

## 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>	Switch Mode Power Supply
<b>Model:</b>	EMA212PSXX (Where XX = 12, 24 or 48, may also be followed by suffix -F)
<b>Rating:</b>	Input: 100-240 Vac, 50/60 Hz, 3.0 A Max  Output: See Model Differences for details.
<b>Applicant Name and Address:</b>	XP POWER L L C SUITE 150 1241 E DYER RD SANTA ANA CA 92705 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.

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Reviewed by: Robert Leon

### 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 equipment is a component open frame switch mode power supply for building-in. The power supply consists of 3 outputs, one main output and two auxiliary outputs (fan and Vsb).

### Model Differences

Models are similar, except V1 output voltage/current rating and T7 secondary windings. Output terminal (CON2) provided with terminal block or fast-on connector, represented by -F suffix.

Output rating for 50°C provided below:

For Model EMA212PS12: V1 = 12 Vdc, 16.7 A

For Model EMA212PS24: V1 = 24 Vdc, 8.3 A

For Model EMA212PS48: V1 = 48 Vdc, 4.0 A

Output rating for 70°C provided below:

For Model EMA212PS12: V1 = 12 Vdc, 8.35 A

For Model EMA212PS24: V1 = 24 Vdc, 4.15 A

For Model EMA212PS48: V1 = 48 Vdc, 2.0 A

For all models: V2: 12 Vdc (fan), 1.0 A; V3: 5 Vsb, 0.1 A  
Max 212.5 W

### Technical Considerations

- Equipment mobility : Component for building-in
- Connection to the mains : Component for building-in
- Operating condition : continuous
- Access location : restricted access location
- Over voltage category (OVC) : OVC II
- Mains supply tolerance (%) or absolute mains supply values : +6%, -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) : 20A
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : Up to 3048m
- Altitude of test laboratory (m) : less than 2000m
- Mass of equipment (kg) : 0.3
- The product was submitted and evaluated for use at the maximum ambient temperature (T<sub>ma</sub>) permitted by the manufacturer's specification of: 50°C at full load (212.5 W), 70°C at 50% load (100.8 W)
- The product is intended for use on the following power systems: TN
- 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).
- The following accessible locations (with circuit/schematic designation) are within a limited current circuit: Load side of bridging capacitor C95
- The clearance distances of the equipment have additionally been assessed for suitability up to 3048m elevation.

#### **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 end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-SELV: 357 Vrms, 608 Vpk
- The following secondary output circuits are SELV: All outputs
- The following secondary output circuits are at hazardous energy levels: V1 (main output)
- The following secondary output circuits are at non-hazardous energy levels: V2 (fan) and V3 (Vsb)
- 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: Not been conducted
- The following input terminals/connectors must be connected to the end-product supply neutral: Input connector (CON1), Pin 1
- The following magnetic devices (e.g. transformers or inductor) are provided with an OBJ2 insulation system with the indicated rating greater than Class A (105°C): T1, T3, T4 and T7 Class F (155°C). Inductors L1, L2, L3, L4, L5 and L7 suitable for up to 130°C (Functional insulation)
- The following end-product enclosures are required: Mechanical, Fire, Electrical
- The maximum continuous power supply output (Watts) relied on forced air cooling from: 212.5 W with 10.67 cfm fan applied to the primary side.
- The equipment is suitable for direct connection to: AC mains supply
- Printed Wiring Boards are rated minimum 130°C. Electrolytic capacitors are rated minimum 105°C.

- Fuse provided with unambiguous cross-reference to servicing instructions (FS1). End product servicing instructions to contain fuse type and ratings; 5.0 A, 250 V, Type T.
- Clearance values have been evaluated for an operating altitude of max. 3048 m, based on IEC-60664-1 altitude correction factor. Consideration should be given to altitude correction for additional Clearances introduced during final installation. The equipment is not for use in aircraft.
- The X and Y capacitors shall be located within an enclosure having openings limited as follows: The projected area of any opening in the top, back, sides or front of the overall enclosure, onto a plane perpendicular to a line passing through the center of the opening and any point on the central axis of the X and Y capacitors, does not exceed 0.20 in.2 (1.3 cm2) unless the minor dimension of the projected area is not more than 3/8 in. (9.5 mm).
- Humidity testing to be conducted as part of the end product evaluation.

**Additional Information**

This is a CBTR Reissue/Standard Upgrade from Report Reference No. E139109-A46-CB-1, CB Test Certificate Reference No. US/14782/UL. All data extracted from the original report (including related CB Amendments). No sample was deemed necessary to be reviewed and no additional testing was required based on engineering judgment to reissue/upgrade this Report. Previous tests were still applicable and test data was transferred to this report reference.

Based upon the previously conducted testing and the review of product technical documentation including photos, schematics, wiring diagrams and similar, has been determined that the product continues to comply with the standard.

**Additional Standards**

The product fulfills the requirements of: CSA C22.2 No. 60950-1-07 + A1:2011, EN 60950-1:2006 + A11:2009 + A1:2010, IEC 60950-1:2005 + A1:2009

**Markings and instructions**

Clause Title	Marking or Instruction Details
Power rating - Ratings	Ratings (voltage, frequency/dc, current)
Power rating - Company identification	Listee's or Recognized company's name, Trade Name, Trademark or File Number
Power rating - Model	Model Number
Fuses - Non-operator access/soldered-in fuses	Unambiguous reference to service documentation for instructions for replacement of fuses replaceable only by service personnel

**Special Instructions to UL Representative**

N/A