

## UL TEST REPORT AND PROCEDURE

<b>Standard:</b>	UL 60950-1, 2nd Edition, 2014-10-14 (Information Technology Equipment - Safety - Part 1: General Requirements) CAN/CSA C22.2 No. 60950-1-07, 2nd Edition, 2014-10 (Information Technology Equipment - Safety - Part 1: General Requirements)
<b>Certification Type:</b>	Component Recognition
<b>CCN:</b>	QQGQ2, QQGQ8 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)
<b>Complementary CCN:</b>	QQJQ2, QQJQ8 (Power Supplies for Use in Audio/Video, Information and Communication Technology Equipment)
<b>Product:</b>	Switching Power Supply
<b>Model:</b>	Models ECE20USXX, where X can be any number between 03 and 48
<b>Rating:</b>	Input: 100-240 V~, 0.5 A, 50-60 Hz  Output: See Enclosure - Miscellaneous Models rating table for details.
<b>Applicant Name and Address:</b>	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: Scott Corley - 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 unit is a switching type potted power supply in which electronic components are mounted on PWB for installing to Information Technology Equipment (ITE).

### Model Differences

Models ECE20US03, ECE20US05, ECE20US09, ECE20US12, ECE20US15, ECE20US24 and ECE20US48 are identical except minor differences in transformer secondary winding turns, some components to regulate output voltage and current.

### Technical Considerations

- Equipment mobility : movable
- Connection to the mains : not directly connected to the mains
- Operating condition : continuous
- Access location : for building in
- 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 or Class II (Determined in end-product)
- Considered current rating of protective device as part of the building installation (A) : 20A
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : up to 3048 m
- Altitude of test laboratory (m) : Less than 2000 m
- Mass of equipment (kg) : < 0.1 kg
- The product was submitted and evaluated for use at the maximum ambient temperature (T<sub>ma</sub>) permitted by the manufacturer's specification of: 50 degree C (100% full load) and 70 degree C (50% full load).
- The product is intended for use on the following power systems: TN
- The product was investigated to the following additional standards: CSA/UL 62368-1 2nd Ed, EN

60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013 (which includes all European national differences, including those specified in this test report).

- According to IEC60664-1, Table A2, 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.

#### **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: Primary-SELV: 247 Vrms, 566 Vpk.
- The following secondary output circuits are SELV: Secondary output
- The following secondary output circuits are at non-hazardous energy levels: Secondary output
- The following secondary output circuits are Limited Current Circuits: After CY1
- The following secondary output circuits are supplied by a Limited Power Source: Secondary output
- The power supply terminals and/or connectors are: Not investigated for field wiring
- The maximum investigated branch circuit rating is: 20 A
- The investigated Pollution Degree is: 2
- The following magnetic devices (e.g. transformers or inductor) are provided with an OBJ2 insulation system with the indicated rating greater than Class A (105°C): Transformer T1 (Class B)
- The following end-product enclosures are required: Fire, Electrical
- Secondary circuits are isolated from primary circuits by double or reinforced insulation, however the Class of equipment shall be considered in the end product.
- The Clearances and Creepage Distances have been assessed for suitability up to 3048 m elevation, except for China (up to 2000 m elevation). Additional consideration may be necessary in the end product.
- Printed Wiring Board rated 130°C
- UL 62368-1 Capacitance Discharge - Safeguards against capacitor discharge after disconnection of a connector (clause 5.5.2.2) shall be evaluated in the end-product.
- UL 62368-1 The following output circuits are at ES1 energy levels : All DC Outputs
- UL 62368-1 Prospective Touch Current and Voltage testing to be conducted in the end-product evaluation.

#### **Additional Information**

This report is a Standard upgrade/reissue of CBTR Ref. No.: E317867-A43-CB-1, CB Test Certificate Ref. No. US-21222-UL to IEC 60950-1:2005 (Second Edition), Am1:2009 + Am2:2013. Based on the previously conducted testing and the review of product technical documentation including photos, schematics, wiring diagrams and similar, only the construction review and the review of previous tests was deemed necessary. All required tests were carried out under the original investigation.

In addition, an alternate label system was added to this report (3M, Types 7816 or 7818) based on previous evaluation for this manufacturer under CBTR Ref. No.: E139109-A139, CBTC Ref. No.: US- 24981-UL and US-24981-M1-UL.

The required clearance values have been assessed for suitability up to 3048 m elevation, except for China (suitable up to 2000 m).

A warning label with the wording "use only in non-tropical climate conditions" will be located on the unit.

The need for the additional testing and evaluation shall be determined in the end product investigation.

The provided nameplate marking is considered representative of the entire series.

**Additional Standards**

The product fulfills the requirements of: CSA C22.2 No. 60950-1-07 2nd Ed. Revised 2014-10-14, EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011 + A2:2013, UL 60950-1 2nd Ed. Revised 2014-10-14, CSA/UL 62368-1 2nd Ed

**Markings and instructions**

Clause Title	Marking or Instruction Details
Power rating - Ratings	Ratings (voltage, frequency/dc, current)
Power rating - Company identification	Listee's or Recognized company's name, Trade Name, Trademark or File Number
Power rating - Model	Model Number
Fuses - Rating	Rated current and voltage and type located on or adjacent to fuse or fuseholder.

**Special Instructions to UL Representative**

Inspect the transformer(s) listed in BD1.1 per AA1.1- (C). When the tests are conducted at other location, inspect test record and specification sheet provided by the component manufacturer. Verify the specification sheet indicates 100% routine test specified in BD1.1 be conducted at the component manufacturer.

<b>Production-Line Testing Requirements</b>						
<b><u>Electric Strength Test Special Constructions - Refer to Generic Inspection Instructions, Part AC for further information.</u></b>						
Model	Component	Removable Parts	Test probe location	V rms	V dc	Test Time, s
All models	T1	--	--	300 0	-	1
<b><u>Earthing Continuity Test Exemptions - This test is not required for the following models:</u></b>						
All models						
<b><u>Electric Strength Test Exemptions - This test is not required for the following models:</u></b>						
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<b><u>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:</u></b>						
N/A						
<b><u>Sample and Test Specifics for Follow-Up Tests at UL</u></b>						
Model	Component	Material	Test	Sample(s)	Test Specifics	
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