CERTIFICATE OF COMPLIANCE

Certificate Number	20130528-E139109
Report Reference	E139109-A42-UL
Issue Date	2013-MAY-28

Issued to: XP POWER L L C
SUITE 150
1241 E DYER RD
SANTA ANA CA 92705

This is to certify that representative samples of COMPONENT - POWER SUPPLIES, INFORMATION TECHNOLOGY EQUIPMENT INCLUDING ELECTRICAL BUSINESS EQUIPMENT

See addendum page for models.

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: Information Technology Equipment - Safety - Part 1: General Requirements,UL 60950-1, CSA C22.2 No. 60950-1-07

Additional Information: See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Recognized Component Marks for the U.S. and Canada should be considered as being covered by UL's Recognition and Follow-Up Service and meeting the appropriate U.S. and Canadian requirements.

The UL Recognized Component Mark for the U.S. generally consists of the manufacturer's identification and catalog number, model number or other product designation as specified under "Marking" for the particular Recognition as published in the appropriate UL Directory. As a supplementary means of identifying products that have been produced under UL's Component Recognition Program, UL's Recognized Component Mark: , may be used in conjunction with the required Recognized Marks. The Recognized Component Mark is required when specified in the UL Directory preceding the recognitions or under "Markings" for the individual recognitions. The UL Recognized Component Mark for Canada consists of the UL Recognized Mark for Canada: and the manufacturer's identification and catalog number, model number or other product designation as specified under "Marking" for the particular Recognition as published in the appropriate UL Directory.

Recognized components are incomplete in certain constructional features or restricted in performance capabilities and are intended for use as components of complete equipment submitted for investigation rather than for direct separate installation in the field. The final acceptance of the component is dependent upon its installation and use in complete equipment submitted to UL LLC.

Look for the UL Recognized Component Mark on the product.

William R. Carney

William R. Carney, Director, North American Certification Programs

UL LLC

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This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

Switching Power Supply, ECC100USXXYY, ECC100US48-XB0201B (where XX indicates the output voltage between 12 and 48, YY can be "-F, or "-S", or blank; all "-" considered optional; may also be provided with additional suffix "-SF"

William R. Carney

William R. Carney, Director, North American Certification Programs

UL LLC

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 Supply
Model:	ECC100USXXYY, ECC100US48-XB0201B (where XX indicates the output voltage between 12 and 48, YY can be "-F, or "-S", or blank; all "-" considered optional; may also be provided with additional suffix "-SF"
Rating:	Model ECC100USXXYY Input: 100-240 Vac, 2.5 A, 50/60 Hz Output: See Enclosure - Miscellaneous Ratings Table for details. Model ECC100US48-XB0201B Input: 40-90Vac, 3 A, 50/60 Hz; or 90 Vac square wave Output: 48Vdc, 1.25A, 60W.
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: Edgard Rincand Reviewed by: David E. Drewes

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 model covered in this report is a component power supply intended for use in Information Technology Equipment. It is an open frame power supply intended for building-in Class I.

Model Differences

All models in the Model ECC100USXXYY series, where XX denotes the output voltage, are identical with exception to the Mains Transformer, T1, and minor secondary components that allow for different output voltage ratings. See below for Model Ratings Table Below:

Model ECC100US12: Output Rated: 12 Vdc, 8.1 A; Standby 5.0V, 0.5A
Model ECC100US15: Output Rated: 15 Vdc, 6.5 A; Standby 5.0V, 0.5A
Model ECC100US24: Output Rated: 24 Vdc, 4.1 A; Standby 5.0V, 0.5A
Model ECC100US28: Output Rated: 28 Vdc, 3.5 A; Standby 5.0V, 0.5A
Model ECC100US48: Output Rated: 48 Vdc, 2.0 A; Standby 5.0V, 0.5A

Additional Suffix "F" denotes units provided with additional Input Filter Board.

Additional Suffix "S" denotes units provided with screw terminal.

Additional Suffix "-SF" denotes units provided with Line fuse only.

Model ECC100US48-XB0201B: Input rating 40-90 Vac, 47-63 Hz, Quasi Square Wave; Output rated: 48Vdc, 1.5A.

Technical Considerations

- § Equipment mobility : for building-in
- § Connection to the mains : for building-in
- § Operating condition : continuous
- § Access location : operator accessible
- § 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) : 20 A (Branch Circuit)
- § Pollution degree (PD) : PD 2
- § IP protection class : IPX0
- § Altitude of operation (m) : 3048
- § Altitude of test laboratory (m) : 47.2
- § Mass of equipment (kg) : 780 g
- § The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 75°C
- § The means of connection to the mains supply is: for building-in
- § 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).
- § Power supplies covered by this report were evaluated for Class I.

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,
- § The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-Earthed Dead Metal: 246 Vrms, 362 Vpk, Primary-SELV: 240 Vrms, 456 Vpk,
- § The following secondary output circuits are SELV: All outputs
- § The following secondary output circuits are at non-hazardous energy levels: All outputs
- § The following output terminals were referenced to earth during performance testing: Secondary Output (J2) referenced using "Y2" capacitors.,
- § 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: ACN J1
- § 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, L3, T1, and T2 (Class F, 130°C) ,
- § The following end-product enclosures are required: Mechanical, Fire,
- § The equipment is suitable for direct connection to: AC mains supply
- § Printed Wiring Board rated 130°C.
- § The equipment is provided with a fuse in both the Line and Neutral of the primary circuit.
- § Heatsinks are floating and considered live. They should not be accessible in the end-product.

- § Touch Current test to be conducted in the end-product evaluation.
- § Clearance and clearance spacings valuated for 3048 m altitude. Additional consideration maybe necessary in the end-use product.
- § These units were tested mounted to an external Heat Sink Base (constructed of aluminum with min. dimensions of 25.5 by 16.5 by 15 cm, provided with numerous cooling fins, approx. 1.9 mm high each). Temperature tests should be considered on the surface of any external heatsink mounted to this unit. The external heat sink base temperature should not exceed 85°C in the end-use product.
- § Unit is provided with an optional Input Filter Board provided with VDR's that bridge from primary to GND. The end-use installation shall consider the requirements of 1.5.9.4, when the Input Filter Board option is provided.
- § Consideration for Warning to Service Personel in Inspection Criteria sould be given in the end product application " CAUTION: Double Pole/Neutral Fusing"
- § Clause 1.5.9.4 shall be considered when the unit is provided with optional Input Filter Board, due to the presence of VDR's bridging from Primary to GND
- § Testing of these units were conducted with the power supply mounted to an aluminum heat sink base, approx. 25.5 by 16.5 by 15 cm, provided with numerous cooling fins, approx. 1.9 mm high each. ,

Additional Information

These power supplies are designed to be mounted upon a Heat Sink Base. The need for the additional testing and evaluation shall be determined in the end product investigation.

The nameplate markings provided as an Enclosure - Marking Plate are considered representative of the entire series.

This report is a re-issue of CB Test Report (Cert. No. US/14436/UL and US/14436A/UL), Test Report Reference: E139109-A42-CB-1, issued on 2009-11-05. 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 and addition of X and Y capacitors as follows:
- X Capacitor - Panasonic, Type ECQUA, ECQUG and ECQUL Series.
- X Capacitor - Epcos/Siemen, Type B32921, B32922, B32923 E, B32924 E/F, B32926 E/F Series.
- X Capacitor - Vishay Capacitors Belgium N V, F1772 or F1778, F1774
- Y Capacitor - Kemet, Type ERP610 Series.
- Y Capacitor - Murata Mfg Co., Ltd. - KX Series
- Y Capacitor - TDK, Type CD Series.
- Y Capacitor - Vishay, Type VY1 Series.

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

Review of components investigated to earlier editions of IEC60950 comply with EC 60950-1:2005 + A1:2009, CSA C22.2 No. 60950-1-07 + A1:2011, EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011 and UL 60950-1 2nd Ed. Revised 2011-12-19.

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: CSA C22.2 No. 60950-1-07 + A1:2011, EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011, UL 60950-1 2nd Ed. Revised 2011-12-19

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
Terminals for external primary power supply conductors	Capital letter "N" located adjacent to a terminal intended exclusively for connection of the primary power neutral conductor

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	Transformer, T1	-	Primary to Secondary	3000	-	1
All Models	Transformer, T2	-	Primary to Secondary	3000	-	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					