UL TEST REPORT AND PROCEDURE

Standard:	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)
Certification Type:	Component Recognition
CCN:	QQGQ2, QQGQ8 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)
Product:	Switching Power Supplies
Model:	FCM400PSXX (where XX = represents the output voltage between 12-48); may also be provided with additional suffix "SF" and/or suffix "S".
Rating:	Input: 100-240 Vac, 50/60 Hz, 5 A Output: See Enclosure - Output Ratings for details
Applicant Name and Address:	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.

Prepared by: David Drewes Reviewed by: Tim McGeough

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 FCM400PS12: Output Rated: 12 Vdc, 33.3 A (400 W); Stand-by: 5 V, 0.5A
Model FCM400PS15: Output Rated: 15 Vdc, 26.6 A (400 W); Stand-by: 5 V, 0.5A
Model FCM400PS24: Output Rated: 24 Vdc, 16.6 A (400 W); Stand-by: 5 V, 0.5A
Model FCM400PS28: Output Rated: 28 Vdc, 14.2 A (400 W); Stand-by: 5 V, 0.5A
Model FCM400PS36: Output Rated: 36 Vdc, 11.1 A (400 W); Stand-by: 5 V, 0.5A
Model FCM400PS48: Output Rated: 48 Vdc, 8.3 A (400 W); Stand-by: 5 V, 0.5A

See Enclosure-Miscellaneous for details.

Additional suffix "SF" denotes units with single pole fusing.

Additional suffix "S" denotes units provided with input screw terminal.

Technical Considerations

- 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 : +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) : 5.0 A
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : 3048
- Altitude of test laboratory (m) : 40
- Mass of equipment (kg) : 0.8
- 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 details).,
- The product is intended for use on the following power systems: TN
- The equipment disconnect device is considered to be: determined in the end-product.,
- 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 C55, C100

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, Earthing Continuity,
- The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-Earthed Dead Metal: 244 Vrms, 353 Vpk, Primary-SELV: 240 Vrms, 441 Vpk,
- The following secondary output circuits are SELV: All outputs
- The following secondary output circuits are at hazardous energy levels: All outputs
- The following secondary output circuits are Limited Current Circuits: Load side of C55, C100
- The power supply terminals and/or connectors are: Not investigated for field wiring
- 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: CON2
- 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): L1, L2, L5, L6 and T1-T4 (Class F),
- The following end-product enclosures are required: Mechanical, Fire,

- Consideration to repeating Heating and Touch Current Tests should be given in the end-product evaluation.
- The need for additional mechanical protection against access to the DC Fan blades in the Service Area should be considered as part of the end-product.
- Labels provided on the power supply were considered to inaccessible when installed in the end-product. Labels that are required to be exposed to the user shall have the marking durability testing conducted as part of the end-product.
- Means of disconnection to be provided as part of the end-product.
- The +5Vdc/0.5 A output was evaluated as a signal output only. The need for additional evaluation shall be determined in the end product.

Additional Information

Marking label is representative of all models.

This report is a re-issue of CB Test Report (Cert. No. US-15598-UL), Test Report Reference: E139109-A43-CB-1, issued on 2010-09-02). All required testing was carried out under the original investigation. No testing was required to upgrade the report to IEC 60950-1, Second Edition including Amendments A1:2009 .

Component licenses may be more than three years old. According to Publication IECEE02, Clause 6.3.4, Recognizing NCB may challenge these certificates.

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

Additional Standards

The product fulfills the requirements of: EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011 (which includes all European national differences, including those specified in this test report).

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

Special Instructions to UL Representative

Units provided with optional fuse, FS2, should also be provided with the "CAUTION: Double pole/neutral fusing". The marking is not required for single pole fused units.

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	Transformer (T1-T4)	-	Primary to Secondary Pins	3000	4242	1

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

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

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:

Sample and Test Specifics for Follow-Up Tests at UL

Model	Component	Material	Test	Sample(s)	Test Specifics
N/A					