UL TEST REPORT AND PROCEDURE

Standard:	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)
Certification Type:	Component Recognition
CCN:	QQGQ2, QQGQ8 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)
Complementary CCN:	QQJQ2, QQJQ8 (Power Supplies for Use in Audio/Video, Information and Communication Technology Equipment)
Product:	Power supply for building-in, switch mode type
Model:	GCS265PSxxyy (where xx can be any number between 12 and 56 and yy is "-C", "-TF", "-EF" or blank; all "-" considered optional; may also be provided with additional suffix "SF", "S" or "R"), GCS265PS24-XD0642.
Rating:	Input: 100-240 Vac, 50/60 Hz, 3A 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: Tom Scheuffele/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 power supply intended for use in Information Technology Equipment. It is an open frame power supply intended for building-in Class I or Class II end-products. Double insulated symbol is optionally provided. Earthing symbol may only be provided for Class I power supplies.

Model Differences

All models in the Model GCS265PSXX series are identical with exception to the Mains Transformer, T1, and secondary components/circuitry that allow for different output voltage ratings.

See below for Model Output Ratings:

Model GCS265PS12:
V1: 10.1 Vdc - 13.5 Vdc, 20.8 A Max. (250 W Max);
V2: 5 Vdc, 3A Max (15 W Max);
(Total Power: 265 W Max)

Model GCS265PS15:
V1: 13.6 Vdc - 17 Vdc, 16.66 A Max. (250 W Max);
V2: 5Vdc, 3A Max (15 W Max);
(Total Power: 265 W Max)

Model GCS265PS18:
V1: 17.1 Vdc - 21 Vdc, 13.9 A Max. (250 W Max);
V2: 5Vdc, 3A Max (15 W Max);
(Total Power: 265 W Max)

Model GCS265PS24:
V1: 21.1 Vdc - 26 Vdc, 10.4 A Max. (250 W Max);
V2: 5Vdc, 3A Max (15 W Max);
(Total Power: 265 W Max)

Model GCS265PS24-XD0642:
V1: 24 Vdc, 7.5 A Max (180 W Max);
V2: 5Vdc, 3A Max (15 W Max);
(Total Power: 195W Max)

Model GCS265PS28:

V1: 26.1 Vdc - 31 Vdc, 8.9 A Max. (250 W Max);
V2: 5Vdc, 3A Max (15 W Max);
(Total Power: 265 W Max)

Model GCS265PS33:
V1: 31.1 Vdc - 33 Vdc, 7.6 A Max. (250 W Max);
V2: 5Vdc, 3A Max (15 W Max);
(Total Power: 265 W Max)

Model GCS265PS36:
V1: 33.1 Vdc - 42 Vdc, 6.94 A Max. (250 W Max);
V2: 5Vdc, 3A Max (15 W Max);
(Total Power: 265 W Max)

Model GCS265PS48:
V1: 42.1 Vdc - 54 Vdc, 5.2 A Max. (250 W Max);
V2: 5Vdc, 3A Max (15 W Max);
(Total Power: 265 W Max)

Model GCS265PS56:
V1: 54.1 Vdc - 63.2 Vdc, 4.5 A Max. (250 W Max);
V2: 5Vdc, 3A Max (15 W Max);
(Total Power: 265 W Max)

Units provided with suffix "C" is provided with cover.
Units provided with suffix "TF" is provided with top fan.
Units provided with suffix "EF" is provided with end fan.
Units provided without suffix "C", "TF" or "EF" is open frame (without cover).
Units provided with additional suffix "SF" to indicate single pole fusing.
Units provided with additional suffix "S" to indicate screw terminal block.
Units provided with suffix “R” is remote inhibit.

See Enclosure - Miscellaneous for max Power Outputs based on model, ambient, and forced air cooling.

Technical Considerations

- Equipment mobility : for building-in
- Connection to the mains : To be determined in end-use product
- Operating condition : continuous
- Access location : To be determined in end-use product
- Over voltage category (OVC) : OVC II
- Mains supply tolerance (%) or absolute mains supply values : +10%, -10%
- Tested for IT power systems : Yes
- IT testing, phase-phase voltage (V) : 230
- Class of equipment : To be determined in end-use product
- Considered current rating of protective device as part of the building installation (A) : 20
- Pollution degree (PD) : PD 3
- IP protection class : IPX0
- Altitude of operation (m) : 5000
- Altitude of test laboratory (m) : 17

- Mass of equipment (kg) : 0.6 kg
- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 50°C at 100% of Output Rating, 70°C at 50% of Output Rating. See Miscellaneous enclosure Power Output Table for additional information regarding power output and the various configurations.
- The means of connection to the mains supply is: for building-in, to be determined in the end product.
- The product is intended for use on the following power systems: TN, IT
- The product was investigated to the following additional standards: 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)., , IEC 62368-1 2nd Ed, ,
- The following accessible locations (with circuit/schematic designation) are within a limited current circuit: Load side of C21 (Pri to Sec bridging capacitor)
- Power supplies covered by this report were evaluated for both Class I and Class II (double insulated). Double insulated symbol is optionally provided. See Conditions of Acceptability for insulation required for Class II. Earthing symbol may only be provided for Class I power supplies.
- The internal wiring is certified Appliance Wiring Material rated VW-1 and/or FT-1 which were considered equivalent to the tests of IEC60332-1-2 and IEC60332-1-3. The final acceptability of the internal wiring may be determined under the discretion of the receiving NCB.

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 secondary output circuits are at non-hazardous energy levels: Model GCS265PS24-XD0642 - All Outputs.
- Printed Wiring Board rated 130°C.
- Heatsinks are floating and considered live. They should not be accessible in the end-product.
- Touch Current test to be conducted in the end-product evaluation.
- Clearance spacing evaluated for 5000 m altitude. Additional consideration may be necessary in the end-use product.
- End product to determine the need for "Double Pole Fuse" Marking for units provided with double , pole fusing.
- The equipment may be provided with a fuse in both the Line and Neutral of the primary circuit.
- Heating test should be repeated in the end-use product
- Heating test was not conducted on unit with input/output leads. If unit is provided with input and/or output leads, then temperature on leads must be measured and cannot exceed 105°C.
- 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-Earthed Dead Metal: 240 Vrms, 352 Vpk Primary-SELV: 256 Vrms, 450 Vpk
- The following secondary output circuits are SELV: All outputs, except V1 Model GCS265PS56.
- The following secondary output circuits are at hazardous energy levels: All outputs except V2: 5V/3A (Standby)
- The power supply terminals and/or connectors are: Suitable for factory wiring only
- The maximum investigated branch circuit rating is: 20 A
- The investigated Pollution Degree is: 3
- Proper bonding to the end-product main protective earthing termination is: required when the power

supply is used in a Class I end product. The power supply will be considered Class II only when protection against electric shock does not rely on Basic Insulation.

- An investigation of the protective bonding terminals has: Not been conducted
- The following input terminals/connectors must be connected to the end-product supply neutral: J1
- 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): L1, L4 and T1 (Class F, 155°C) , 5V Standby - Transformer (T1) (Class F, 155°C) ,
- The following end-product enclosures are required: Mechanical, Fire, Electrical
- The following components require special consideration during end-product Thermal (Heating) tests due to the indicated maximum temperature measurements during component-level testing: Model GC265PS12: PCB@Q1 coil (130°C); C22 (Stand-by board) (105°C); C27 (105°C),
- The maximum continuous power supply output (Watts) relied on forced air cooling from: 7 cfm fan applied 1 inch from input side, blowing inward.,
- The equipment is suitable for direct connection to: AC mains supply. Means of connection will need to be evaluated in the end product.
- Fans: For models with the suffix "EF", the fan provided in this sub-assembly is not intended for operator access., For models with the suffix "TF", the fan provided in this sub-assembly is provided with a fan guard to reduce the risk of operator contact with the stator.
- Capacitance Discharge - Safeguards against capacitor discharge after disconnection of a connector (clause 5.5.2.2) shall be evaluated in the end-product.

Additional Information

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).

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

The power supply series covered by this report employ Double/Reinforced Insulation between Primary and Secondary circuits.

Licenses older than 3 years to be provided by the manufacturer upon request.

Marking label is representative of all models.

This CB Report is a re-issue of CB Test Report Reference No. E139109-A139-CB-1, CB Test Certificate Ref.No. US-23730-UL. No sample and no tests were conducted under this investigation due to:
1) Upgraded the Standard to IEC 60950-1 (2nd Ed +Amd 1 + Amd 2). All required testing carried out under original investigation. Based on previously conducted testing and the review of product technical documentation including photos, schematics, wiring diagrams and similar, has been determined that the product complies with the standard;
2) Change Applicant and Manufacturer's address;
3) Update National Differences to all countries.

Additional Standards

The product fulfills the requirements of: CSA C22.2 No. 60950-1-07 + A1:2011, EN EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013 , UL 60950-1 2nd Ed. Revised 2011-12-19, IEC 60950-1:2005 + A1:2009

Markings and instructions

Clause Title	Marking or Instruction Details