

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, Issued: 2014-12-01 (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:	QQGQ2, QQGQ8 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)
Product:	Switching Power Supply
Model:	LCE80PSXX (where XX represents the output voltage between 05-54, may be followed by any alphanumeric character, blank or "-").
Rating:	Input: 100-277 Vac, 50-60 Hz, 1.2A Output: See 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: Robert 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 a component AC - DC power supply intended for building in Audio/video, information and communication technology equipment.

Model Differences

All models in the Model LCE80PSXX Series are identical with exception to the Mains Transformer T1, and minor secondary components that allow for different output voltage ratings.

LCE80PS05: 5Vdc (4.5 - 5.5 Vdc), 12.0 A max, 60W max

LCE80PS12: 12Vdc (10.8 - 13.2 Vdc), 6.67 A max, 80W max

LCE80PS15: 15Vdc (13.5 - 16.5 Vdc) , 5.33 A max, 80W max

LCE80PS20: 20Vdc (18.0 - 22.0 Vdc) , 4.0 A max, 80W max

LCE80PS24: 24Vdc (21.6 - 26.4 Vdc) , 3.33 A max, 80W max

LCE80PS30: 30Vdc (27.0 - 33.0 Vdc) , 2.67 A max, 80W max.

LCE80PS36: 36Vdc ((32.4 - 39.6 Vdc), 2.22 A max, 80 W max.

LCE80PS42: 42Vdc (37.8 - 46.2 Vdc) , 1.9 A max, 80W max

LCE80PS48: 48Vdc (43.2 - 52.8 Vdc) , 1.67 A max, 80W max

LCE80PS54: 54Vdc (48.6 - 59.4 Vdc), 1.48 A max, 80W max

LCE80PS05: 5Vdc (4.5 - 5.5 Vdc), 6.0 A max, 30W max (50% at 70°C)

LCE80PS12: 12Vdc (10.8 - 13.2 Vdc), 3.33 A max, 40W max (50% at 70°C)

LCE80PS15: 15Vdc (13.5 - 16.5 Vdc) , 2.67 A max, 40W max (50% at 70°C)

LCE80PS20: 20Vdc (18.0 - 22.0 Vdc) , 2.0 A max, 40W max (50% at 70°C)

LCE80PS24: 24Vdc (21.6 - 26.4 Vdc) , 1.67 A max, 40W max(50% at 70°C)

LCE80PS30: 30Vdc (27.0 - 33.0 Vdc) , 1.33 A max, 40W max. (50% at 70°C)

LCE80PS36: 36Vdc ((32.4 - 39.6 Vdc), 1.11 A max, 40W max. (50% at 70°C)

LCE80PS42: 42Vdc (37.8 - 46.2 Vdc) , 1.9 A max, 40W max (50% at 70°C)

LCE80PS48: 48Vdc (43.2 - 52.8 Vdc) , 1.67 A max, 40W max (50% at 70°C)

LCE80PS54: 54Vdc (48.6 - 59.4 Vdc), 1.48 A max, 40W max (50% at 70°C)

Additional Suffix "-SF" denotes units provided with only a single line side fuse.

Additional Suffix "-T" denotes units provided with screw type terminal.

Additional Suffix "-YYYYYY" can be any digits or letters or blank for marketing purpose.

All "-" considered optional.

Test Item Particulars

Classification of use by	Skilled person
Supply Connection	AC Mains
Supply % Tolerance	+10%/-10%
Supply Connection – Type	For building-in. To be determined in the end product.
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
Class of equipment	Not classified
Access location	N/A
Pollution degree (PD)	PD 2
Manufacturer's specified maximum operating ambient (°C)	50°C for 100% load. 70°C for 50% load.
IP protection class	IPX0
Power Systems	TN IT - 230 V for Norway V L-L
Altitude during operation (m)	5000 m
Altitude of test laboratory (m)	17 m
Mass of equipment (kg)	0.15 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.
- The product is intended for use on the following power systems : TN
- Considered current rating of protective device as part of the building installation (A) : 20
- Mains supply tolerance (%) or absolute mains supply values : +10%/-10%
- The power supply series covered by this report employ Double/Reinforced Insulation between Primary and Secondary circuits. Additionally evaluated for Basic Insulation between Line and Neutral up to and across the fuse (F1) per internal requirements of XP Power engineering specifications.
- According to IEC60664-1, Table A2, required Clearances have been adjusted by multiplying the clearance at sea level by a factor of 1.48 for operating at an altitude of 5000 meters. The correction factor is based on barometric pressure of 70kPa and Overvoltage Category II. If the calculated Clearance exceeded the Creepage, the Creepage was adjusted to the value of clearance.

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 product-line tests are conducted for this product : Electric Strength
- The following output circuits are at ES1 energy levels : All
- The following output circuits are at PS2 energy levels : +12V, +15V, + 20V, +24V, +30V, +36V, +42V, +48V, +54V
- The following output circuits are at PS3 energy levels : +5V
- 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 input terminals/connectors must be connected to the end-product supply neutral : CN1
- 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) : Transformer TR1 Class B (130)
- The maximum continuous power supply output (Watts) relied on forced air cooling from : 10cfm fan applied 1 inch from input side, blowing inward.
- The power supply was evaluated to be used at altitudes up to : 5000 m
- 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 end-product Electric Strength Test is to be based upon a Transient Voltage of 2500Vpk.

Additional Information

Amendment 1 (Technical):

1. Revised Annex Q (LPS) Table for models LCE80PSxx Series (+12V to +54V).
2. Added Resistors R62 and R63 to Table 4.1.2.

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	Listee's 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	2800 Vac	4000	1 sec
All Models	--	--	AC Input Pins - Bonding Pin	1750 Vac	2500	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
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