

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 Series
Model:	LCL150PSXX (where XX can be any number 12 to 48 and denotes the rated output voltage.)
Rating:	Input: 100-240 Vac, 50/60 Hz, 2 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: Nathan Escalante

Reviewed by: Gregory Ray

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, provided with an overall metal enclosure, incorporating primary and SELV components.

The main PWB is secured to the chassis bottom 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 (T2 (Power)) and minor differences in the secondary circuit components and PWB layout.

See below for Model Ratings Table Below:

Model LCL150PS12: Output Rated: 12.0 Vdc, 12.5 A (150 W)
Model LCL150PS13: Output Rated: 13.5 Vdc, 11.1 A (150 W)
Model LCL150PS15: Output Rated: 15.0 Vdc, 10.0 A (150 W)
Model LCL150PS24: Output Rated: 24.0 Vdc, 6.3 A (150 W)
Model LCL150PS27: Output Rated: 27.0 Vdc, 5.6 A (150 W)
Model LCL150PS48: Output Rated: 48.0 Vdc, 3.1 A (150 W)

See Enclosure-Miscellaneous for details.

Technical Considerations

- § Equipment mobility : for building-in
- § Connection to the mains : To be determined in end product
- § Operating condition : continuous
- § Access location : for building-in
- § 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) : 3048
- § Altitude of test laboratory (m) : less than 2000 meters
- § Mass of equipment (kg) : 0.9
- § The product was submitted and evaluated for use at the maximum ambient temperature (T_{ma}) permitted by the manufacturer's specification of: Full-rated output load: 50°C. Half-rated output load: 60°C.,
- § The means of connection to the mains supply is: For building-in, to be determined in end product.
- § 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 + A12:2010 + A12:2011 (which includes all European national differences, including those specified in this test report).
- § 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 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: 241Vrms, 400 Vpk, Primary-SELV: 274 Vrms, 458 Vpk,
- § The following secondary output circuits are SELV: All
- § 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 suitability of the protective bonding terminal shall be evaluated in the end system.
- § The following input terminals/connectors must be connected to the end-product supply neutral: AC-N, neutral terminal is provided as part of the input terminal block, however the unit is for building in and compliance shall be determined in the end product.
- § 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): L1-L4, L6, T1 (Class B or Class F),
- § The following end-product enclosures are required: Mechanical, Fire, Electrical
- § The following components require special consideration during end-product Thermal (Heating) tests due to the indicated maximum temperature measurements during component-level testing: L1 (108°C), L2 (112°C), T1 (125.5°C), L4 (97.4°C)

Additional Information

This Test Report is a reissue of CBTR Ref. No. E139109-A27-CB-1, CB Test Certificate Ref. No. US/14041/UL. Based on previously conducted testing and the review of product technical documentation it was determined that the product complies with the upgrade of the Second Edition of the standard to

Amendment 1. The original testing was conducted under the SMT program at XP Power Inc, 1590 S Sinclair St., Anaheim, CA 92806, however; presently the client's laboratory does not participate in the program. No testing was conducted at the client's facilities after the program has been discontinued.

Required values for clearance are adjusted for 3048 m (1.15 correction factor as per IEC 60664-1, Table A2).


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

As noted in IECEE 02, cl. 6.3.4, the Recognizing NCB may challenge a CB Test Certificate when it is more than three years old or when the standard according to which it was issued is no longer in force in the country of the Recognizing NCB.

Additional Standards

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

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
Terminal for main protective earthing	Provided adjacent to the main protective earthing terminal (60417-5019) 
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

CERTIFICATE OF COMPLIANCE

Certificate Number 20120828- E139109
Report Reference E139109-A29-UL
Issue Date 2012-AUGUST-28

Issued to: XP POWER INC
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

Switching Power Supply Series; LCL300PSXX (where XX
can be any number 12 to 48), LCL300PS12 -XD0200

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



Standard(s) for Safety:

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

Additional Information:

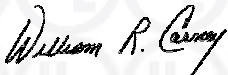
See the UL Online Certifications Directory at
www.ul.com/database for additional information

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.

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, Director, North American Certification Programs

UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at www.ul.com/contactus



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Certification Type:	Component Recognition
CCN:	QQGQ2, QQGQ8 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)
Product:	Switching Power Supply Series
Model:	LCL300PSXX (where XX can be any number 12 to 48), LCL300PS12-XD0200
Rating:	Input: 100-240 Vac, 50/60 Hz, 4.0 A Output: See Enclosure - Model Differences for details
Applicant Name and Address:	XP POWER LLC SUITE 150 1241 E DYER RD SANTA ANA CA 92705 UNITED STATES

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Prepared by: Karl Bier

Reviewed by: Linus Park

Supporting Documentation

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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 (T1 (Power)) and minor differences in the secondary circuit components and PWB layout.

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

Model LCL300PS12: Output Rated: 12.0 Vdc, 25 A (300 W)
Model LCL300PS13: Output Rated: 13.5 Vdc, 22 A (300 W)
Model LCL300PS15: Output Rated: 15.0 Vdc, 20 A (300 W)
Model LCL300PS24: Output Rated: 24.0 Vdc, 13 A (310 W)
Model LCL300PS27: Output Rated: 27.0 Vdc, 11.7 A (315 W)
Model LCL300PS48: Output Rated: 48.0 Vdc, 6.7 A (320 W)

See Enclosure-Miscellaneous for de-rating curve.

Model LCL300PS12 -XD0200 is identical to Model LCL300PS12 with exception to alternate Varistor (RV1).

Technical Considerations

- § Equipment mobility : for building-in
- § Connection to the mains : To be determined in the end system
- § Operating condition : continuous
- § Access location : To be determined in the end system

- § 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) : To be determined in the end system
- § Pollution degree (PD) : PD 2
- § IP protection class : IP X0
- § Altitude of operation (m) : 3048
- § Altitude of test laboratory (m) : less than 2000 meters
- § Mass of equipment (kg) : 0.9
- § The product was submitted and evaluated for use at the maximum ambient temperature (T_{ma}) permitted by the manufacturer's specification of: Full-rated output load: 50°C. 60% rated output load: 65°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).
- § 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 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: 244 Vrms, 353 Vpk, Primary-SELV: 274 Vrms, 586 Vpk
- § The following secondary output circuits are SELV: All
- § The following secondary output circuits are at hazardous energy levels: Output
- § 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 suitability of the protective bonding terminal shall be determined in the end system.,
- § The following input terminals/connectors must be connected to the end-product supply neutral: J1, neutral terminal.
- § 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-L4, T1 (Class B),
- § The following end-product enclosures are required: Mechanical, Fire, Electrical
- § Fans: The fan provided in this sub-assembly has not been evaluated for operator access.
- § Consideration to repeating Heating and Touch Current Tests should be given in the end-product evaluation.

Additional Information

Required values for clearance are adjusted for 3048 m (1.15 correction factor as extrapolated per IEC 60664-1, Table A2).

Marking label is representative of all models.

This Test Report is a reissue of CBTR Ref. No. E139109-A29-CB-1, CB Test Certificate Ref. No. US/14236/UL. Based on previously conducted testing and the review of product technical documentation it was determined that the product complies with the upgrade of the Second Edition of the standard to Amendment 1.

Licenses older than 3 years to be provided by the manufacturer upon request.

Additional Standards

The product fulfills the requirements of: EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011, CSA C22.2 No. 60950-1-07 + A1:2011, IEC 60950-1:2005 + A1:2009, UL 60950-1 2nd Ed. Revised 2011-12-19

Markings and instructions

Clause Title	Marking or Instruction Details
1.7.7.1 Protective Bonding Marking	Protective bonding terminal is marked with either the earth symbol (60417-2-IEC-5017) near the terminal or not provided.
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

Special Instructions to UL Representative

N/A

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 Series
Model:	LCL500PSXX (where XX can be any number 12 to 48)
Rating:	Input: 100-240 Vac, 50/60 Hz, 6.0 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.

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Prepared by: Sal Oseguera

Reviewed by: Nick Javelo

Supporting Documentation

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Product Description

The product is a component AC-DC power supply for building-in, provided with an overall metal enclosure, incorporating primary and SELV components.

The main PWB is secured to the chassis bottom 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 (T1(Power)) and minor differences in the secondary circuit components and PWB layout.

See below for Model Ratings Table Below:

Model LCL500PS12: Output Rated: 12.0 Vdc, 42 A (500 W)
Model LCL500PS13: Output Rated: 13.5 Vdc, 37 A (500 W)
Model LCL500PS15: Output Rated: 15.0 Vdc, 34 A (500 W)
Model LCL500PS24: Output Rated: 24.0 Vdc, 21 A (500 W)
Model LCL500PS27: Output Rated: 27.0 Vdc, 18.5 A (500 W)
Model LCL500PS48: Output Rated: 48.0 Vdc, 10.5 A (500 W)

See Enclosure-Miscellaneous for details.

Technical Considerations

- Equipment mobility : for building-in
- Connection to the mains : To be determined in the end system
- Operating condition : continuous
- Access location : for building-in
- 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) : 20 A
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : 3048
- Altitude of test laboratory (m) : less than 2000 meters
- Mass of equipment (kg) : 1.45
- The product was submitted and evaluated for use at the maximum ambient temperature (T_{ma}) permitted by the manufacturer's specification of: Full-rated output load: 55°C. , 80% output load: 60°C.
- The means of connection to the mains supply is: For building-in, to be determined in the end system.
- The product is intended for use on the following power systems: TN
- The equipment disconnect device is considered to be: For building-in, to be determined in the end system.
- 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 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 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: 241 Vrms, 350 Vpk, Primary-SELV: 273 Vrms, 494 Vpk,
- The following secondary output circuits are SELV: All
- The following secondary output circuits are at hazardous energy levels: All
- 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 suitability of the protective bonding terminal shall be evaluated in the end system.,
- The following input terminals/connectors must be connected to the end-product supply neutral: AC-N, neutral terminal is provided as part of the input terminal block, however the unit is for building in and compliance shall be determined in the end product. ,
- 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-L5, T1 (Class B),
- The following end-product enclosures are required: Fire, Mechanical
- The following components require special consideration during end-product Thermal (Heating) tests due to the indicated maximum temperature measurements during component-level testing: Model LCL500PS12: L5 (115.5°C),
- The equipment is suitable for direct connection to: AC mains supply
- The means of connection and disconnection from AC mains shall be determined in the end product.

Additional Information

This CB Report is a reissue of CBTR Ref. No. E139109-A28-CB-1, CB Test Certificate Ref. No. US/14254/UL. Based on previously conducted testing and review of product construction, only limited testing was deemed necessary.

The clearance and creepage distances have additionally been assessed for suitability up to 3048 m elevation (1.15 correction factor as per IEC 60664-1, Table A2).

Manufacturer to provide updated component licenses for those older than 3 years upon request.

Marking label is representative of all models.


In regards to compliance to Clause 1.5.9.2, the metal chassis, components mounted on min. V-1 printed wiring board, and the need of a fire enclosure when installed in the end-use product were considered in determining adequate protection from the burning and bursting of the VDR.

The need for the additional testing and evaluation shall be determined in the end product investigation.

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, 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
Terminal for main protective earthing	Provided adjacent to the main protective earthing terminal (60417-5019) 
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

/