CERTIFICATE OF COMPLIANCE

Certificate Number	20120816-E146893
Report Reference	E146893-V1-S26
Issue Date	2012-August-16

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, MEDICAL AND DENTAL

See addendum page

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

Standard(s) for Safety:

ANSI/AAMI ES 60601-1 and CSA C22.2 No. 60601-1 (Medical electrical equipment - Part 1: General requirements for basic safety and essential performance)

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

William R. Carney, Director, North American Certification Programs

UL LLC

CERTIFICATE OF COMPLIANCE

Certificate Number	20120816-E146893
Report Reference	E146893-V1-S26
Issue Date	2012-August-16

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

Product:	Switching Power Supply
Model:	XM4-MMMMM-PPSSNN, XM5-MMMMM-PPSSNN, XM7-MMMMMPPSSNN, XM9-MMMMMM-PPSSNN, XM10-MMMMMMM-PPSSNN (Where M can be a combination of 1, 2, 3, 4, 5 or blank and a letter A-Z or blank; where P can be any number 0-9; where S can be any number 0-9; where N can be any number 0-9)

William R. Carney

William R. Carney, Director, North American Certification Programs

UL LLC

UL TEST REPORT AND PROCEDURE

Standard:	*ANSI/AAMI ES 60601-1**(2005 + C1:09 + A2:10)** (Medical electrical equipment – Part 1: General requirements for basic safety and essential performance) CSA C22.2 No. 60601-1:**2008, revisions through 2011** (Medical Electrical Equipment – Part 1: General Requirements for Basic Safety and Essential Performance)
Certification Type:	Component Recognition
CCN:	QQHM2, QQHM8 (Power Supplies, Medical and Dental)
Product:	Switching Power Supply
Model:	XM4-MMMMM-PPSSNN, XM5-MMMMM-PPSSNN, XM7-MMMMMPPSSNN, XM9-MMMMMM-PPSSNN, XM10-MMMMMMM-PPSSNN (Where M can be a combination of 1, 2, 3, 4, 5 or blank and a letter A-Z or blank; where P can be any number 0-9; where S can be any number 0-9; where N can be any number 0-9)
Rating:	Input Rated: XM4-MMMMM-PPSSNN: ~100-240 Vac, 50/60 Hz, 5.6 A XM5-MMMMM-PPSSNN: ~100-240 Vac, 50/60 Hz, 7.0 A XM7-MMMMM-PPSSNN: ~100-240 Vac 50/60 Hz, 10.0 A XM9-MMMMMM-PPSSNN: ~100-240 Vac, 50/60 Hz, 12.7 A XM10-MMMMMMM-PPSSNN: ~100-240 Vac, 50/60 Hz, 14.2 A Output Rated: See Model Differences for module details.

Applicant Name and Address:	XP POWER LLC 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 Underwriters Laboratories Inc. ('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 Underwriters Laboratories Inc. (UL) or any authorized licensee of UL.

Prepared by: Mitchell C. McGarry
Underwriters Laboratories Inc.

Reviewed by: Melissa DeGuia
Underwriters Laboratories Inc.

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 modular ac to dc power supply for building-in. The power supply consists of an input power platform and various factory installed plug-in Output Modules. Each plug-in Output Module is either 2 or 3 slot width.

Model Differences

All models provided with a power platform and may be provided with various combinations of Output Modules.

Models within Model XM4, XM5, and XM7 Series are identical, with exception to the output wattage rating and provided Plug-in output Modules. See output rating table provided below.

Model XM9 Series is similar to XM7 Series with exception to the power platform, number of Output Modules, and the output wattage rating. See output rating table provided below.

Model XM10 Series is similar to XM7 Series with exception to the power platform, number of Output Modules, and the output wattage rating. See output rating table provided below.

Model Series XM7, XM9 and XM10 may be provided with an optional fan control module to vary the fan speed based upon temperature feedback from a temperature sensor IC surface mounted to the fan control module board.

Output Rating:
XM4 Series: Max 400 W (For Input Range: 100-180 Vac) / Max 600 W (For Input Range: 180-240 Vac); up to 5 output modules provided.
XM5 Series: Max 500 W (For Input Range: 100-180 Vac) / Max 700 W (For Input Range: 180-240 Vac); up to 5 output modules provided.
XM7 Series: Max 700 W (For Input Range: 100-180 Vac) / Max 900 W (For Input Range: 180-240 Vac); up to 5 output modules provided.
XM9 Series: Max 900 W (For Input Range: 100-180 Vac) /Max 1100 W (For Input Range: 180-240 Vac); up to 6 output modules provided.
XM10 Series: Max 1000 W (For Input Range: 100-180 Vac) /Max 1200 W (For Input Range: 180-240 Vac); up to 7 output modules provided.

Output Module Ratings:

Modules 1A-1Z: 2 Slot Module, 3.3 to 60 Vdc, Max. 20 A, Max.126 W
Modules 2A-2Z: 2 Slot Module, 3.3 to 60 Vdc, Max. 40 A, Max.252 W
Modules 3A-3Z: 3 Slot Module, 3.3 to 60 Vdc, Max. 60 A, Max.420 W
Modules 4A-4Z: 4 Slot Module, 12.0 to 60 Vdc, Max 62.5A, Max 756W
Modules 5A-5Z: 2 Slot Module, Dual Output: V1=3.3 to 24 Vdc, Max. 10 A, Max, 150 W; V2 = 2.0 to 24 Vdc, Max. 10 A, Max. 150 W

Model Nomenclature for Model XM4-MMMMM-PPSSNN, XM5-MMMMM-PPSSNN, XM7-MMMMMPPSSNN, XM9-MMMMMM-PPSSNN, and XM10-MMMMMMM-PPSSNN Series as follows:

M - indicates module designation
PPSSNN - indicates manufacturer configuration code (non-safety related)

Standby Outputs for all models: 5 VDC, 1A max. or 12 VDC, 1A max.

Technical Considerations

- § Classification of installation and use : Building-in
- § Supply connection: Building-in
- § Accessories and detachable parts included in the evaluation: None
- § Options included: None
- § The product was investigated to the following additional standards: ANSI/AAMI ES60601-1:2005/C1:2009 (includes US National standard ANSI/AAMI ES60601-1: 2005 / A2:2010); CAN/CSA-C22.2 No. 60601-1:08 (includes National Differences for Canada), EN 60601-1:2006
- § Scope of Power Supply evaluation defers the following clauses to be determined as part of the end product: Clause 7.5 (Safety Signs), Clause 7.9 (Accompanying Documents), Clause 9 (ME Hazard), Clause 10 (Radiation), Clause 14 (PEMS), Clause 16 (ME Systems)
- § Scope of Power Supply evaluation excludes the following: Patient applied parts clauses: 4.6, 7.2.10, 8.3, 8.5.2, 8.5.5, 8.7.4.7-8.7.4.9, 8.9.1.15; Battery related clauses: 7.3.3, 15.4.3; Hand Control related clauses: 8.10.4; Oxygen related clauses: 11.2.2; Fluids related clauses: 11.6.2 – 11.6.4; Sterilization clause: 11.6.7; Biocompatibility Clause: 11.7 (ISO 10993); Motor related clauses: 13.2.13.3, 13.4; Heating Elements related clause: 13.2; Flammable Anesthetic Mixtures Protection: Annex G
- § Supply connection: Overvoltage Category II
- § The product is Classified only to the following hazards: Casualty, Fire, Shock
- § The degree of protection against harmful ingress of water is: Ordinary
- § The mode of operation is: Continuous

- § Software is relied upon for meeting safety requirements related to mechanical, fire and shock: No
- § The product is suitable for use in the presence of a flammable anesthetics mixture with air or oxygen or with nitrous oxide: No

Risk Controls/Engineering Conditions of Acceptability

For use only in or with complete equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc. When installed in an end-product, consideration must be given to the following:

- § The component shall be considered for compliance with the Marking (clause 7) and Separation (clause 8) requirements as part of the end use application evaluation.
- § The power supply was evaluated for use in 50°C ambient at Full Rated Output and 50% of the Rated Output in 70°C ambient.
- § Consideration shall be given to measuring the temperature on power electronic components and transformer windings when the power supply is installed in the end-use equipment. The end use product shall ensure that the power supply is used within its ratings.
- § Repeat of leakage current testing and consideration of non-frequency weighted leakage test (Clause 8.7.3e) shall be considered in the end product application.
- § This power supply was evaluated with Two MOPP between Primary and Secondary; One MOPP primary and Earth.
- § This power supply has been evaluated as a continuous operation, ordinary equipment and has not been evaluated for use in the presence of a flammable anesthetic mixture with air, oxygen, or nitrous oxide. The output circuits have not been evaluated for direct patient connection (Type B, BF or CF).
- § The end product shall ensure that the requirements related to accompanying documents, clause 7.9, are met.
- § The output connectors are suitable for factory wiring only.
- § The supply terminal (J1) is suitable for factory wiring. The output terminals and/or, connectors have not been investigated for field wiring. Terminal block (J1) is suitable for copper, wire only, 22-14 AWG, 10 lbs. torque, 110°C.
- § The maximum investigated branch circuit rating is: 20 A
- § The Electric Strength Test conducted on this power supply was based upon a maximum working voltage of: Primary-Earthed Dead Metal: 240 Vrms, 438 Vpk; Primary-SEC: 249.6 Vrms, 588 Vpk.
- § Proper bonding to the end-product main protective earthing termination is required. Protective earthing testing shall be conducted in the end product application
- § Primary side heat sinks are floating and considered live. They should not be accessible 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): Platform: T1 and Output Modules: T1, T2, and T3 (Class F, 155°C)
- § Printed Wiring Board rated 130°C.
- § The need for Marking Durability and Marking Legibility Testing shall be considered as part of the end product installation.
- § Fire/ Mechanical/ Electrical Enclosure to be provided as part of the end product.
- § For Model XM4 Series, the maximum continuous output power shall not to exceed 400 W for input

voltages 100-180 Vac or 600 W when the supply voltage is 180-240 Vac, when used with any combination of output modules.

- § For Model XM5 Series, the maximum continuous output power shall not to exceed 500 W for input voltages 100-180 Vac or 700 W when the supply voltage is 180-240 Vac, when used with any combination of output modules.
- § For Model XM7 Series, the maximum continuous output power shall not to exceed 700 W for input voltages 100-180 Vac or 900 W when the supply voltage is 180-240 Vac, when used with any combination of output modules.
- § For Model XM9 Series, the maximum continuous output power shall not to exceed 900 W for input voltages 100-180 Vac or 1100 W when the supply voltage is 180-240 Vac, when used with any combination of output modules.
- § For Model XM10 Series, the maximum continuous output power shall not to exceed 1000 W for input voltages 100-180 Vac or 1200 W when the supply voltage is 180-240 Vac, when used with, any combination of output modules.
- § End product Risk Management to consider acceptability of automatic resetting thermal switch TS1, which was bypassed as part of this evaluation.
- § Protective Earthing Test (Clause 8.6.4) was conducted at 30A. The need for additional Protective Earthing Test at 40A shall to be determined as part of end product evaluation.

Additional Information

Marking label is representative of all models.

The nameplate labels included in this report depict the draft artwork for the marking plate pending approval by National Certification Bodies and it will not be affixed to products prior to such approval.

Markings and instructions

Clause Title	Marking or Instruction Details
Company identification	Classified or Recognized company's name, Trade name, Trademark or File
Model	Model number
Alternating current	
Supply Connection	Voltage range, ac/dc, phases if more than single phase
Direct current	
Power Input	Amps, VA, or Watts
Output	Rated output voltage, power, frequency.
Earthing	

Special Instructions to UL Representative

The “Modules” and "Platforms" are manufactured at the following locations (Factory ID):

K (100101-437)
F (389459-001)

The “Modules" and “Platforms” are marked with the Split Inspection Marking described below and may be shipped to FS (407169-001) or F (389459-001) or K (100101-437) for final assembly:

SPLIT INSPECTION MARKING FOR MODULES AND PLATFORMS: Made in China

Production-Line Testing Requirements

Test Exemptions - The following models are exempt from the indicated test

Model	Grounding Continuity	Dielectric Voltage Withstand	Patient Circuit Dielectric Voltage Withstand
All Models - Platform	Test	Test	Exempt
Output Modules	Test	Test	Exempt

Solid-State Component Test Exemptions - The following solid-state components may be disconnected from the remainder of the circuitry during either Dielectric Voltage Withstand Test:

N/A

Sample and Test Specifics for Follow-Up Tests at UL

The following tests shall be conducted in accordance with the Generic Inspection Instructions

Model	Samples	Test	Test Details
N/A			

CERTIFICATE OF COMPLIANCE

Certificate Number	20121231-E146893
Report Reference	E146893-20111215
Issue Date	2012-DECEMBER-31
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, MEDICAL AND DENTAL See Addendum Page
	Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.
Standard(s) for Safety:	ANSI/AAMI ES 60601-1:2005 (Medical electrical equipment – Part 1: General requirements for basic safety and essential performance),CSA C22.2 No. 60601-1:08 (Medical Electrical Equipment – Part 1: General Requirements for Basic Safety and Essential Performance)
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

CERTIFICATE OF COMPLIANCE

Certificate Number	20121231-E146893
Report Reference	E146893-20111215
Issue Date	2012-DECEMBER-31

XM15-MMMMM-PPSSNN/MMMMMMMMMM-PPSSNN (where M can be a combination of 1, 2, 3, 4, 5 or blank and a letter A-Z or blank: where P can be any number 0-9, or blank; where S can be any number 0-9 or blank; where N can be any number 0-9 or blank, and "-" are optional)

William R. Carney

William R. Carney, Director, North American Certification Programs

UL LLC

UL TEST REPORT AND PROCEDURE

Standard:	ANSI/AAMI ES 60601-1:2005 (Medical electrical equipment – Part 1: General requirements for basic safety and essential performance) CSA C22.2 No. 60601-1:08 (Medical Electrical Equipment – Part 1: General Requirements for Basic Safety and Essential Performance)
Certification Type:	Component Recognition
CCN:	QQHM2, QQHM8 (Power Supplies, Medical and Dental)
Product:	Switching Power Supply
Model:	XM15-MMMMM-PPSSNN/MMMMMMMMMM-PPSSNN (where M can be a combination of 1, 2, 3, **4,** 5 or blank and a letter A-Z or blank: where P can be any number 0-9, or blank; where S can be any number 0-9 or blank; where N can be any number 0-9 or blank, and "-" are optional)
Rating:	Input Rated: ~ 100-240 Vac, 50/60 Hz, 20 A Output Rated: See Model Differences for module details.

Applicant Name and Address:	XP POWER LLC 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 Underwriters Laboratories Inc. ('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 Underwriters Laboratories Inc. (UL) or any authorized licensee of UL.

Prepared by: Sal Oseguera
Underwriters Laboratories Inc.

Reviewed by: David V. Alma
Underwriters Laboratories Inc.

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 modular ac to dc power supply for building-in. The power supply consisting of an input power platform and various plug-in Output Modules. Each plug-in Output Module is either 2**,** 3 **or 4** slot width. Each power platform supports 10-14 slots per platform, in any combination of 2**, 3 or 4** slot plug-in modules.

Model Differences

All Models with the XM15 Series are identical with exception the selection of output modules provided.

XM15-MMMMM-PPSSNN/MMMMMMMMMM-PPSSNN (where M can be a combination of 1, 2, 3, 4, 5 or blank and a letter A-Z or blank: where P can be any number 0-9: where S can be any number 0-9: where N can be any number 0-9.

See below for Model Ratings for up to 50°C ambient:

Output Rated: Max 1500 W (100-180 Vac input)/Max 2500 W (180-240 Vac input): up to 10 output modules provided.

Output Module Ratings:
Modules 1A-1Z: 2 Slot Module, 3.3 to 60 Vdc, Max. 20 A, Max. 126 W
Modules 2A-2Z: 2 Slot Module, 3.3 to 60 Vdc, Max. 40 A, Max. 252 W
Modules 3A-3Z: 3 Slot Module, 3.3 to 60 Vdc, Max. 60 A, Max. 420 W
Modules 4A-4Z: 4 Slot Module, 12.0 to 60 Vdc, Max 62.5A, Max 756W
Modules 5A-5Z: 2 Slot Module, Dual Output: V1=3.3 to 24 Vdc, Max. 10 A, Max, 150 W: V2 = 2.0 to 24 Vdc, Max. 10 A, Max. 150 W

Technical Considerations

§ Classification of installation and use : Building-in

§ Supply connection: Building-in

§ Accessories and detachable parts included in the evaluation: None

- § Options included: None

- § The product was investigated to the following additional standards: ANSI/AAMI ES60601-1:2005/C1:2009 (includes US National standard ANSI/AAMI ES60601-1: 2005 / A2:2010); CAN/CSA-C22.2 No. 60601-1:08 (includes National Differences for Canada), EN 60601-1:2006

- § Scope of Power Supply evaluation defers the following clauses to be determined as part of the end product: Clause 7.5 (Safety Signs), Clause 7.9 (Accompanying Documents), Clause 9 (ME Hazard), Clause 10 (Radiation), Clause 14 (PEMS), Clause 16 (ME Systems)

- § Scope of Power Supply evaluation excludes the following: Patient applied parts clauses: 4.6, 7.2.10, 8.3, 8.5.2, 8.5.5, 8.7.4.7-8.7.4.9, 8.9.1.15; Battery related clauses: 7.3.3, 15.4.3; Hand Control related clauses: 8.10.4; Oxygen related clauses: 11.2.2; Fluids related clauses: 11.6.2 – 11.6.4; Sterilization clause: 11.6.7; Biocompatibility Clause: 11.7 (ISO 10993); Motor related clauses: 13.2.13.3, 13.4; Heating Elements related clause: 13.2; Flammable Anesthetic Mixtures Protection: Annex G

- § Supply connection: Overvoltage Category II

- § The product is Classified only to the following hazards: Casualty, Fire, Shock

- § The degree of protection against harmful ingress of water is: Ordinary

- § The mode of operation is: Continuous

- § Software is relied upon for meeting safety requirements related to mechanical, fire and shock: No

- § The product is suitable for use in the presence of a flammable anesthetics mixture with air or oxygen or with nitrous oxide: No

- Unit also complied with spacing requirements of UL60601-1 (1st), CSA C22.2 No. 60601-1 (2nd), and IEC 60601-1 (2nd) for Basic for 240 Vac from Primary to Ground, Double/Reinforced for 240Vac from Primary to Secondary.

Risk Controls/Engineering Conditions of Acceptability

For use only in or with complete equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc. When installed in an end-product, consideration must be given to the following:

- § The component shall be considered for compliance with the Marking (clause 7) and Separation (clause 8) requirements as part of the end use application evaluation.
- § The power supply was evaluated for use in 50°C ambient at Full Rated Output and 50% of the Rated Output in 70°C ambient. (See De-rating Curve, Enclosure 7-01 for details)
- § Consideration shall be given to measuring the temperature on power electronic components and transformer windings when the power supply is installed in the end-use equipment. The end use product shall ensure that the power supply is used within its ratings.

- § Repeat of leakage current testing and consideration of non-frequency weighted leakage test shall be considered in the end product application.
- § This power supply was evaluated with Two MOPP between Primary and Secondary; One MOPP primary and Earth.
- § This power supply has been evaluated as a continuous operation, ordinary equipment and has not been evaluated for use in the presence of a flammable anesthetic mixture with air, oxygen, or nitrous oxide. The output circuits have not been evaluated for direct patient connection (Type B, BF or CF).
- § The end product shall ensure that the requirements related to accompanying documents, clause 7.9, are met.
- § The available voltage for the secondary outputs does not exceed 42.4 Vac peak or 60 Vdc, under normal and single fault conditions.
- § The secondary output circuits exceed 240 VA
- § The output connectors are suitable for factory wiring only.
- § The supply terminal (J1) is suitable for factory wiring. The output terminals and/or, connectors have not been investigated for field wiring. Terminal block (J1) is suitable for copper, wire only, 22-14 AWG, 10 lbs. torque, 110°C.
- § The maximum investigated branch circuit rating is: 30 A
- § The Electric Strength Test conducted on this power supply was based upon a maximum working voltage of: Primary-Earthed Dead Metal: 240 Vrms, 438 Vpk; Primary-SEC: 213 Vrms, 691 Vpk.
- § Proper bonding to the end-product main protective earthing termination is required. Protective earthing testing shall be conducted in the end product application
- § Primary side heat sinks are floating and considered live. They should not be accessible 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): Platform: T101, T201, T202, T203 and Modules: T1, T2, and T3 (Class F, 155°C)
- § Printed Wiring Board rated 130°C.
- § The need for Marking Durability and Marking Legibility Testing shall be considered as part of the end product installation.
- § Fire/ Mechanical/ Electrical Enclosure to be provided as part of the end product.
- § The maximum continuous output power shall not exceed 1500W for input voltages 100-180Vac or 2500W when the supply voltage is 180-240Vac, when used with any combination of output modules.
- § Suitably rated branch protection to be provided as part of the end-product.
- § End product Risk Management to consider acceptability of automatic resetting thermal switch.

Additional Information

Marking label is representative of all models. The nameplate labels included in this report depict the draft artwork for the marking plate pending approval by National Certification Bodies and it will not be affixed to products prior to such approval.

Markings and instructions

Clause Title	Marking or Instruction Details
Company identification	Classified or Recognized company's name, Trade name, Trademark or File
Model	Model number

Alternating current	
Supply Connection	Voltage range, ac/dc, phases if more than single phase
Direct current	
Power Input	Amps, VA, or Watts
Output	Rated output voltage, power, frequency.
Earthing	

Special Instructions to UL Representative

The “Modules” and "Platforms" are manufactured at the following locations (Factory ID):

K (100101-437)
F (389459-001)

The “Modules and “Platforms” are marked with the Split Inspection Marking described below and may be shipped to FS (407169-001) or F (389459-001) or K (100101-437)
for final assembly:

SPLIT INSPECTION MARKING FOR MODULES AND PLATFORMS: Made in China

Production-Line Testing Requirements

Test Exemptions - The following models are exempt from the indicated test

Model	Grounding Continuity	Dielectric Voltage Withstand	Patient Circuit Dielectric Voltage Withstand
All Models - Platform	Test	Test	Exempt
Output Modules	Test	Test	Exempt

Solid-State Component Test Exemptions - The following solid-state components may be disconnected from the remainder of the circuitry during either Dielectric Voltage Withstand Test:

N/A

Sample and Test Specifics for Follow-Up Tests at UL

The following tests shall be conducted in accordance with the Generic Inspection Instructions

Model	Samples	Test	Test Details
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:	X4-MMMMM-PPSSNN, X5-MMMMM-PPSSNN, X7-MMMMM-PPSSNN, X9-MMMMMM-PPSSNN, X10-MMMMMMMM-PPSSNN, and X15-MMMMM-PPSSNN/ MMMMM-PPSSNN (Where M can be blank or a combination of a number 1, 2, 3 , 4, or 5 and a letter A-Z; where P can be any number 0-9 or blank: where S can be any number 0-9 or blank: where N can be any number 0-9 or blank; "-" provided optionally) Model X7-3D3J3J-230003-XD0142A (P/N 10011368)
Rating:	Input rated: X4-MMMMM-PPSSNN: 100-240 Vac, 50/60/440 Hz, 5.6 A X5-MMMMM-PPSSNN: 100-240 Vac, 50/60/440 Hz, 7.0 A X7-MMMMM-PPSSNN: 100-240 Vac, 50/60/440 Hz, 10.0 A X7-3D3J3J-230003-XD0142A: 100-240 Vac, 50/60/440 Hz, 12.0 A X9-MMMMMM-PPSSNN: 100-240 Vac, 50/60/440 Hz, 12.7 A X10-MMMMMMMM-PPSSNN: 100-240 Vac, 50/60/440 Hz, 14.2 A X15-MMMMM-PPSSNN/ MMMMM-PPSSNN: 100-240 Vac, 50/60 Hz, 20 A Output rated: See model differences for details.
Applicant Name and Address:	XP POWER INC 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: Sal Oseguera 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 equipment is a modular ac to dc power supply for building-in. The power supply consisting of an input power platform and various plug-in Output Modules. Each plug-in Output Module is either 2, 3 or 4 slot width. Each power platform supports 10-14 slots per platform, in any combination of 2, 3 or 4 slot plug-in modules.

Model Differences

All models provided with a power platform and maybe provided with various combinations of Output Modules.

Models within Model X4, X5, and X7 Series are identical, with exception to the output wattage rating. and provided Plug-in output Modules. See output rating table provided below.

Model X9 Series is similar to X7 Series with exception to the power platform, number of output module slots, and the output wattage rating. See output rating table provided below.

Model X10 Series is similar to X7 Series with exception to the power platform, number of output module slots, and the output wattage rating. See output rating table provided below.

Model X7-3D3J3J-230003-XD0142A is identical to X7 series except cooling fan mounted externally (airflow outward) and alternate PWB.

Model X15 is a two output module bay design that consists of platforms and can accommodate the same output modules as the X7 Series.

Output Rating:
X4 Series: Max 400 W (100-180 Vac input)/Max 600 W (180-240Vac input): up to 5 output modules provided.
X5 Series: Max 500 W (100-180 Vac input)/Max 700 W (180-240 Vac input): up to 5 output modules provided.
X7 Series: Max 700 W (100-180 Vac input)/Max 900 W (180-240 Vac input): up to 5 output modules provided.
X9 Series: Max 900 W (100-180 Vac input)/Max 1100 W (180-240 Vac input): up to 6 output modules provided.
X10 Series: Max 1000 W (100-180 Vac input)/Max 1200 W (180-240 Vac input): up to 7 output modules provided.
X7-3D3J3J-230003-XD0142A (100-240Vac, 12A input): Rated Output 5Vdc/60A; 12Vdc/28A; 12Vdc/28A;

Max 772W.
X15 Series: Max 1500 W (100-180 Vac input)/Max 2500 W (180-240 Vac input): up to 10 output modules provided.

Output Module Ratings:
Modules 1A-1Z: 2 Slot Module, 3.3 to 60 Vdc, Max. 20 A, Max. 126 W
Modules 2A-2Z: 2 Slot Module, 3.3 to 60 Vdc, Max. 40 A, Max. 252 W
Modules 3A-3Z: 3 Slot Module, 3.3 to 60 Vdc, Max. 60 A, Max. 420 W
Modules 4A-4Z: 4 Slot Module, 12.0 to 60 Vdc, Max 62.5A, Max 756W
Modules 5A-5Z: 2 Slot Module, Dual Output: V1=3.3 to 24 Vdc, Max. 10 A, Max, 150 W: V2 = 2.0 to 24 Vdc, Max. 10 A, Max. 150 W

Technical Considerations

- Equipment mobility : for building-in
- Connection to the mains : To be determined in the end system
- Operating condition : continuous
- Access location : operator accessible
- 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
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : 3048
- Altitude of test laboratory (m) : <2000
- Mass of equipment (kg) : 2.25

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: Full-rated output load: 50°C. 75% of output load: 60°C. Half-rated output load: 70°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 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).

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: For Model X4, X5, X7, X9, and X10 Series:, Primary-Earthed Dead Metal: 240 Vrms, 438 Vpk, Primary-SELV: 268 Vrms, 588 Vpk, , For Model X15 Series:, Primary-SELV: 230 Vrms, 691 Vpk
- The following secondary output circuits are SELV: All outputs
- The following secondary output circuits are at hazardous energy levels: All outputs
- The power supply terminals and/or connectors are: Suitable for factory wiring only
- The maximum investigated branch circuit rating is: All Models except Model X15 Series: 20 A, Model X15 Series: 30 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, except for Models X4, X5 and X7 Series provided with an appliance inlet.
- The following input terminals/connectors must be connected to the end-product supply neutral:

Terminal marked "N" on the supply connector (J1), except when provided with an appliance inlet.

§ 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): Platform: T1; Modules: T1, T2, and T3 (Class F)

§ The following end-product enclosures are required: Mechanical, Fire

§ The equipment is suitable for direct connection to: AC mains supply

§ Printed Wiring Boards rated min 130°C. Electrolytic Capacitors rated min 105°C. All inductors , providing Functional Insulation are suitable up to 130°C.

§ The equipment is provided with double pole/neutral fusing and suitably marked.

§ The supply terminal (J1) is suitable for factory wiring. The output terminals and/or connectors have not been investigated for field wiring. Terminal block (J1) is suitable for copper wire only, 22-14 AWG, 10 lbs. torque, 110°C.

§ For Model X4 Series, the maximum continuous output power shall not to exceed 400 W for input voltages 100-180 Vac or 600 W when the supply voltage is 180-240 Vac, when used with any combination of output modules.

§ For Model X5 Series, the maximum continuous output power shall not to exceed 500 W for input voltages 100-180 Vac or 700 W when the supply voltage is 180-240 Vac, when used with any combination of output modules.

§ For Model X7 Series, the maximum continuous output power shall not to exceed 700 W for input voltages 100-180 Vac or 900 W when the supply voltage is 180-240 Vac, when used with any combination of output modules.

§ For Model X9 Series, the maximum continuous output power shall not to exceed 900 W for input voltages 100-180 Vac or 1100 W when the supply voltage is 180-240 Vac, when used with any combination of output modules.

§ For Model X10 Series, the maximum continuous output power shall not to exceed 1000 W for input voltages 100-180 Vac or 1200 W when the supply voltage is 180-240 Vac, when used with any combination of output modules.

§ For Model X15 Series, the maximum continuous output power shall not to exceed 1500 W for input voltages 100-180 Vac or 2500 W when the supply voltage is 180-240 Vac, when used with any combination of output modules.

§ For Model X15 Series: Suitably rated branch protection to be provided as part of the end-product.

Additional Information

This report is a reissue of CBTR Ref. No. E139109-A50-CB-1, CB Test Certificate Ref. No. US/15287A/UL, US/15287B/UL, US/15287A2/UL and US/15287A3/UL. Based on the previously conducted testing and the review of product construction, only limited tests were deemed necessary to add Module 4x series.

Component licenses provided may be older than 3 years old. Manufacturer to provide updated license upon request.

Nameplate markings provided were considered representative of the entire series.

The clearance distances have additionally been assessed for suitability up to 3048 m elevation (1.15 correction factor 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, IEC 60950-1:2005 + A1:2009

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
1.7.7.2 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

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

Special Instructions to UL Representative

The “Modules” and "Platforms" are manufactured at the following locations (Factory ID):

K (100101-437)
F (389459-001)

The “Modules and “Platforms” are marked with the Split Inspection Marking described below and may be shipped to FS (407169-001) or F (389459-001) for final assembly:

SPLIT INSPECTION MARKING FOR MODULES AND PLATFORMS: Made in China

The Split Inspection Marking is applied to the components that are manufactured only at K and F.