

UL TEST REPORT AND PROCEDURE

Standard:	UL 60950-1, 2nd Edition, 2011-12-19 (Information Technology Equipment - Safety - Part 1: General Requirements) CSA C22.2 No. 60950-1-07, 2nd Edition, 2011-12 (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)
Product:	Switching Power Supply
Model:	VCS50US05, VCS50US12, VCS50US15, VCS50US24, VCS50US36, VCS50US48
Rating:	Input: 100-240V, 1.1A max, 50 / 60Hz For Model VCS50US05 Output: 5 Vdc, 8 A, 40 W For Model VCS50US12 Output: 12 Vdc, 4.2 A, 50 W For Model VCS50US15 Output: 15 Vdc, 3.3 A, 50 W For Model VCS50US24 Output: 24 Vdc, 2.1 A, 50 W For Model VCS50US36 Output: 36 Vdc, 1.39 A, 50 W For Model VCS50US48 Output: 48 Vdc, 1.05 A, 50 W
Applicant Name and Address:	XP POWER L L C 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 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.

Issue Date: 2010-07-15
2013-04-18

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Report Reference #

E317867-A26-UL

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: Nathan Escalante

Reviewed by: Luis Martinez

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 build-in switching type open frame power supply which electronic components mounted on PWB for installing to Information Technology Equipment (ITE).

Model Differences

VCS50US05, VCS50US12, VCS50US15, VCS50US24, VCS50US36, VCS50US48 are identical to each other, except for the Model Designation, Output Electrical Ratings, R02, C02, R4, Transformer (T01) and Secondary Components.

Technical Considerations

- Equipment mobility : for building-in
- Connection to the mains : for building in
- Operating condition : continuous
- Access location : to be determined in the end 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) : 230V
- Class of equipment : Class I (earthed)
- Considered current rating of protective device as part of the building installation (A) : 20 A
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : 3048 m
- Altitude of test laboratory (m) : up to 2000 m
- Mass of equipment (kg) : 0.27 kg
- The product was submitted and evaluated for use at the maximum ambient temperature (T_{ma}) permitted by the manufacturer's specification of: 50°C at full output power and 70°C at half output power.

- The means of connection to the mains supply is: Pluggable A
- The product is intended for use on the following power systems: IT, TT and TN
- The product was investigated to the following additional standards: EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 (which includes all European national differences, including those specified in this test report).
- The following accessible locations (with circuit/schematic designation) are within a limited current circuit: CY04 Secondary Pin to Earth
- The following are available from the Applicant upon request: Installation (Safety) Instructions / Manual
- LEDs provided in the product are considered low power devices: Yes
- The equipment was evaluated to be operated up to 3048 m above sea level and the multiplication factors 1.15 of table A.2 of IEC 60664-1:1992+A1:2000+A2:2002 was applied to determinate the minimum required 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 Production-Line tests are conducted for this product: Electric Strength and Earthing Continuity Tests
- The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-SELV: 262 Vrms, 570 Vpk, Primary-Earthed Dead Metal: 260 Vrms, 530 Vpk
- The following secondary output circuits are SELV: All outputs
- The following secondary output circuits are at non-hazardous energy levels: All outputs
- 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 OBJY2 insulation system with the indicated rating greater than Class A (105°C): T01 (Class B)
- The following end-product enclosures are required: Mechanical, Fire, and Electrical
- The equipment is suitable for direct connection to: AC mains supply
- The following LEDs operate within the exempt group per IEC 62471: Risk Exempt Group
- Earthing test is necessary to be considered in end system.
- The Casing Temperature is 74 deg C at Tma 70 deg C.

Additional Information

The label is a draft of an artwork for marking plate pending approval by National Certification Bodies and it shall not be affixed to products prior to such an approval.

Sample(s) submitted for evaluation is (are) representative of the products from each factory.

This report is a re-issue and the standard edition was upgraded to IEC 60950-1, 2nd Edition, Amendment 1 of CBTR Ref. No. E317867-A26-CB-1, CB Test Certificate Ref. Nos. DK-19501 issued 2010-07-21. Based on the previously conducted testing and the review of product technical documentation including photos,

schematics, wiring diagrams and similar, it has been determined that the product continues to comply with the standard and no additional testing was considered necessary. All required tests were carried out under the original investigation.

There are CB test certificates older than 3 years; these components have been evaluated as part of end-product to Amendment 1 requirements and are compliant. Acceptance of the component CBTCs older than 3 years will be up to the discretion of the target country NCB.

Additional Standards

The product fulfills the requirements of: EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011

Markings and instructions

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

Special Instructions to UL Representative

N/A

UL TEST REPORT AND PROCEDURE

Standard:	UL 60950-1, 2nd Edition, 2011-12-19 (Information Technology Equipment - Safety - Part 1: General Requirements) CSA C22.2 No. 60950-1-07, 2nd Edition, 2011-12 (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)
Product:	Switching Power Supply for building-in
Model:	VCS70US05, VCS70US12, VCS70US15, VCS70US24, VCS70US36, VCS70US48
Rating:	Input 100-240Vac, 1.4A, 50/60Hz Output VCS70US05, 5V@10A VCS70US12, 12V@5.83A VCS70US15, 15V@4.67A VCS70US24, 24V@2.92A VCS70US36, 36V@1.94A VCS70US48, 48V@1.46A
Applicant Name and Address:	XP POWER L L C 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 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.

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Prepared by: Nathan Escalante

Reviewed by: Luis Martinez

Supporting Documentation

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Product Description

The unit is a switching type open frame power supply which electronic components mounted on PWB for installing to Information Technology Equipment (ITE).

Model Differences

All Models are similar in construction except for output ratings, transformer secondary windings, some trimming secondary components, and model designation.

Technical Considerations

- Equipment mobility : for building-in
- Connection to the mains : building-in component, connection type should be consider in end product
- Operating condition : continuous
- Access location : operator accessible
- Over voltage category (OVC) : OVC II
- Mains supply tolerance (%) or absolute mains supply values : +10%, -10% (manufacturer declared)
- Tested for IT power systems : Yes
- IT testing, phase-phase voltage (V) : 230V
- Class of equipment : Class I (earthed)
- 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 3048m
- Altitude of test laboratory (m) : Up to 2000m
- Mass of equipment (kg) : 0.112 kg
- The product was submitted and evaluated for use at the maximum ambient temperature (T_{ma}) permitted by the manufacturer's specification of: 50°C (100% full load) and 70°C (50% full load)
- The means of connection to the mains supply is: Building-in component, connection type should be

consider in end product.

- The product is intended for use on the following power systems: IT, TT and TN
- The product was investigated to the following additional standards: EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 (which includes all European national differences, including those specified in this test report).
- The following accessible locations (with circuit/schematic designation) are within a limited current circuit: After CY05 and CY06
- LEDs provided in the product are considered low power devices: Yes
- The combination pulse of 2.5kV/1.25kA is selected from sub-clause 2.3.6 of IEC 61051-2:1991 with Amendment 1:2009
- Clearance requirements were adjusted using the correction factor of 1.15 per Table A2 of IEC 60664-1:1992+A1: 2000+A2:2002 overvoltage category II for operation at 3048 m altitude. Additional requirements need to be considered if the product is to be used above 3048 m. 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 Production-Line tests are conducted for this product: Electric Strength and Earthing Continuity Tests
- The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-SELV: 246 Vrms, 450 Vpk
- The following secondary output circuits are SELV: All secondary output
- The following secondary output circuits are at non-hazardous energy levels: All secondary output
- The following output terminals were referenced to earth during performance testing: T01 Pin 10,11
- 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: 2
- Proper bonding to the end-product main protective earthing termination is: Required
- An investigation of the protective bonding terminals has: Been conducted
- The following input terminals/connectors must be connected to the end-product supply neutral: CZ01 Pin 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 T01 (Class B)
- The following end-product enclosures are required: Mechanical, Fire, Electrical
- The equipment is suitable for direct connection to: AC mains supply
- The following LEDs operate within the exempt group per IEC 62471: Risk Exempt Group
- Earthing test is necessary to be considered in end system.
- Heatsink HS01 and HS02 temperature exceed 70°C during heating test at Tma=70°C, half load condition. These 2 points shall be considered at end product evaluation as symbol 60417-1-IEC-5041 might be required.

Additional Information

The label is a draft of an artwork for marking plate pending approval by National Certification Bodies and it shall not be affixed to products prior to such an approval.

This report is a re-issue and the standard edition was upgraded to IEC 60950-1, 2nd Edition, Amendment 1 of CBTR Ref. No. E317867-A38-CB-1, CB Test Certificate Ref. No. DK-19454 issued 2010-07-16. Based on the previously conducted testing and the review of product technical documentation including photos, schematics, wiring diagrams and similar, it has been determined that the product continues to comply with the standard and no additional testing was considered necessary. All required tests were carried out under the original investigation. SELV Test was reconducted under WMT test option and was re-conducted for clarification of test data from previous evaluation.

There are CB test certificates older than 3 years; these components have been evaluated as part of end-product to Amendment 1 requirements and are compliant. Acceptance of the component CBTCs older than 3 years will be up to the discretion of the target country NCB.

Additional Standards

The product fulfills the requirements of: EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011

Markings and instructions

Clause Title	Marking or Instruction Details
1.7.1 Power rating - Ratings	Ratings (voltage, frequency/dc, current)
1.7.1 Power rating - Company identification	Listee's or Recognized company's name, Trade Name, Trademark or File Number
1.7.1 Power rating - Model	Model Number
1.7.6 Fuses - Rating	Rated current and voltage and type located on or adjacent to fuse or fuseholder.
1.7.6 Fuses - Non-operator access/soldered-in fuses	Unambiguous reference to service documentation for instructions for replacement of fuses replaceable only by service personnel

Special Instructions to UL Representative

N/A

UL TEST REPORT AND PROCEDURE

Standard:	UL 60950-1, 2nd Edition, 2011-12-19 (Information Technology Equipment - Safety - Part 1: General Requirements) CSA C22.2 No. 60950-1-07, 2nd Edition, 2011-12 (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)
Product:	Switching Power Supply for building-in
Model:	VCS100US05, VCS100US12, VCS100US15, VCS100US24, VCS100US36, VCS100US48
Rating:	Input 100-240Vac, 2.0A, 50/60Hz Output VCS100US05, 5V@14A VCS100US12, 12V@8.33A VCS100US15, 15V@6.67A VCS100US24, 24@4.17A VCS100US36, 36@2.78A VCS100US48, 48@2.08A
Applicant Name and Address:	XP POWER L L C SUITE 150 1241 E DYER RD SANTA ANA CA 92705 UNITED STATES

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Prepared by: Nathan Escalante

Reviewed by: Luis Martinez

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Product Description

The unit is a switching type open frame power supply which electronic components mounted on PWB for installing to Information Technology Equipment (ITE).

Model Differences

All Models are similar in construction except for output ratings, transformer secondary windings, some trimming secondary components, and model designation.

Technical Considerations

- Equipment mobility : for building-in
- Connection to the mains : building-in component, connection type should be consider in end product
- Operating condition : continuous
- Access location : operator accessible
- Over voltage category (OVC) : OVC II
- Mains supply tolerance (%) or absolute mains supply values : +10%, -10% (manufacturer declared)
- Tested for IT power systems : Yes
- IT testing, phase-phase voltage (V) : 230
- Class of equipment : Class I (earthed)
- Considered current rating of protective device as part of the building installation (A) : 20
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : Up to 3048
- Altitude of test laboratory (m) : less than 2000
- Mass of equipment (kg) : 0.62
- The product was submitted and evaluated for use at the maximum ambient temperature (T_{ma}) permitted by the manufacturer's specification of: 50°C (100% full load) and 70°C (50% full load)
- The means of connection to the mains supply is: to be considered in end product.

- The product is intended for use on the following power systems: TN and IT
- The product was investigated to the following additional standards: EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 (which includes all European national differences, including those specified in this test report).
- The following accessible locations (with circuit/schematic designation) are within a limited current circuit: After CY08
- LEDs provided in the product are considered low power devices: Yes
- The unit was evaluated to be operated up to 3048 m above sea level and the multiplication factors of table A.2 of IEC 60664-1: 1992 + A1: 2000 + A2: 2000 was applied to determine the minimum required clearance (The factor for 3048 m is 1.15).

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 and Earthing Continuity Tests
- The following secondary output circuits are SELV: All secondary output
- The following secondary output circuits are at non-hazardous energy levels: All secondary output
- The following secondary output circuits are Limited Current Circuits: After CY08
- The following output terminals were referenced to earth during performance testing: CN01 -ve pin
- 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: 2
- Proper bonding to the end-product main protective earthing termination is: Required
- An investigation of the protective bonding terminals has: Been conducted
- The following input terminals/connectors must be connected to the end-product supply neutral: CN01 pin 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 T01 (Class B)
- The following end-product enclosures are required: Mechanical, Fire, Electrical
- The equipment is suitable for direct connection to: AC mains supply
- The following LEDs operate within the exempt group per IEC 62471: Risk Exempt Group
- Earthing test is necessary to be considered in end system.
- Heatsink temperature are above accessible limit of 70°C, when tested at 50% loading condition and results shifted to T_{ma}=70°C. (60950-1, table 4B, temperature limits part 2). Compliances shall be confirmed in end product usage. Parts inside the equipment that are hot and may be touched shall be marked with (60417-2-IEC-5041) adjacent to the part.
- The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-Earthed Dead Metal: 243V_{rms}, 350V_{pk}, Primary-SELV: 227 V_{rms}, 433 V_{pk}.

Additional Information

The label is a draft of an artwork for marking plate pending approval by National Certification Bodies and it

shall not be affixed to products prior to such an approval.

This report is a re-issue and the standard edition was upgraded to IEC 60950-1, 2nd Edition, Amendment 1 of CBTR Ref. No. E317867-A41-CB-1, CB Test Certificate Ref. No. DK-21485 issued 2011-01-07. Based on the previously conducted testing and the review of product technical documentation including photos, schematics, wiring diagrams and similar, it has been determined that the product continues to comply with the standard and no additional testing was considered necessary. All required tests were carried out under the original investigation.

There are CB test certificates older than 3 years; these components have been evaluated as part of end-product to Amendment 1 requirements and are compliant. Acceptance of the component CBTCs older than 3 years will be up to the discretion of the target country NCB.

Additional Standards

The product fulfills the requirements of: EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011

Markings and instructions

Clause Title	Marking or Instruction Details
1.7.1 Power rating - Ratings	Ratings (voltage, frequency/dc, current)
1.7.1 Power rating - Company identification	Listee's or Recognized company's name, Trade Name, Trademark or File Number
1.7.1 Power rating - Model	Model Number
1.7.6 Fuses - Rating	Rated current and voltage and type located on or adjacent to fuse or fuseholder.
1.7.6 Fuses - Non-operator access/soldered-in fuses	Unambiguous reference to service documentation for instructions for replacement of fuses replaceable only by service personnel

Special Instructions to UL Representative

N/A