Test Report issued under the responsibility of:

TEST REPORT
IEC 60950-1
Information technology equipment - Safety - Part 1: General requirements

Report Reference No ..... :	E139109-A180-CB-1
Date of issue ..... :	2018-05-16
Total number of pages ..... :	60
CB Testing Laboratory ..... :	UL Fremont
Address ..... :	47173 Benicia Street, Fremont, CA, 94538, USA
Applicant's name ..... :	XP POWER L L C
Address ..... :	15641 RED HILL AVE, SUITE 100 TUSTIN CA 92780 UNITED STATES
Test specification:	
Standard ..... :	IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013
Test procedure ..... :	CB Scheme
Non-standard test method ..... :	N/A
Test Report Form No. ..... :	IEC60950_1F
Test Report Form originator ..... :	SGS Fimko Ltd
Master TRF ..... :	Dated 2014-02

This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

General disclaimer

The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test item description ..... :	Power supply for building-in, switch mode type
Trade Mark ..... :	
Manufacturer ..... :	XP POWER L L C 15641 RED HILL AVE, SUITE 100 TUSTIN CA 92780 UNITED STATES
Model/Type reference ..... :	FCS60USXX Series, where XX can be any number 12 to 48 designating the output voltage, may also be followed by suffix "SF", "S", "-" or blank.
Ratings ..... :	Input: 100-240 Vac, 50/60Hz, 1.6A Max. Output: See Model Differences for details.

Testing procedure and testing location:		
[ ]	**CB Testing Laboratory**	
	Testing location / address .....:	
[ ]	**Associated CB Test Laboratory**	
	Testing location / address .....:	
	Tested by (name + signature) .....:	
	Approved by (name + signature)....:	
[ ]	**Testing Procedure: TMP/CTF Stage 1**	
	Testing location / address .....:	
	Tested by (name + signature) .....:	
	Approved by (name + signature)....:	
[ ]	**Testing Procedure: WMT/CTF Stage 2**	
	Testing location / address .....:	
	Tested by (name + signature) .....:	
	Witnessed by (name + signature) ..:	
	Approved by (name + signature)....:	
[x]	**Testing Procedure: SMT/CTF Stage 3 or 4**	
	Testing location / address .....:	XP POWER LLC, 15641 RED HILL AV, SUITE 100, TUSTIN, CA 92780 USA
	Tested by (name + signature) .....:	Rodney Reyes / Tester
	Approved by (name + signature)....:	Walid Beytoughan / Reviewer
	Supervised by (name + signature) .:	Walid Beytoughan / Reviewer
[ ]	**Testing Procedure: RMT**	
	Testing location / address .....:	
	Tested by (name + signature) .....:	
	Approved by (name + signature)....:	
	Supervised by (name + signature) .:	

List of Attachments

National Differences (53 pages)

Enclosures (43 pages)

Summary Of Testing

Unless otherwise indicated, all tests were conducted at XP POWER LLC, 15641 RED HILL AV, SUITE 100, TUSTIN, CA 92780 USA.

Tests performed (name of test and test clause)	**Testing location / Comments**

Guide Information Page - Maximum Output Voltage, Current, and Volt Ampere Measurement (1.2.2.1)

Input: Single-Phase (1.6.2)

Durability of Marking (1.7.11)

Capacitance Discharge (2.1.1.7)

SELV Reliability Test Including Hazardous Voltage Measurements (2.2.2, 2.2.3, 2.2.4, Part 22 6.1)

Limited Current Circuit Measurement (2.4.1, 2.4.2)

Limited Power Source Measurements (2.5)

Humidity (2.9.1, 2.9.2, 5.2.2)

Determination of Working Voltage; Working Voltage Measurement (2.10.2)

Thin Sheet Material (2.10.5.9, 2.10.5.10, 2.10.5.6)

Transformer and Wire /Insulation Electric Strength (2.10.5.13)

Heating (4.5.1, 1.4.12, 1.4.13)

Ball Pressure (4.5.5, 4.5)

Touch Current (Single-Phase; TN/TT System) (5.1, Annex D)

Electric Strength (5.2.2)

Component Failure (5.3.1, 5.3.4, 5.3.7)

Transformer Abnormal Operation (5.3.3, 5.3.7b, Annex C.1)

Power Supply Output Short-Circuit/Overload (5.3.7)

Summary of Compliance with National Differences:

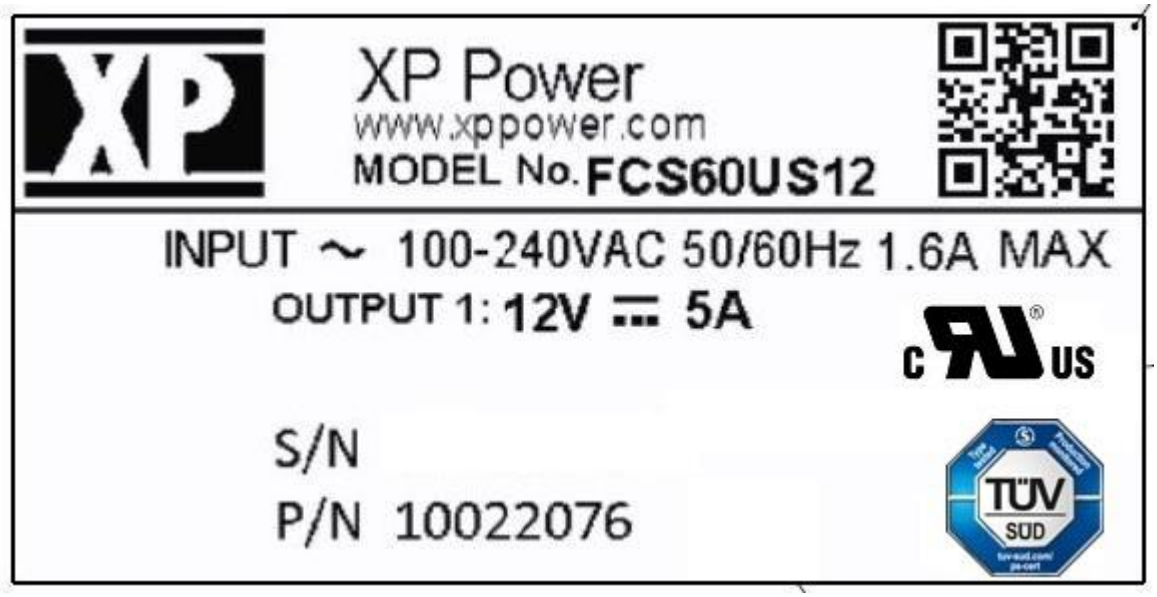
Countries outside the CB Scheme membership may also accept this report.

List of countries addressed: AR, AT, AU, BE, BG, BY, CA, CH, CN, CS, CZ, DE, DK, ES, EU, FI, FR, GB, GR, HU, IE, IL, IN, IT, JP, KR, MY, NL, NZ, PL, PT, RO, SA, SE, SG, SI, SK, UA, US, ZA

The product fulfills the requirements of: EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011 + A2:2013. Japan National Differences to IEC 60950-1:2005, Second Edition, A1:2009 + A2:2013 J60950-1 (H29) refer to Miscellaneous Enclosure 7-02. Australian and New Zealand National Differences to IEC 60950-1:2005 Second Edition, A1:2009 + A2:2013 AS/NZS 60950.1:2015 refer to Miscellaneous Enclosure 7-03.

Copy of Marking Plate

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.



Test item particulars :	
Equipment mobility ..... :	for building-in
Connection to the mains ..... :	for building-in
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 ..... :	To be determined by end-product
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) ..... :	5000 m
Altitude of test laboratory (m) ..... :	17 m
Mass of equipment (kg) ..... :	0.13 kg
Possible test case verdicts:	
- test case does not apply to the test object ..... :	N / A
- test object does meet the requirement ..... :	P(Pass)
- test object does not meet the requirement ..... :	F(Fail)
Testing:	
Date(s) of receipt of test item ..... :	2017-10-16
Date(s) of Performance of tests ..... :	2017-11-22 to 2018-01-19
General remarks:	
"(see Enclosure #)" refers to additional information appended to the report. "(see appended table)" refers to a table appended to the report. Throughout this report a point is used as the decimal separator.	
Manufacturer's Declaration per Sub Clause 4.2.5 of IECEE 02:	Yes
The application for obtaining a CB Test Certificate includes more than one factory and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... When differences exist, they shall be identified in the General Product Information section.	
Name and address of Factory(ies):	XP POWER INC 990 BENECIA AVE SUNNYVALE CA 94085 UNITED STATES XP POWER (KUNSHAN) LTD

230 BIN JIANG NAN RD
ZHANGPU TOWN
KUNSHAN
JIANGSU 215321 CHINA

XP POWER (VIETNAM) CO LTD
LOT D - 4Q - CN
MY PHUOC 3 INDUSTRIAL PARK
BEN CAT DISTRICT
BINH DUONG VIETNAM

XP POWER PLC
HORESHOE PARK
PANGBOURNE
RG87 JW UNITED KINGDOM

GENERAL PRODUCT INFORMATION:

Report Summary

All applicable tests according to the referenced standard(s) have been carried out.

Product Description

The models covered in this Test Report are component AC-DC power supplies intended for use in Information Technology Equipment. The switching power supplies are open frame type intended for building-in.

Model Differences

All models in the FCS60USXX series are identical with exception to model designation, Transformer (T1) and secondary components/circuitry that allow for different output voltage ratings.

Model output ratings as follows.
Model FCS60US12: Output Rated: 10.1 Vdc - 13.5 Vdc, 5 A Max., 60 W Max.
Model FCS60US15: Output Rated: 13.6 Vdc - 17 Vdc, 4 A Max., 60 W Max.
Model FCS60US18: Output Rated: 17.1 Vdc - 21 Vdc, 3.33 A Max, 60 W Max.
Model FCS60US24: Output Rated: 21.1 Vdc - 26 Vdc, 2.5 A Max., 60 W Max.
Model FCS60US28: Output Rated: 26.1 Vdc - 31 Vdc, 2.14 A Max., 60 W Max.
Model FCS60US36: Output Rated: 33.1 Vdc - 42 Vdc, 1.67 A Max, 60 W Max.
Model ECF60US48: Output Rated: 42.1 Vdc - 54 Vdc, 1.25 A Max., 60 W Max.

Additional Information

The switching power supply series covered by this Test Report used Double/Reinforced Insulation between Primary and Secondary circuits.

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

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 40°C for 60W load. 50°C for 50W load. 70°C for

25W load.

- The means of connection to the mains supply is: For building-in. To be evaluated in end-product.
- The product is intended for use on the following power systems: TN
- The equipment disconnect device is considered to be: For building-in. To be evaluated in end-product.
- 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)
- The following accessible locations (with circuit/schematic designation) are within a limited current circuit: Load Side of Bridging Capacitor (CY3).

Engineering Conditions of Acceptability

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: 250 Vrms / 412 Vpk, Primary-Earthed Dead Metal: 240 Vrms / 340 Vpk
- The following secondary output circuits are SELV: 12, 15, 18, 24, 28 and 36. The 48Vdc output measured 61.57Vdc at open circuit and is considered a Hazardous Output.
- The following secondary output circuits are at non-hazardous energy levels: All outputs
- 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
- 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): T1 (Class F / 155)
- The following end-product enclosures are required: Electrical / Fire / Mechanical
- Suitable disconnect device is to be provided in the end-product. --
- In accordance with IEC60664-1, Table A2, required clearances were adjusted by multiplying the clearance at sea level by a factor of 1.48 for operating at an altitude of 5000 m. The correction factor is based on barometric pressure of 70 kPa and Overvoltage Category II. If the calculated clearance exceeded the creepage, the creepage was adjusted to the value of clearance. --
- Printed Wiring Board rated 130°C. --
- 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. --
- Heating (Thermal Requirements) Test was not conducted on power supply with input/output leads. If power supply is provided with input and/or output leads, then temperature on leads must be measured and cannot exceed 105°C. --

Abbreviations used in the report:

- normal condition	N.C.	- single fault condition	S.F.C
- operational insulation	OP	- basic insulation	BI
- basic insulation between parts of opposite polarity:	BOP	- supplementary insulation	SI

- double insulation ..... DI	- reinforced insulation ..... RI
Indicate used abbreviations (if any)	