Ref. Certif. No.

US-23462-UL

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

SYSTEME CEI D'ACCEPTATION MUTUELLE DE CERTIFICATS D'ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

CB TEST CERTIFICATE

CERTIFICAT D'ESSAI OC

Product Produit	Power supply for building-in
Name and address of the applicant Nom et adresse du demandeur	XP POWER L L C Suite 150 1241 E DYER RD Santa Ana, CA 92705 USA
Name and address of the manufacturer Nom et adresse du fabricant	XP POWER L L C Suite 150 1241 E DYER RD Santa Ana, CA 92705 USA
Name and address of the factory Nom et adresse de l'usine Note: *When more than one factory, please report on page 2* Note: *Lorsque il y plus d'une usine, veuillez utiliser la 2ème page*	XP POWER (KUNSHAN) LTD 230 BIN JIANG NAN RD ZHANGPU TOWN KUNSHAN, 215300 JIANGSU China ☒ Additional Information on page 2
Ratings and principal characteristics Valeurs nominales et caractéristiques principales	Input: 100-240 Vac, 50/60Hz, 2.4 A Max. Output: See test report for details.
Trademark (if any) Marque de fabrique (si elle existe)	XP
Type of Manufacturer's Testing Laboratories used Type de programme du laboratoire d'essais constructeur	SMT
Model / Type Ref. Ref. De type	CCB200PSXXYY See Page 2
Additional information (if necessary may also be reported on page 2) Les informations complémentaires (si nécessaire,, peuvent être indiqués sur la 2ème page	☒ Additional Information on page 2
A sample of the product was tested and found to be in conformity with Un échantillon de ce produit a été essayé et a été considéré conforme à la	IEC 60601-1(ed.3), IEC 60601-1(ed.3);am1
As shown in the Test Report Ref. No. which forms part of this Certificate Comme indiqué dans le Rapport d'essais numéro de référence qui constitue partie de ce Certificat	E146893-20140605 issued on 2014-06-05

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme **National de Certification**

☒ UL (US), 333 Pfingsten Rd IL 60062, Northbrook, USA
☐ UL (Demko), Borupvang 5A DK-2750 Ballerup, DENMARK
☐ UL (JP), Marunouchi Trust Tower Main Building 6F, 1-8-3 Marunouchi, Chiyoda-ku, Tokyo 100-0005, JAPAN
☐ UL (CA), 7 Underwriters Road, Toronto, M1R 3B4 Ontario, CANADA

For full legal entity names see www.ul.com/ncbnames

Date: 2014-06-12

Signature:

Jolanta M. Wroblewska

Ref. Certif. No.

US-23462-UL

Model Details:
CCB200PSXXYY (where the "XX" can be any number between 12 to 56 indicating main output voltage, "YY" can be SF or blank indicating Single Fuse), may also be provided with additional suffixes "-S", "-C", "-L", and/or "A".

Factories:

XP POWER L L C
990 BENECIA AVE
US
SUNNYVALE, CA 94085 United States

Additional Information:
Additionally evaluated to EN 60601-1:2006/A1:2013
National Difference specified in the CB Test Report

Additional information (if necessary)
Information complémentaire (si nécessaire)

- [x] UL (US), 333 Pfingsten Rd IL 60062, Northbrook, USA
- [ ] UL (Demko), Borupvang 5A DK-2750 Ballerup, DENMARK
- [ ] UL (JP), Marunouchi Trust Tower Main Building 6F, 1-8-3 Marunouchi, Chiyoda-ku, Tokyo 100-0005, JAPAN
- [ ] UL (CA), 7 Underwriters Road, Toronto, M1R 3B4 Ontario, CANADA

For full legal entity names see www.ul.com/ncbnames

Date: 2014-06-12

Signature:

Jolanta M. Wroblewska

Test Report issued under the responsibility of:

IEC 60601-1
Medical electrical equipment
Part 1: General requirements for basic safety and essential performance

Report Reference No.....:	**E146893-20140605**
Date of issue .....:	**2014-06-05**
Total number of pages.....:	**256**
CB Testing Laboratory.....:	**UL Camas**
Address .....:	**2600 NW Lake Road Camas, WA 98607 USA**
Applicant's name.....:	**XP Power LLC**
Address .....:	**1241 E. Dyer Road, Suite 150 Santa Ana, CA 92705 USA**
Test specification:	
Standard .....:	**IEC 60601-1: 2005 + CORR. 1:2006 + CORR. 2:2007 + AM1:2012 (or IEC 60601-1: 2012 reprint)**
Test procedure.....:	**CB Scheme**
Non-standard test method……..:	
Test Report Form No.....:	**IEC60601_1I**
Test Report Form Originator .....:	**UL**
Master TRF.....:	**2014-03**

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
Trade Mark .....:	
Manufacturer.....:	XP Power LLC 1241 E Dyer Road, Suite 150 Santa Ana, CA 92705 USA
Model/Type reference.....:	CCB200PSXXYY, (where the "XX" can be any number between 12 to 56 indicating main output voltage, "YY" can be SF or blank indicating Single Fuse), may also be provided with additional suffixes "-S", "-C", "-L", and/or "A".
Ratings.....:	Input: 100-240 Vac, 50/60Hz, 2.4 A Max. Output: See Model Differences for details.

Testing procedure and testing location:			
☐	**CB Testing Laboratory:**		
Testing location/ address			
☐	**Associated CB Testing 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)			
☒	**Testing procedure: SMT/CTF Stage 3 or 4:**		
Testing location/ address		XP Power LLC 1241 E. Dyer Road, Suite 150 Santa Ana, CA 92705 USA	

Tested by (name + signature).....	Rodney Reyes	
Witnessed by (name + signature)		
Approved by (name + signature)	Tac Pham	
Supervised by (name + signature).....	Bernadette Matsuoka	

List of Attachments (including a total number of pages in each attachment):

National Differences (51 pages)

Enclosures (139 pages)

Summary of testing: All the following tests were conducted by XP Power located at Suite 150, 1241 E. Dyer Road, Santa Ana, CA 92705 USA under their SMT status in order to add the optional 5V standby output. All other tests were covered by the IEC 60601-1, 3rd Ed investigation covered under CBTC No. US-22682-UL.

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

Power Input (4.11)

Humidity Conditioning (5.7)

Voltage or Charge Limitation (8.4.3)

Leakage Current Tests (8.7)

Dielectric Voltage Withstand Test (8.8.3)

Temperature (11)

Transformer Short Circuit (15.5.1.2)

Transformer Overload (15.5.1.3)

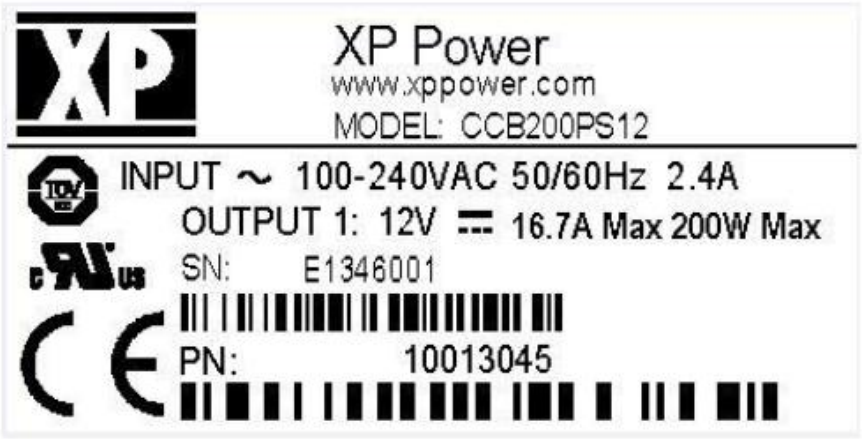
Summary of compliance with National Differences

AT, BE, CA, CH, CZ, DE, DK, FI, FR, GB, HU, IL, IT, NL, NO, PL, SE, SG, SI, SK, TR, UA, US

☒ The product fulfils the requirements of IEC 60601-1:2012 (with AM1)

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.



GENERAL INFORMATION	
Test item particulars (see also Clause 6):	
Classification of installation and use ..... :	For building-in
Device type (component/sub-assembly/ equipment/ system) :	Component
Intended use (Including type of patient, application location) :	Component switching power supply
Mode of operation .....:	Continuous
Supply connection	For building-in
Accessories and detachable parts included.....:	None
Other options include .....:	None
Testing	
Date of receipt of test item(s) .....:	2014-01-15, 2014-03-31
Dates tests performed.....:	2014-01-30 to 2014-04-25
Possible test case verdicts:	
- test case does not apply to the test object .....:	N/A
- test object does meet the requirement.....:	Pass (P)
- test object was not evaluated for the requirement ..... :	N/E (collateral standards only)
- test object does not meet the requirement.....:	Fail (F)
Abbreviations used in the report:	
- normal condition.....: N.C.	- single fault condition.....: S.F.C.
- means of Operator protection .....: MOOP	- means of Patient protection ....: MOPP

General remarks:

"(See Attachment #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.
The tests 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 testing laboratory.
List of test equipment must be kept on file and available for review.
Additional test data and/or information provided in the attachments to this report.

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:2012

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..... :	☒ **Yes** ☐ **Not applicable**

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies)..... :	XP POWER L L C 990 BENECIA AVE US SUNNYVALE CA 94085 UNITED STATES XP POWER (KUNSHAN) LTD 230 BIN JIANG NAN RD ZHANGPU TOWN KUNSHAN JIANGSU 215300 CHINA

General product information:

The models covered in this report are component power supplies intended for use in Medical Electrical Equipment. They are open frame power supplies intended for building-in.

Model Differences

All models in the Model CCB200PSXX-YY Series are identical with exception to the Mains Transformer (T1) and minor secondary components that allow for different output voltage ratings.

Output Ratings:
CCB200PS12: 10.1Vdc to 13.5Vdc, 16.7A Max., 200 W Max.
CCB200PS15: 13.6Vdc to 17Vdc, 13.3A Max. 200 W Max.
CCB200PS18: 17.1Vdc to 21Vdc, 11.1A Max. 200 W Max.
CCB200PS24: 21.1Vdc to 26Vdc, 8.3A Max. 200 W Max.
CCB200PS28: 26.1Vdc to 31Vdc, 7.1A Max. 200 W Max.
CCB200PS33: 31.1Vdc to 33Vdc, 6.1A Max. 200 W Max.
CCB200PS36: 33.1Vdc to 42Vdc, 5.6A Max. 200 W Max.
CCB200PS48: 42.1Vdc to 54Vdc, 4.2A Max. 200 W Max.
CCB200PS56: 54.1Vdc to 56Vdc, 3.57 A Max. 200 W Max

Suffix "SF" indicates single fuse provided in the line side of the primary.

Units provided with suffix "-C" provided with cover.

Units provided with suffix "-S" provided with screw terminal.

Units provided with suffix "-L" provided with input leads.

Units provided with suffix "-A" provided with 5V Stand-by output rated 5Vdc, 0.5A.

See Enclosure - Miscellaneous 7-02 for max power output based on model, ambient and cover options.

Additional Information

The required clearance values have been assessed for suitability up to 5000 m elevation (1.29 correction factor as per Table 8 of IEC 60601-1).

The models covered under this Report were additionally evaluated to IEC 60601-1: Edition 3.1, 2012-08, EN 60601-1:2006/A1:2013.

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

The nameplate markings provided as an Enclosure - Marking Plate are considered representative of the entire series.

The power supply series covered by this report employ 2 MOPP between Primary and Secondary circuits.

Testing to IEC 60601-1-2 was not conducted by UL and no supporting evidence of compliance has been presented. When submitting this Test Report to other Certification Body, the manufacturer is responsible for providing any additional information that the Body may need in order to issue its Mark, including testing for compliance with IEC 60601-1-2.

Technical Considerations

- The product was investigated to the following additional standards:: ANSI/AAMI ES60601-1 (2005 + C1:09 + A2:10 + A1:2008) (Medical Electrical Equipment - Part 1: General Requirements for Basic Safety and Essential Performance) (includes Deviations for United States), CAN/CSA-C22.2 No. 60601-1 (2014) (Medical Electrical Equipment - Part 1: General Requirements for Basic Safety and Essential Performance) (includes National Differences for Canada), IEC 60601-1: Edition 3.1, 2012-

08, EN60601-1:2006/A1:2013

- The product was not investigated to the following standards or clauses:: Electromagnetic Compatibility (IEC 60601-1-2), Clause 14, Programmable Electronic Systems, Biocompatibility (ISO 10993-1)
- The degree of protection against harmful ingress of water is:: Ordinary
- The mode of operation is:: Continuous
- The product is suitable for use in the presence of a flammable anesthetics mixture with air or oxygen or with nitrous oxide:: No
- The means of connection to the mains supply is: for building-in, to be determined in end-product

Engineering Conditions of Acceptability

When installed in an end-product, consideration must be given to the following:

- These components have been judged on the basis of the required spacings in the ANSI/AAMI ES60601-1 (2005 + C1:09 + A2:10 +A1:2012) (Medical Electrical Equipment - Part 1: General Requirements for Basic Safety and Essential Performance)CAN/CSA-C22.2 No. 60601-1 (2008) + CSA C22.2 No. 60601-1:2014 (Medical Electrical Equipment - Part 1: General Requirements for Basic Safety and Essential Performance), which covers the end-use product for which the component was designed, IEC 60601-1, Edition 3.1, EN 60601-1:2006/A1:2013)
- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 70°C at full rated load and 85°C at 50% of rated load. For models provided with the optional 5V standby, the manufacturer's maximum ambient temperature is 50°C. See Enclosure Miscellaneous 7-02 for additional information regarding power output.
- The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-Earthed: 240 Vrms, 340 Vpk, Primary-Secondary: 240 Vrms, 446 Vpk. Models with -A suffix, Primary - Earthed: 240Vrms, 241Vpk; Primary- Secondary: 240Vrms, 468Vpk
- 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
- Proper bonding to the end-product main protective earthing termination is: Required
- 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: Input Connector (CON1) N terminal.
- 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, T2 (Class F, 155°C)
- The following end-product enclosures are required: Electrical, Mechanical, Fire

- Suitable disconnect device is to be provided in the end system
- Temperature, Leakage and Dielectric Strength testing shall be considered in the end system and consideration of non-frequency weighted leakage current (clause 8.7.3e) to also be considered as part of the end product.
- Clearance spacing evaluated for 5000 m altitude. Additional consideration maybe necessary in the end-use product.
- Printed Wiring Board rated 130°C
- Units provided with additional suffix “SF”, provided with only one fuse. The need for additional fusing shall be determined as part of the end product.
- Heatsinks are floating and considered live. They should not be accessible in the end-product
- The device shall be installed in compliance with the enclosure, mounting, spacing, casualty, markings, and segregation requirements of the end-use application
- The power supplies without the suffix –A were evaluated as having 2 MOPP between primary-to-secondary for 240Vrms, 446Vpk, 1 MOPP between primary-to-ground for 240Vac and 354Vpk. In addition Models CCB200PSXX, where XX is 12 to 36 only were evaluated for 2 MOPP between secondary to earth for working voltage of 42Vdc and 1 MOPP for a working voltage of 250Vrms between secondary and earth for BF output considerations.
- Models with -A suffix were evaluated for 1 MOPP between Primary - Earth: 240Vrms, 241Vpk; 2 MOPP between Primary- Secondary: 240Vrms, 468Vpk. In addition Models CCB200PSXX–A, where XX is 12 to 36 only were evaluated for 2 MOPP between secondary to earth for working voltage of 42Vdc and 1 MOPP for a working voltage of 250Vrms between secondary and earth for BF output considerations.
- ME Equipment is component for building-in. Applicability of the following is to be determined in End Product Evaluation: 5.9 - Accessibility, 7 - Identification marking and Documents, 8.4.2 - Accessible Parts Including Applied Parts, 8.6 - Protective Earthing, 8.11.1 - Isolation from Supply Mains, 8.11.3 - Power Supply Cords, 9 - Protection against mechanical hazards, 11.3 - Fire Enclosure, 11.8 - Interruption of power supply, 15.3 - Mechanical Strength, 15.4.1 - Construction of Connectors, 15.4.4 - Indicators
- Overcurrent releases of adequate breaking capacity must be employed in the end product.

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 .....:	Yes
IT testing, phase-phase voltage (V) .....:	230
Class of equipment .....:	Class I
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
Altitude of test laboratory (m) .....:	less than 2000 meters
Mass of equipment (kg) .....:	0.394 without cover; 0.582 with cover
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 .....:	2014-01-15
Date(s) of Performance of tests .....:	2014-01-30 to 2014-04-25
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 LLC 990 BENECIA AVE SUNNYVALE CA 94085 UNITED STATES

XP POWER (KUNSHAN) LTD
230 BIN JIANG NAN RD
ZHANGPU TOWN
KUNSHAN
JIANGSU 215300 CHINA

GENERAL PRODUCT INFORMATION:

Report Summary

The original report was modified on 2014-04-30 to include the following changes/additions:
- Add optional stand-by output including suffix "-A" to model designation.

Product Description

The models covered in this report are component power supplies intended for use in Information Technology Equipment. They are open frame power supplies intended for building-in.

Model Differences

All models in the Model CCB200PSXX-YY Series are identical with exception to the Mains Transformer (T1) and minor secondary components that allow for different output voltage ratings. See below for Model Ratings at 70°C Table Below:

Output Ratings:
CCB200PS12: 10.1Vdc to 13.5Vdc, 16.7A Max., 200 W Max.
CCB200PS15: 13.6Vdc to 17Vdc, 13.3A Max. 200 W Max.
CCB200PS18: 17.1Vdc to 21Vdc, 11.1A Max. 200 W Max.
CCB200PS24: 21.1Vdc to 26Vdc, 8.3A Max. 200 W Max.
CCB200PS28: 26.1Vdc to 31Vdc, 7.1A Max. 200 W Max.
CCB200PS33: 31.1Vdc to 33Vdc, 6.1A Max. 200 W Max.
CCB200PS36: 33.1Vdc to 42Vdc, 5.6A Max. 200 W Max.
CCB200PS48: 42.1Vdc to 54Vdc, 4.2A Max. 200 W Max.
CCB200PS56: 54.1Vdc to 56Vdc, 3.6 A Max. 200 W Max

See Miscellaneous enclosure Power Output Table for additional information regarding power output and the various configurations.

Suffix "SF" indicates single fuse provided in the line side of the primary.

Units provided with suffix "-C" provided with cover.

Units provided with suffix "-S" provided with screw terminal.

Units provided with suffix "-L" provided with input leads.

Units provided with suffix "-A" provided with 5V Stand-by output rated 5Vdc, 0.5A.

Additional Information

The required clearance values have 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 nameplate markings provided as an Enclosure - Marking Plate are considered representative of the entire series. The word "BETA" on the marking label is not a part of the model designation.

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

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 70°C at full rated load and 85°C at half rated load. 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 end-product., ,
- The product is intended for use on the following power systems: IT, TN
- The equipment disconnect device is considered to be: for building-in, to be determined in end-product.,
- 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).

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-Earthed: 244 Vrms, 353 Vpk, Primary-SELV: 338 Vrms, 562 Vpk,
- The following secondary output circuits are SELV: All outputs, except model CCB200PS56.
- The following secondary output circuits are at 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
- Proper bonding to the end-product main protective earthing termination is: Required
- 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: Input Connector (CON1) N terminal.
- 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, T2 (Class F, 155°C),
- The following end-product enclosures are required: Electrical, Mechanical, Fire
- Suitable disconnect device is to be provided in the end system. --
- Temperature, Leakage and Dielectric Strength testing shall be considered in the end system. --
- Clearance spacing evaluated for 5000 m altitude. Additional consideration maybe necessary in the end-use product. --

- Printed Wiring Board rated 130°C. --
- The equipment 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. --
- Heatsinks are floating and considered live. They should not be accessible in the end-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. --

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)