CERTIFICATE OF COMPLIANCE

Certificate Number	20181023-E139109
Report Reference	E139109-A6041
Issue Date	2018-OCTOBER-23
Issued to:	XP POWER L L C 15641 RED HILL AVE, SUITE 100 TUSTIN CA 92780
This is to certify that representative samples of	COMPONENT - POWER SUPPLIES FOR USE WITH AUDIO/VIDEO, INFORMATION AND COMMUNICATION TECHNOLOGY EQUIPMENT "See Addenddum Page"
	Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.
Standard(s) for Safety:	UL 62368-1 && CAN/CSA C22.2 No. 62368-1-14 - Audio/video, information and communication technology equipment Part 1: Safety requirements
Additional Information:	See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

The UL Recognized Component Mark 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.

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 Certification Mark on the product.

Bruce Mahrenholz, Director North American Certification Program

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.

Models/Product

EMH350PS12-01 XB0118
EMH250PSXXYY-ZZ
EMH350PSXXYY-ZZ

Where XX is any number between 12-48, YY is any two numbers between 0-9 or blank, ZZ is "SF" or blank. May also be provided with additional suffixes "-TF", "-VF", "-D" and "-S"; all "-" considered optional.

Bruce Mahrenholz, Director North American Certification Program

UL LLC

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:	N/A
Product:	Switching Power Supply
Model:	EMH350PS12-01 XB0118 EMH250PSXXYY-ZZ EMH350PSXXYY-ZZ Where XX is any number between 12-48, YY is any two numbers between 0-9 or blank, ZZ is "SF" or blank. May also be provided with additional suffixes "-TF", "-VF", "-D" and "-S"; all "-" considered optional.
Rating:	For Model EMH250PSXXYY-ZZ Series: INPUT: ~ 100-240Vac 50/60Hz 3.8A OUTPUT: Refer to Model Differences for details. For Model EMH350PSXXYY-ZZ Series and EMH350PS12-01 XB0118: INPUT: ~ 100 - 240Vac 50/60Hz 4.8A OUTPUT: Refer to Model Differences for 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: Adam Tangocci / Project Handler Reviewed By: Gregory Ray / 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 products evaluated are switching power supplies for building-in to an end-use product information technology products.

Model Differences

Model EMH250PSXXYY-ZZ Series and Model EMH350PSXXYY-ZZ Series are identical with exception that the EMH250PSXXYY-ZZ Series is designed to be rated for a 250 W output power and the EMH350PSXXYYZZ Series designed to be rated for a 350 W output power.

All models within the each series are identical with exception to the output rating, mains transformer windings, and minor secondary components.

Models EMH250PSXXYY-ZZ and EMH350PSXXYY-ZZ have the following nomenclature:

XX = 12-48, denotes the rated output voltage.
YY= 0-9, denotes non-safety related functions
ZZ = SF or blank, denotes either single pole fusing (SF) or double fusing (blank)

Units provided with additional suffix "-TF" or "-VF" provided with Top Fan and Cover.
Units provided with additional suffix "-S" indicates models provided with input screw terminals.
Units provided with additional suffix "D" provided with integral O-ring diode located in the secondary

See below for the Output Rating for 50°C Ambient provided with Forced Air Cooling.

Model EMH250PS12YY-ZZ: 10.1 Vdc to 13.5 Vdc, 21 A Max. (250 W Max)
Model EMH250PS15YY-ZZ: 13.6 Vdc to 17 Vdc, 16.7 A Max, (250 W Max)
Model EMH250PS18YY-ZZ: 17.1 Vdc to 21 Vdc, 14 A Max, (250 W Max)
Model EMH250PS24YY-ZZ: 21.1 Vdc to 26 Vdc, 10.5 A Max, (250 W Max)
Model EMH250PS28YY-ZZ: 26.1 Vdc to 31 Vdc, 9.0 A Max, (250 W Max)
Model EMH250PS33YY-ZZ: 31.1 Vdc to 33 Vdc, 7.6 A Max, (250 W Max)
Model EMH250PS36YY-ZZ: 33.1 Vdc to 42 Vdc, 6.9 A Max, (250 W Max)
Model EMH250PS48YY-ZZ: 42.1 Vdc to 54 Vdc, 5.2 A Max, (250 W Max)

Model EMH350PS12YY-ZZ: 10.1 Vdc to 13.5 Vdc, 29.2 A Max, (350 W Max)
Model EMH350PS15YY-ZZ: 13.6 Vdc to 17 Vdc, 23.3 A Max, (350 W Max)
Model EMH350PS18YY-ZZ: 17.1 Vdc to 21 Vdc, 19.5 A Max, (350 W Max)
Model EMH350PS24YY-ZZ: 21.1 Vdc to 26 Vdc, 14.6 A Max, (350 W Max)
Model EMH350PS28YY-ZZ: 26.1 Vdc to 31 Vdc, 12.5 A Max (350 W Max)
Model EMH350PS33YY-ZZ: 31.1 Vdc to 33 Vdc, 10.6 A Max, (350 W Max)
Model EMH350PS36YY-ZZ: 33.1 Vdc to 42 Vdc, 9.8 A Max, (350 W Max)
Model EMH350PS48YY-ZZ: 42.1 Vdc to 54 Vdc, 7.3 A Max (350 W Max)

Stand-by Output for all models: 5Vdc, 2 A or 12Vdc, 0.8 A
Fan Output for all models (V2): 12 Vdc, 0.6 A (Not marked on nameplate)

See Enclosure 7-02 for Output Rating Curve.

Model EMH350PS12-01 XB0118 is identical to Model EMH350PS12 except for model number.

Test Item Particulars	
Classification of use by	Ordinary person
Supply Connection	AC Mains ES1
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 OVC II
Class of equipment	Not Classified
Access location	N/A
Pollution degree (PD)	PD 2
Manufacturer's specified maximum operating ambient	50°C (Output loaded to 100% of rated) de-rated linearly to 70°C (Output loaded to 50% of rated) °C
IP protection class	IPX0
Power Systems	TN
Altitude during operation (m)	3048 m
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	0.410

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : 50°C (Output loaded to 100% of rated) de-rated linearly to 70°C (Output loaded to 50% of rated)
- The product is intended for use on the following power systems : TN
-
- The equipment disconnect device is considered to be : To be determined in the end-product.
- Required Clearances have been adjusted by multiplying the clearance at sea level by a factor of 1.15 for operating at an altitude of 3048 meters. The correction factor is based on barometric pressure of 70kPa. If the calculated Clearance exceeded the Creepage, the Creepage was adjusted to the value of clearance.

Engineer 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
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- The following output circuits are at ES1 energy levels : All Outputs
- The following output circuits are at PS3 energy levels : All Outputs
- The maximum investigated branch circuit rating is : 20 A
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- The investigated Pollution Degree is : 2
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- Proper bonding to the end-product main protective earthing termination is : Required
- An investigation of the protective bonding terminals has : Not been conducted
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- The following input terminals/connectors must be connected to the end-product supply neutral : AC N
- The following end-product enclosures are required : Mechanical, Fire
- 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) : T1-T2,L1, L12, L13, L7, PFC (min. Class F)
- The power supply was evaluated to be used at altitudes up to : "3048 m"
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- A suitable main disconnect device shall be provided in the end product.
- The power supplies covered by this report have a fuse in the neutral of the primary circuit. The need for a marking to warn a service person of the hazards associated with double pole/neutral fusing shall be considered in the end product.
- Consideration to repeating the Touch Current test should be given in the end-product evaluation.
- The power supplies in this report have been subject to Capacitance Discharge testing. Additional testing should not be needed if directly connected to mains e.g. using an appliance inlet, wiring terminals, etc.

Additional Information

Marking Plate is representative of all models.

This report is based on a previous evaluation to IEC 60950-1:2005 (2nd Ed.), Am1:2009 + Am2:20013 under CBTR Ref. No. E139109-A76-CB-3 including Amendments, CBTC Ref. No. US-25398-UL. Based on the previously conducted performance testing, only the tests conducted as part of this investigation were considered necessary.

The following tests were conducted under CTDP SMT/CTF Stage 3 to IEC 60950-1 E2+A1+A2 at XP POWER LLC, 15641 RED HILL AVE, SUITE 100, TUSTIN , CA 92780, USA:
Input: Single-Phase (1.6.2)
Capacitance Discharge (2.1.1.7)
SELV Reliability Test Including Hazardous Voltage Measurements (2.2.2, 2.2.3, 2.2.4, Part 22 6.1)
Humidity (2.9.1, 2.9.2, 5.2.2)
Determination of Working Voltage; Working Voltage Measurement (2.10.2)
Heating (4.5.1, 1.4.12, 1.4.13)
Ball Pressure (4.5.5, 4.5)
Electric Strength (5.2.2)
Component Failure (5.3.1, 5.3.4, 5.3.7)
Abnormal Operation (5.3.1 - 5.3.9)
Transformer Abnormal Operation (5.3.3, 5.3.7b, Annex C.1)
Power Supply Output Short-Circuit/Overload (5.3.7)

The following additional tests were conducted on a sample of model EMH350PS12-01 in accordance with IEC 62368-1:2014 (Second Edition) at XP POWER LLC, 15641 RED HILL AVE, SUITE 100, TUSTIN, CA 92780 USA:
Electric Strength Test (5.4.9)
Prospective Touch Voltage and Touch Current Measurement (5.7)

Additional Standards

The product fulfills the requirements of: EN 62368-1:2014 + A11:2017

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 ordinary or instructed person	(component ID: FS1A, FS1B), Ratings (10A), "Ratings (10A, 250V)", and (symbol of required characteristics) located on or adjacent to fuse or fuseholder
Warning to service personnel	"CAUTION: Double pole, neutral fusing. Disconnect mains before servicing. "/"ATTENTION. Double pôle/fusible sur le neutre. Débrancher lalimentation avant lentretien."

Special Instructions to UL Representative

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BD1.0	**TABLE: Product-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
All Models	Transformer, T1 and T2	--	Primary to Secondary	2830	4000	1
BD1.2	**Earthing Continuity Test Exemptions – This test is not required for the following models:**					
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BD1.3	**Electric Strength Test Exemptions – This test is not required for the following models:**					
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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.**					
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BE1.0	**Sample and Test Specifics for Follow-Up Tests at UL**				
Model	Component	Material	Test	Sample (s)	Test Specifics