

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:	Open Frame Switching Power Supply
Model:	ECP40USXX (where XX can be any number between 05 and 48 designating the output voltage)
Rating:	<p>Input: 100-240 Vac, 50/60 Hz, 1.0 A</p> <p>Output:</p> <p>Model ECP40US05: Output Rated: 5.0 Vdc, 6.0 A</p> <p>Model ECP40US12: Output Rated: 12.0 Vdc, 3.34 A</p> <p>Model ECP40US15: Output Rated: 15.0 Vdc, 2.67 A</p> <p>Model ECP40US18: Output Rated: 18.0 Vdc, 2.22 A</p> <p>Model ECP40US24: Output Rated: 24.0 Vdc, 1.67 A</p> <p>Model ECP40US30: Output Rated: 30.0 Vdc, 1.34 A</p> <p>Model ECP40US48: Output Rated: 48.0 Vdc, 0.84 A</p>
Applicant Name and Address:	<p>XP POWER L L C</p> <p>15641 RED HILL AVE, SUITE 100</p> <p>TUSTIN CA 92780</p> <p>UNITED STATES</p>

Issue Date: 2018-10-08

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Report Reference #

E317867-A6006-UL

Revision Date: 2019-05-02

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: Robert J Leon / Project Handler Reviewed By: Walid Beytoughan / 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 model covered in this report is an open frame component switching power supply intended for use in Audio/video, information and communication technology equipment.

Model Differences

All models are identical with exception to the Mains Transformer (TR1) and minor secondary components that allow for different output voltage ratings. See Enclosure-Miscellaneous for additional details.

See Enclosure-Miscellaneous: De-rating Curve for additional ratings information.

Test Item Particulars

Classification of use by	Ordinary person
Supply Connection	AC Mains
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 for 100% load. 70°C for 50% load (See Enclosure-Miscellaneous: De-rating Curve for additional details) °C
IP protection class	IPX0
Power Systems	TN IT - 230 V L-L
Altitude during operation (m)	5000 m
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	0.12 kg kg

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (T_{ma}) permitted by the manufacturer's specification of : 50°C for 100% load. 70°C for 50% load (See Enclosure-Miscellaneous: De-rating Curve for additional details)
- The product is intended for use on the following power systems : TN, IT
- The equipment disconnect device is considered to be : N/A - To be provided as an element of the end product.
- The power supply series covered by this report employ Double/Reinforced Insulation between Primary and Secondary circuits.
- The clearance distances have additionally been assessed for suitability up to 5000 m elevation (1.48 correction factor as per IEC 60664-1, Table A2).

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 output circuits are at ES1 energy levels : All
- The following output circuits are at PS2 energy levels : All
- 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 when installed in a Class I end product.
- The following end-product enclosures are required : Electrical, 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) : TR1 - Class F
- The power supply was evaluated to be used at altitudes up to : "5,000 m"
- The end-product Electric Strength Test is to be based upon a Transient Voltage of 2500Vpk.
- When installed in a Class II end product, the power supply shall be mounted in a manner that provides sufficient clearance and creepage distance between the hazardous parts of the power supply and accessible conductive parts of the end product.
- The power supply is provided with a fuse in both the line and neutral of the primary circuit. The need for a marking warning service person of the hazards associated with neutral fusing shall be considered in the end-product.
- The power supplies in this report have not been subjected to the Capacitance Discharge test of clause 5.5.2.2. Consideration for conducting the test shall be given during the end product evaluation with the power supplies installed.

Additional Information

Limited tests were conducted under this investigation based on testing previously conducted under CBTR Ref. No. E317867-A7-CB-4, CB Test Certificate Ref. Nos. US-26147-UL to IEC 60950-1:2005 (Second Edition), Am1:2009 + Am2:2013. All required tests were carried out under the previous investigation except where specifically noted.

Unless indicated otherwise, all previous tests were conducted under UL CBTL Underwriters Laboratories Taiwan Co., Ltd. 260 Da-Yeh Road, 112 Peitou Taipei City, Chinese Taipei. Some tests were additionally conducted under CTDSP SMT/CTF Stage 3 at XP POWER Ltd, 401 Commonwealth Drive, Haw Par Technocentre, Lobby B, #02-02, Singapore 149598 Singapore.

The nameplate markings provided are considered representative of the entire series and only the output ratings may vary.

This report references component licenses documentation or certificates that are older than 3 years or issued to previous IEC/EN Standard editions. It has been determined that all critical components comply with current safety requirements. Receiving NCB may request additional information. Acceptance of these licenses, certificates or relevant documentation is at the discretion of the Receiving NCB.

Technical Amendment (CB-1, Amendment 1):

1. Added missing Conditions of Acceptability section.
2. Added Manufacturer and Type designation for Bleeding Resistors R1 and R2.

Correction:

Corrected the missing Enclosures. No testing or further evaluation was necessary.

Additional Standards

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

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)"

Special Instructions to UL Representative

N/A

BD1.0	TABLE: Production-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 TR1	--	Primary Pins - Secondary Pins	2828 Vac	4000	1 sec
BD1.2	Earthing Continuity Test Exemptions – This test is not required for the following models:					
	All Models					
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