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:	CCB250PSXX (where xx can be any number between 12 and 48 designating the output voltage), maybe followed with additional suffix "SF" provided with or without "-".
Rating:	Input Rated: 100-240 V~, 50/60 Hz, 3.2 A Output Rated: Refer to Model Differences for 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.

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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

Products covered are open frame power supplies intended for building-in to be used with Medical Electrical Equipment. Units are intended for used with Class I or Class II end-products.

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 Power Transformers (T4, T5) and minor differences in the secondary circuit components.**

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

Model No.	Main Output Rating (V1)			Standby Output Rating (V2)	
	Output Voltage (Vdc)	Max. Output Current (A)	Max. Output Power (W)	Voltage (Vdc)	Current (A)
CCB250PS12	10.1 to 13.5	20.8	250	5	0.5
CCB250PS15	13.6 to 17	16.7	250	5	0.5
CCB250PS18	17.1 to 21	13.9	250	5	0.5
CCB250PS24	21.1 to 26	10.4	250	5	0.5
CCB250PS28	26.1 to 31	8.9	250	5	0.5
CCB250PS33	31.1 to 33	7.6	250	5	0.5
CCB250PS36	33.1 to 42	6.9	250	5	0.5
CCB250PS48	42.1 to 54	5.2	250	5	0.5

See also Enclosure-Miscellaneous for additional details.

Additional suffix "SF" provided for units provided with only one fuse in the line and no fuse in the neutral.

Technical Considerations

- Classification of installation and use : For building-in
- Supply connection : For 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+**A1 (R2012)** (includes National Differences for USA); CAN/CSA-C22.2 No. 60601-1:08 +**A1 (2014)** (includes National Differences for Canada), EN 60601-1:2006 **+A1 (2013), IEC 60601-1, Edition 3.1 (2012)**
- Scope of Power Supply evaluation defers the following clauses to the be determined as part of the end product evaluation: Clause 7.5 (Safety Signs), Clause 7.9 (Accompanying Documents), Clause 9 (ME Hazard), Clause 10 (Radiation), Clause 14 (PEMS), Clause 16 (ME Systems)
- 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
- The product was submitted and evaluated for use at the maximum ambient temperature (Tmra) permitted by the manufacturer's specification of: 50°C with output loaded to 100% rated and 70°C with output loaded to 50% rated (See De-rating Curve, Enclosure 7-01 (Ill. 10) for details).

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 installed in compliance with the Marking (clause 7) and Separation (clause 8) requirements of the end use application.
- Repeating leakage current testing and consideration of non-frequency weighted leakage to be

considered as part of the end product.

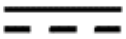
- This power supply was evaluated with Two MOPP between Primary and Secondary; One MOPP primary and Earth.
- When installed in a Class II end product, the power supply shall be mounted, on insulating posts, in a manner that provides, at a min. 5 mm Clearance between the primary side of the power supply and any accessible conductive parts.
- Unit provided with One MOPP for 250 Vrms between secondary and ground/floating mounting holes, for consideration in BF applications as part of the end product
- 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 should ensure that the requirements related to accompanying documents, clause 7.9, are met.
- The available voltage for the secondary outputs does not exceed 25 Vac or 60 Vdc, under normal and single fault conditions
- The output connectors are not acceptable for field connections; they are only intended for connection to mating connectors of the end-use equipment.
- The maximum investigated branch circuit rating is: 20 A
- The Dielectric Withstand Voltage Test conducted on this power supply was based upon a maximum working voltage of: Primary-Earthed Dead Metal (Class I units): 344 Vpk, 242 Vrms; Primary-SEC: 670 Vpk, 324 Vrms.
- Protective bonding testing shall be considered in the end product application.
- 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): PFC, L2, L3, L5, L6 and T1-T5 (min. Class F, min. 155°C)
- Printed Wiring Board rated 130°C.
- Cleaning test to be considered as part of end product evaluation.
- 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.

- Units provided with additional suffix “SF”, provided with only one fuse. Need for additional fusing to be determined as part of the end product.

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.
Functional Earth Terminal	
Serial Number or lot or batch identifier	**Eight alpha numeric characters (A BB CC DDD where A = factory code; BB = year; CC=week; DDD = serial number)**
Date of Manufacturer	**Provided as part of the serial number**

Special Instructions to UL Representative

N/A

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	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			