ2, QQGQ8 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)
Product:	Switching Power Supply for building-in
Model:	ECP225PSXX-Y (where XX can be any number between 12 and 48 designating the output voltage, -Y can be -A or blank to represent additional 5V standby output), may also be provided with suffix "SF" or "3X5"
Rating:	Input: 100-240 Vac, 50/60 Hz, 3.0 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 AC/DC switching mode power supply with open-frame type, and it is intended for building-in from factory installation as a component of the end product Information Technology Equipment (ITE).

Model Differences

All models in the Model ECP225PSXX-Y series are identical with exception to the Mains Transformer, TR1, and minor secondary components that allow for different output voltage ratings.

Additional Suffix "SF" denotes units provided with only a single line side fuse.

Additional suffix "3X5" denotes extended PCB with no change in the PCB traces. Refer to Enclosure 5-01 for 2.5x5 PCB size and 5-03 for 3X5 PCB size.

Additional suffix "A" denotes unit with 5V standby output (V2). See below for standby output ratings:

Convection cooling - 5Vdc, 1A

Forced cooling - 5Vdc, 2A

See Miscellaneous Enclosure 7-02 for Output Range.

Units are provided with additional output to power an external fan. See below for external fan output ratings:

ECP225PSXX: V2: 12V, 0.5A

ECP225PSXX-A: V3: 12V, 0.5A

Maximum Output Load conditions:

Condition A: Convictional Cooling at Tma=50°C, 100% load :

ECP225PS12: 12 Vdc, 12.5 A

ECP225PS15: 15 Vdc, 10.0 A

ECP225PS24: 24 Vdc, 6.25 A

ECP225PS28: 28 Vdc, 5.36 A

ECP225PS48: 48 Vdc, 3.1 A

Condition B: Convictional Cooling at Tma=70°C, 50% load :

ECP225PS12: 12 Vdc, 6.25 A

ECP225PS15: 15 Vdc, 5.0 A

ECP225PS24: 24 Vdc, 3.13 A

ECP225PS28: 28 Vdc, 2.68 A

ECP225PS48: 48 Vdc, 1.55 A

Condition C: Force air cooling at Tma=50°C, 100% load :

ECP225PS12: 12 Vdc, 18.75 A

ECP225PS15: 15 Vdc, 15.0 A

ECP225PS24: 24 Vdc, 9.38 A

ECP225PS28: 28 Vdc, 8.04 A

ECP225PS48: 48 Vdc, 4.69 A

Condition D: Force air cooling at Tma=70°C, 50% load :

ECP225PS12: 12 Vdc, 9.38 A

ECP225PS15: 15 Vdc, 7.5 A

ECP225PS24: 24 Vdc, 4.69 A

ECP225PS28: 28 Vdc, 4.02 A

ECP225PS48: 48 Vdc, 2.35 A

Test Item Particulars	
Classification of use by	Skilled person
Supply Connection	AC Mains
Supply % Tolerance	+10%/-10%
Supply Connection – Type	for building-in
Considered current rating of protective device as part of building or equipment installation	20 A; building;
Equipment mobility	for building-in
Over voltage category (OVC)	OVC II
Class of equipment	Not Classified
Access location	N/A
Pollution degree (PD)	PD 2
Manufacturer's specified maximum operating ambient	50°C for 100% load; 70°C for 50% load, 85 °C for 25% load at convectional cooling and 40% at force air cooling. See Enclosure ID 7-02 for derating details. °C
IP protection class	IPX0
Power Systems	TN
Altitude during operation (m)	5000 m
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	0.35 kg

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (T_{ma}) permitted by the manufacturer's specification of : 50°C for 100% load; 70°C for 50% load.
- The product is intended for use on the following power systems : TN
- Considered current rating of protective device as part of the building installation (A) : 20
- Mains supply tolerance (%) or absolute mains supply values : +10%/-10%
- The following are available from the Applicant upon request : Installation (Safety) Instructions / Manual
- • 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 following accessible locations (with circuit/schematic designation) are within a limited current circuit: Load side of CY7, CY8, CY9.

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 product-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 : 2500Vpk (Mains Transient Voltage)
- The following output circuits are at ES1 energy levels : All circuits
- The following output circuits are at PS3 energy levels : All circuits
- 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 when installed in a Class I end product.
- The following end-product enclosures are required : Fire, Electrical, Mechanical
- 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) : TR1 - Class B (130)
- The power supply was evaluated to be used at altitudes up to : "5,000 m"

Additional Information

This report was based on testing previously conducted under CBTR Ref. No. E317867-A71-CB-2, Amendment 1, CB Test Certificate Ref. No. US-48683-UL and US-48683-A1-UL to IEC 60950-1:2005 (Second Edition), Am1:2009 + Am2:2013. The required tests carried out as part of the previous investigation were used to determine compliance with 62368-1 requirements. Based on the results of previous evaluation, additional testing, and a current review of the product construction, it was determined that the products comply with the standards UL/IEC 62368-1.

Additional Standards

The product fulfills the requirements of: EN 62368-1:2014 + A11:2017, CSA CAN/CSA-C22.2 NO. 62368-1 2nd Ed, Issued December 1, 2014

Markings and Instructions

Clause Title	Marking or Instruction Details
Equipment identification marking – Manufacturer identification	Listees or Recognized companys name, Trade Name, Trademark or File Number
Equipment identification marking – model identification	Model Number
Equipment rating marking – ratings	"Input Ratings (voltage, frequency/dc, current/power)", "Output Ratings (voltage, frequency/dc, current/power)"
Fuses – replaceable by skilled person	F1, F2: Ratings (3.15A, 250V) located on or adjacent to fuse or fuseholder or in service manual.

Special Instructions to UL Representative

N/A

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
ECP225PSXX	TR1	N/A	Primary/Secondary	2800	4000	1-4
ECP225PSXX	N/A	N/A	Primary/Earth	1800	2500	1-4
BD1.2						
Earthing Continuity Test Exemptions – This test is not required for the following models:						
N/A						
BD1.3						
Electric Strength Test Exemptions – This test is not required for the following models:						
N/A						
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.						
N/A						

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