



Ref. Certif. No.

SG PSB-IV-00191

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

CB TEST CERTIFICATE

Product	Switching power supply unit
Name and address of the applicant	XP Power LLC. 15641 Red Hill Avenue, Suite 100 Tustin CA 92780 USA
Name and address of the manufacturer	XP Power Limited 401 Commonwealth Drive, Haw Par Technocentre, Lobby B, #02-02, Singapore 149598, SINGAPORE
Name and address of the factory	XP Power LLC. 990 Benecia Avenue, Sunnyvale CA 94085, USA XP Power (Kunshan) Limited 230 Bin Jiang Nan Road, Zhang Pu Town, Jiang Su Province, 215300 Kunshan City, PEOPLE'S REPUBLIC OF CHINA XP Power (Vietnam) Co. Ltd LOT D-4Q-CN, My Phuoc 3 Industrial Park, Ben Cat District, Binh Duong Province, VIETNAM XP Power plc 16 Horseshoe Park, Pangbourne, Reading, RG8 7JW, UNITED KINGDOM
Ratings and principal characteristics	Input: 100 – 240 V~, 2.4A, 50/60Hz, Class II See attachment for Output Ratings
Trade mark	XP
Model/type Ref.	ALM200PSXXC2-ZZ##V (where XX can be 12, 15, 19, 24, 48 designating output voltage, and -ZZ can be blank or "-A", "-8", "-8A" designating AC inlet type and V can be any alphanumeric or blank designating casing colour). Models may have an additional ## identifier which can be any alphanumeric or blank designating marketing purpose only.
Additional information (if necessary)	EN 62368-1:2014 +A11: 2017. See test report for national differences.
A sample of the product was tested and found to be in conformity with	IEC 62368-1:2014
as shown in the Test Report Ref. No. which forms part of this certificate	7191187900-EEC18/04-NCH

This CB Test Certificate is issued by the National Certification Body

CBS 057396 0534 Rev. 00

Date, 2018-12-06

(KIM HOCK TEO)

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PSB Singapore

Trade mark (image)



Output Ratings:

ALM200PS12C2: 12 Vdc, 16.7 A

ALM200PS15C2: 15 Vdc, 13.4 A

ALM200PS19C2: 19 Vdc, 10.6 A

ALM200PS24C2: 24 Vdc, 8.4 A

ALM200PS48C2: 48 Vdc, 4.2 A

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Date, 2018-12-06

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A handwritten signature in black ink, appearing to read 'Kim Hock Teo'.

(KIM HOCK TEO)




PSB Singapore





Test Report issued under the responsibility of:
NCB TÜV SÜD PSB Pte Ltd
 1 Science Park Drive
 Singapore 118221



TEST REPORT IEC 62368-1 Audio/video, information and communication technology equipment Part 1: Safety requirements	
Report Number	: 7191187900-EEC18/04-NCH
Date of issue.....	: 19 November 2018
Total number of pages	: 72
Applicant's name	: XP Power LLC
Address	: 15641 Red Hill Ave., Suite 100, Tustin, CA 92780 USA
Test specification:	
Standard.....	: IEC 62368-1:2014 (Second Edition)
Test procedure.....	: CB Scheme
Non-standard test method.....	: N/A
Test Report Form No.	: IEC62368_1B
Test Report Form(s) Originator.....	: UL(US)
Master TRF.....	: 2014-03
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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	Switching Power Supply Unit
Trade Mark	
Manufacturer	XP Power Limited 401 Commonwealth Drive, Haw Par Technocentre, Lobby B, #02-02, Singapore 149598
Model/Type reference	ALM200PSXXC2-ZZ##V (where XX can be 12, 15, 19, 24, 48 designating output voltage, and -ZZ can be blank or "-A", "-8", "-8A" designating AC inlet type and V can be any alphanumeric or blank designating casing colour). Models may have an additional ## identifier which can be any alphanumeric or blank designating marketing purpose only.
Ratings	Input: 100 – 240 V~, 2.4A, 50/60Hz, Class II Output: ALM200PS12C2: 12 Vdc, 16.7 A ALM200PS15C2: 15 Vdc, 13.4 A ALM200PS19C2: 19 Vdc, 10.6 A ALM200PS24C2: 24 Vdc, 8.4 A ALM200PS48C2: 48 Vdc, 4.2 A

Testing procedure and testing location:		
<input checked="" type="checkbox"/>	CB Testing Laboratory:	TÜV SÜD PSB Pte Ltd
Testing location/ address		1 Science Park Drive, Singapore 118221
<input type="checkbox"/>	Associated CB Testing Laboratory:	
Testing location/ address		
Tested by (name + signature).....:		Ng Chin Heng
Approved by (name + signature)		Lu Chung Hsien, Luke
 		
<input type="checkbox"/>	Testing procedure: TMP/CTF Stage 1	
Testing location/ address		
Tested by (name + signature).....:		
Approved by (name + signature)		
<input type="checkbox"/>	Testing procedure: WMT/CTF Stage 2	
Testing location/ address		
Tested by (name + signature).....:		
Witnessed by (name + signature).....:		
Approved by (name + signature)		
<input type="checkbox"/>	Testing procedure: SMT/CTF Stage 3 or 4	
Testing location/ address		
Tested by (name + signature).....:		
Approved by (name + signature)		
Supervised by (name + signature).....:		

List of Attachments (including a total number of pages in each attachment):	
Attachment 1: Photographs (19 pages)	
Attachment 2: European Group Differences and National Differences according to EN 62368-1:2014 +A11:2017 (11 pages)	
Attachment 3: National Differences according to Canada and United States (CSA/UL 62368-1:2014) (5 pages)	
Attachment 4: National Differences according to Australia and New Zealand (AS/NZS 62368.1:2018) (11 pages)	
Attachment 5: Product marking (3 pages)	
Attachment 6: Manufacturer's Identity Declaration Letter and Factory Declaration (2 pages)	
Summary of testing:	
Tests performed (name of test and test clause):	Testing location:
All relevant tests clauses were performed.	TÜV SÜD PSB Pte Ltd 1 Science Park Drive Singapore 118221
Summary of compliance with National Differences:	
List of countries addressed	
- European Group Differences and National Differences accordance to EN 62368-1:2014 +A11:2017, Canada, United States, Australia and New Zealand.	
<input checked="" type="checkbox"/> The product fulfils the requirements of IEC 62368-1:2014 (Second Edition), EN 62368-1:2014 +A11:2017, CSA/UL 62368-1:2014 and AS/NZS 62368.1:2018.	
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.	
Please see Attachment 5.	

TEST ITEM PARTICULARS:	
Classification of use by.....:	<input checked="" type="checkbox"/> Ordinary person <input type="checkbox"/> Instructed person <input checked="" type="checkbox"/> Skilled person <input checked="" type="checkbox"/> Children likely to be present
Supply Connection.....:	<input checked="" type="checkbox"/> AC Mains <input type="checkbox"/> DC Mains <input type="checkbox"/> External Circuit - not Mains connected - <input type="checkbox"/> ES1 <input type="checkbox"/> ES2 <input type="checkbox"/> ES3
Supply % Tolerance	<input checked="" type="checkbox"/> +10%/-10% <input type="checkbox"/> +20%/-15% <input type="checkbox"/> +__%/-__% <input type="checkbox"/> None
Supply Connection – Type	<input checked="" type="checkbox"/> pluggable equipment type A - <input type="checkbox"/> non-detachable supply cord <input checked="" type="checkbox"/> appliance coupler <input type="checkbox"/> direct plug-in <input type="checkbox"/> mating connector <input type="checkbox"/> pluggable equipment type B - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input type="checkbox"/> permanent connection <input type="checkbox"/> mating connector <input type="checkbox"/> other: _____
Considered current rating of protective device as part of building or equipment installation	<u>16</u> A; <u>20</u> A (For United States and Canada) Installation location: <input checked="" type="checkbox"/> building; <input type="checkbox"/> equipment
Equipment mobility	<input type="checkbox"/> movable <input type="checkbox"/> hand-held <input checked="" type="checkbox"/> transportable <input type="checkbox"/> stationary <input type="checkbox"/> for building-in <input type="checkbox"/> direct plug-in <input type="checkbox"/> rack-mounting <input type="checkbox"/> wall-mounted
Over voltage category (OVC)	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other: _____
Class of equipment	<input type="checkbox"/> Class I <input checked="" type="checkbox"/> Class II <input type="checkbox"/> Class III
Access location	<input type="checkbox"/> restricted access location <input checked="" type="checkbox"/> N/A
Pollution degree (PD)	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
Manufacturer's specified maximum operating ambient:	+40 °C (for full load condition) +60 °C (for load condition derating to 70W)
IP protection class	<input type="checkbox"/> IPX0 <input checked="" type="checkbox"/> IP 32
Power Systems	<input checked="" type="checkbox"/> TN <input type="checkbox"/> TT <input checked="" type="checkbox"/> IT - <u>230</u> V L-L (for Norway)
Altitude during operation (m)	<input type="checkbox"/> 2000 m or less <input checked="" type="checkbox"/> <u>5000</u> m
Altitude of test laboratory (m)	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> _____ m
Mass of equipment (kg)	<input checked="" type="checkbox"/> <u>0.91</u> 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 of receipt of test item..... :	19 June 2018
Date (s) of performance of tests..... :	19 June 2018 to 05 November 2018
GENERAL REMARKS:	
<p>"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.</p> <p>Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.</p>	
Manufacturer's Declaration per sub-clause 4.2.5 of IEC60950-1:	
The application for obtaining a CB Test Certificate includes more than one factory location 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..... :	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> Not applicable
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies)..... :	<p>XP Power LLC. 990 Benecia Avenue Sunnyvale, CA 94085 USA</p> <p>XP Power (Kunshan) Ltd 230 Bin Jiang Nan Rd Zhang Pu Town, Jiangsu Province 215300 Kunshan City China</p> <p>XP Power (Vietnam) Co., Ltd. Lot D-4Q-CN, My Phuoc 3 Industrial Park 48000 Ben Cat District, Binh Duong Province Vietnam</p> <p>XP Power plc Horseshoe Park, Pangbourne Berks, Reading RG8 7JW United Kingdom</p>
GENERAL PRODUCT INFORMATION:	
Product Description –	
<p>The subject models are Class I switch mode power supply. All electrical components are mounted on PWB and housed within plastic enclosure which is secured by four screws at four corners.</p> <p>The operating environment maximum temperature specified by the manufacturer is +40°C for full load condition and +60°C for load condition derating to 70W.</p> <p>This equipment is evaluated for altitude up to 5000m above sea level, the correction factor for clearance is 1.48.</p>	

Model Differences –

All models within the series are identical with exception to transformer, T1 (difference in the number of turns in the primary & secondary winding of the transformer) and other minor changes to secondary circuit to accommodate different output voltages and current ratings.

Models may have an additional ZZ identifier which can be blank or “A”, “-8”, “-8A” to designate the type of input connector:

- blank designates a C18 input connector;
- “A” designates a C18 input connector with optional IEC cable retention;
- “8” designates a C8 input connector;
- “8A” designates a C8 input connector with optional IEC cable retention.

Models may have an additional ## identifier which may be any alphanumeric or blank designating marketing purposes only.

Models may have an additional V identifier which can be any alphanumeric or blank to represent the colour of the casing.

Additional application considerations – (Considerations used to test a component or sub-assembly) –

Models of Class I and Class II are identical except for no PE connection for Class II and differences in the AC Inlet and Y-Capacitor values.

Unless otherwise specified, all tests were performed using the Class I models: ALM200PS48 and ALM200SP12 (CB Test Report No.:7191187900-EEC18/03-NCH) as representative of all models in this test report.

The thermal pads as illustrate in page 24 of Attachment 1 are optional components and unless otherwise specified, all tests were performed with the thermal pads installed in the power supply, except that heating test as per clauses 5.4.1.4 & 9 were performed with both constructions (with & without the thermal pads).

The equipment was submitted and evaluated for use at the operating environment maximum temperature specified by the manufacturer of +40°C for full load condition and +60°C for load condition derating to 70W.

Power cord suitable for the application to be provided as part of the end product evaluation.

The equipment is intended for connection to mating connectors of the end-use equipment or machine.

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.) (Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.)	
Electrically-caused injury (Clause 5): (Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification) Example: +5 V dc input	
	ES1
Source of electrical energy	Corresponding classification (ES)
Primary circuits	ES3
Secondary circuits before rectifiers	ES3
Secondary circuits after rectifiers	ES1
X-caps (C1 and C56)	ES3
Output terminal	ES1
Electrically-caused fire (Clause 6): (Note: List sub-assembly or circuit designation and corresponding energy source classification) Example: Battery pack (maximum 85 watts):	
	PS2
Source of power or PIS	Corresponding classification (PS)
Primary circuits	PS3
Secondary circuits	PS3
Output terminal	PS3
Injury caused by hazardous substances (Clause 7) (Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.) Example: Liquid in filled component	
	Glycol
Source of hazardous substances	Corresponding chemical
N/A	N/A
Mechanically-caused injury (Clause 8) (Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.) Example: Wall mount unit	
	MS2
Source of kinetic/mechanical energy	Corresponding classification (MS)
Sharp edges and corners	MS1
Equipment mass	MS1
Thermal burn injury (Clause 9) (Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.) Example: Hand-held scanner – thermoplastic enclosure	
	TS1
Source of thermal energy	Corresponding classification (TS)
Enclosure	TS1
Internal plastics and metal parts	TS3

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:**Radiation (Clause 10)**

(Note: List the types of radiation present in the product and the corresponding energy source classification.)

Example: DVD – Class 1 Laser Product

RS1

Type of radiation	Corresponding classification (RS)
N/A	N/A

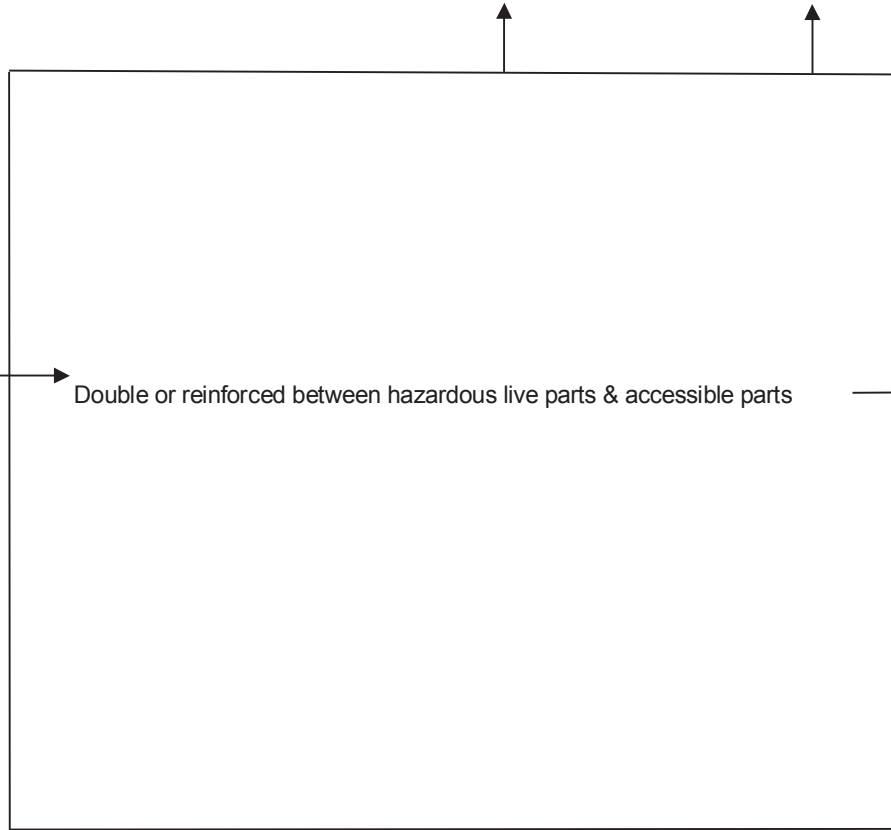
ENERGY SOURCE DIAGRAM

Indicate which energy sources are included in the energy source diagram. Insert diagram below

Ordinary person (Children not likely to be present)
Enclosure: ES1

Enclosure: MS1
No sharp edges or corners Mass 0.91 kg: MS1

ES3, PS3
100V- 240V~



ES PS MS TS RS