CERTIFICATE OF COMPLIANCE

Certificate Number	20150911-E131905
Report Reference	E131905-19950320
Issue Date	2015-SEPTEMBER-11
Issued to:	BEL FUSE INC 206 VAN VORST ST JERSEY CITY NJ 07302-4421
This is to certify that representative samples of	COMPONENT - POWER SUPPLIES, INFORMATION TECHNOLOGY EQUIPMENT INCLUDING ELECTRICAL BUSINESS EQUIPMENT Linear Power Supply, Models HC5-6/OVP-A, HC12-3.4-A, HC15-3-A, HC24-2.4-A, HC28-2-A, and HC48-1-A. Suffixes after the first hyphen may be replaced by –5XX or –7XX where X is 0-9. Model may be followed by G or GX or SXXX or SXXXG indicating non-safety critical options.
	Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.
Standard(s) for Safety:	U.S. and Canadian (Bi-National) Standard for Safety of Information Technology Equipment, CSA C22.2 No. 60950-1/UL60950-1
Additional Information:	See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

Recognized components are incomplete in certain constructional features or restricted in performance capabilities and are intended for use as components of complete equipment submitted for investigation rather than for direct separate installation in the field. The final acceptance of the component is dependent upon its installation and use in complete equipment submitted to UL LLC.

Look for the UL Certification Mark on the product.

Bruce Mahrenholz, Director North American Certification Program

UL LLC

DESCRIPTION

PRODUCT COVERED:

USR/CNR - Linear Power Supply, Models HC5-6/OVP-A, HC12-3.4-A, HC15-3-A, HC24-2.4-A, HC28-2-A, and HC48-1-A. Suffixes after the first hyphen may be replaced by –5XX or –7XX where X is 0-9. **Model may be followed by G or SXXX or SXXXG indicating non-safety critical options.**

ELECTRICAL RATING:

Model	Input			Output, dc		
	V	A	Hz	V	A	W
HC12-3.4-A	100/120/220/230/240	1.0/0.50	50/60	+12	3.4	40.8
HC5-6/OVP-A	100/120/220/230/240	1.0/0.50	50/60	+5	5.4	30.0
HC15-3-A	100/120/220/230/240	1.0/0.50	50/60	15	3.0	45.0
HC24-2.4-A	100/120/220/230/240	1.5/0.75	50/60	24	2.4	57.6
HC28-2-A	100/120/220/230/240	1.5/0.75	50/60	28	2.0	56.0
HC48-1-A	100/120/220/230/240	1.0/0.50	50/60	48	1.0	48.0

NOTE: 1. Maximum continuous output power without forced air cooling when the units operate at 25°C ambient. Some units may require forced air cooling when operated at 50°C. See Conditions of acceptability for more information.

2. Operation at 50 Hz requires the rated output to be derated by 10%.

GENERAL:

Power supplies in this Section are complementary Recognized to Components, Power Supplies, Specialty (QQIJ2).

ENGINEERING CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

Use - For use only in (or with) complete equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc.

Special Considerations - The following items are considerations that were used when evaluating this product.

* **USR/CNR indicates investigation to the U.S. and Canadian (Bi-National) Standard for Safety of Information Technology Equipment, CSA C22.2 No. 60950-1 * UL60950-1, First Edition, dated April 1, 2003.**

The equipment is: For building in, Class I (earthed), intended for use on a TN power system.

Conditions of Acceptability - When installed in the end product, consideration shall be given to the following:

*1. **This component has been judged on the basis of the required spacings in the Standard for Safety of Information Technology Equipment, CSA/UL60950-1, First Edition, dated April 1, 2003, Sub-clause 2.10 which would cover the component itself if submitted for Listing.**

2. All secondary output circuits are SELV and are not hazardous energy levels.

3. The terminals and connectors are suitable for factory wiring only.

4. The power supply shall be properly bonded to the main protective earthing termination in the end product.

5. Bonding terminals provided on this equipment have not been evaluated as protective earthing terminals.

6. Magnetic device Transformer T1 employs a R/C (OBJY2) Electrical Insulation System designated Class B.

7. The unit was submitted by the manufacturer for use in a maximum air ambient of 25°C when operating at full load and 70°C when operating at 40% of full load.

8. Performance testing was conducted with Listed fuse, rated 250 V, 1 A (for 100-120 range) and 250 V, 0.5 A (for 220-240 range), except for HC24-2.4-A and HC28-2-A rated 250 V, 1.5 A (100/120) and 250 V, 0.75 A (220/230/240) connected in series with the input (not earthed conductor). Consideration shall be taken when the unit is installed in the end use with a Listed fuse.

9. These power supplies have been evaluated for use in a 25, 50 and 70°C ambient in accordance with the manufacturer's specifications. The units were loaded to 100% normal rated load for 25 and 50°C ambient and 40% of normal load for 70°C ambient. At 50°C, the following units required forced air cooling in order to comply with standard requirements.

Model	Required LFM
HC15-3	25
HC28-2	50
HC24-2.4	100

11. All models have been evaluated to requirements in the Seventeenth Edition of the Standard for Electric Industrial Control Equipment (UL 508).

12. Secondary circuits have not been investigated for secondary interconnection or user accessibility.

13. The device shall be installed in compliance with the enclosure, mounting, spacing, casualty, markings, and segregation requirements of the end-use application.

14. The need for conducting Leakage Current Tests is to be determined as part of the end-product evaluation.

15. This power supply has only been evaluated for use in commercial and industrial, controlled environment applications. Spacings evaluation assumes a pollution degree 2 environment.

16. The input and output connectors including terminal blocks are not acceptable for field connections and are only intended for connection to mating connectors of internal wiring inside the end-use product. The acceptability of these and the mating connectors relative to secureness, insulating materials, and temperature shall be considered.

17. The secondary circuits of these power supplies were not subjected to component fault testing as part of this investigation.

CERTIFICATE

No. P15220105

Order No. 291822

Product	AC-DC Linear Power Supplies
Applicant	Bel Fuse Inc. 206 Van Vorst St. Jersey City, NJ 07302 USA
Manufacturer	Bel Fuse Inc. 206 Van Vorst St. Jersey City, NJ 07302 USA
Factory	BPS Asia Pacific Electronics (Shenzhen) Co., Ltd. Building# 6, Nanming Road, Gongming Town Huahong Xintong Industrial Park, Guangming District Shenzhen 518108 China ☐ See next page(s)
Ratings	100/120/220/230/240 Vac, 2.0/1.0A, 50/60Hz
Trade mark	bel POWER SOLUTIONS & PROTECTION a bel group
Model / Type Ref.	HC5-6/OVP, HC12-3.4, HC15-3, HC24-2.4, HC28-2
Principal characteristics	The model name followed by suffix –A. Suffixes after the first hyphen may be replaced by -5XX or -7XX where X is 0-9. Model name may be followed by G or GX or SXXX or SXXXG where X is from 0-9, indicating non-safety critical options or combination of different model name options. ☐ See next page(s)
A sample of the product was tested and found to be in conformity with	OFF EN 60950-1:2006;A11;A1;A12;A2
Validity	This certificate documents conformity with the standards shown, and also applies as license for use of Nemkos name and certification mark. The certificate and license is valid as long as the applicable conditions are complied with, and provided that any changes to the product are notified to Nemko for acceptance prior to implementation. New standards or amendments to the standards may imply that the product design must be updated and/or that re-testing and re-certification is necessary.
Additional information	☐ See next page(s) The abovementioned certified equipment complies with current regulatory requirements regarding electrical safety in Norway and other EU/EEA member states, as far as this can be checked. Compliance with requirements regarding building-in, protection against electric shock and

Date of issue 12-08-2015

Juan Z. Kleppenes

Juan Z. Kleppenes
Certification Department

Nemko AS
Gaustadalléen 30, P.O. Box 73 Blindern, 0314 Oslo, Norway
TEL +47 22 96 03 30 FAX +47 22 96 05 50 EMAIL info@nemko.com
ENTERPRISE NUMBER NO974404532

Electromagnetic Compatibility (EMC) must be checked when the equipment is built-in a completed product or forms a part of a complete system.

Additional model(s)

☑ See next page(s)

Date of issue 12-08-2015

Juan Z. Kleppenes

Certification Department

Nemko AS
Gaustadalléen 30, P.O. Box 73 Blindern, 0314 Oslo, Norway
TEL +47 22 96 03 30 FAX +47 22 96 05 50 EMAIL info@nemko.com
ENTERPRISE NUMBER NO974404532

CERTIFICATE

No. P15220105

Order No. 291822

Product	AC-DC Linear Power Supplies
Pos. No	1
Model / Type Ref.	HC48-1
Trade mark (if different from page 1)	
Rating	100/120/220/230/240 Vac, 3.0/1.5A, 50/60Hz
Principal characteristics	The model name followed by suffix –A. Suffixes after the first hyphen may be replaced by -5XX or -7XX where X is 0-9. Model name may be followed by G or GX or SXXX or SXXXG where X is from 0-9, indicating non-safety critical options or combination of different model name options.

Date of issue 12-08-2015

Juan Z. Kleppenes

Certification Department

Nemko AS
Gaustadalléen 30, P.O. Box 73 Blindern, 0314 Oslo, Norway
TEL +47 22 96 03 30 FAX +47 22 96 05 50 EMAIL info@nemko.com
ENTERPRISE NUMBER NO974404532

Ref. Certif. No.

NO87957

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

SYSTEME CEI DACCEPTATION MUTUELLE DE CERTIFICATS DESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

CB TEST CERTIFICATE CERTIFICAT D'ESSAI OC

Product Produit	AC-DC Linear Power Supplies
Name and address of the applicant Nom et adresse du demandeur	Bel Fuse Inc. 206 Van Vorst St. Jersey City, NJ 07302 USA
Name and address of the manufacturer Nom et adresse du fabricant	Bel Fuse Inc. 206 Van Vorst St. Jersey City, NJ 07302 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 deuxième page	BPS Asia Pacific Electronics (Shenzhen) Co., Ltd. Building# 6, Nanming Road, Gongming Town Huahong Xintong Industrial Park, Guangming District Shenzhen 518108 China ☐ Additional information on page 2
Ratings and principal characteristics Valeurs nominales et caractéristiques principales	100/120/220/230/240 Vac 2.0/1.0A, 50/60Hz
Trademark (if any) Marque de fabrique (si elle existe)	bel POWER SOLUTIONS & PROTECTION a bel group
Type of Manufacturer's Testing Laboratories used Type de programme du laboratoire d'essais constructeur	CTF-3
Model / Type Ref. Ref. De type	HC5-6/OVP, HC12-3.4, HC15-3, HC24-2.4, HC28-2
Additional information (if necessary may also be reported on page 2) Les informations complémentaires (si nécessaire, peuvent être indiqués sur la deuxième page	The model name followed by suffix –A. Suffixes after the first hyphen may be replaced by -5XX or -7XX where X is 0-9. Model name may be followed by G or GX or SXXX or SXXXG where X is from 0-9, indicating non-safety critical options or combination of different model name options. ☐ 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 60950-1(ed.2);am1;am2
As shown in the Test Report Ref. No. which forms part of this Certificate Comme indiqué dans le Rapport dessais numéro de référence qui constitue partie de ce Certificat	291822

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

Nemko
Gaustadalléen 30
NO-0373 Oslo, Norway

Date: 12-08-2015

Signature: Juan Z. Kleppenes
Certification Department

Ref. Certif. No.

NO87958

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

SYSTEME CEI DACCEPTATION MUTUELLE DE CERTIFICATS DESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

CB TEST CERTIFICATE CERTIFICAT D'ESSAI OC

Product Produit	AC-DC Linear Power Supplies
Name and address of the applicant Nom et adresse du demandeur	Bel Fuse Inc. 206 Van Vorst St. Jersey City, NJ 07302 USA
Name and address of the manufacturer Nom et adresse du fabricant	Bel Fuse Inc. 206 Van Vorst St. Jersey City, NJ 07302 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 deuxième page	BPS Asia Pacific Electronics (Shenzhen) Co., Ltd. Building# 6, Nanming Road, Gongming Town Huahong Xintong Industrial Park, Guangming District Shenzhen 518108 China ☐ Additional information on page 2
Ratings and principal characteristics Valeurs nominales et caractéristiques principales	100/120/220/230/240 Vac,3.0/1.5A, 50/60Hz
Trademark (if any) Marque de fabrique (si elle existe)	bel POWER SOLUTIONS & PROTECTION a bel group
Type of Manufacturer's Testing Laboratories used Type de programme du laboratoire d'essais constructeur	CTF-3
Model / Type Ref. Ref. De type	HC48-1
Additional information (if necessary may also be reported on page 2) Les informations complémentaires (si nécessaire, peuvent être indiqués sur la deuxième page	The model name followed by suffix –A. Suffixes after the first hyphen may be replaced by -5XX or -7XX where X is 0-9. Model name may be followed by G or GX or SXXX or SXXXG where X is from 0-9, indicating non-safety critical options or combination of different model name options. ☐ 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 60950-1(ed.2);am1;am2
As shown in the Test Report Ref. No. which forms part of this Certificate Comme indiqué dans le Rapport dessais numéro de référence qui constitue partie de ce Certificat	291822

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

Nemko
Gaustadalléen 30
NO-0373 Oslo, Norway

Date: 12-08-2015

Signature: Juan Z. Kleppenes
Certification Department

Test Report issued under the responsibility of

www.nemko.com

TEST REPORT

IEC 60950-1

Information technology equipment – Safety – Part 1: General requirements

Report Number.....:	291822
Date of issue.....:	11 August, 2015
Total number of pages.....	48
Applicant's name.....:	Bel Fuse, Inc.
Address .....:	206 Van Vorst St., Jersey City, NJ 07302
Test specification:	
Standard .....:	IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013
Test procedure.....:	CB-Scheme
Non-standard test method .....:	N/A
Test Report Form No. .....:	IEC60950_1F
Test Report Form(s) 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.....:	AC/DC Linear power supplies
Trade Mark .....:	bel POWER SOLUTIONS & PROTECTION a bel group
Manufacturer.....:	Same as Applicant
Model/Type reference.....:	HC5-6/OVP, HC12-3.4, HC15-3, HC24-2.4, HC28-2, HC48-1 (followed by suffix –A. Suffixes after the first hyphen may be replaced by -5XX or -7XX where X is 0-9. Model name may be followed by G or GX or SXXX or SXXXG where X is from 0-9, indicating non-safety critical options or combination of different model name options.)
Ratings .....:	All models: 100/120 / 220/230/240 Vac, 2.0 /1.0 A, 50/60 Hz except HC48-1: 100/120 / 220/230/240 Vac, 3.0 / 1.5 A, 50/60 Hz

Testing procedure and testing location:		
CB Testing Laboratory:	**Nemko USA Inc.**	
Testing location/ address.....:	**2210 Faraday Ave. Suite 150, Carlsbad, CA 92008, USA**	
Testing Procedure: CTF-3	BPS Asia Pacific Electronics (Shenzhen) Co., Ltd	
Testing location/ address.....:	Building# 6, Nanming Road, Gongming Town Huahong Xintong Industrial Park Guangming District 518108 Shenzhen PEOPLE'S REPUBLIC OF CHINA	
Tested by (name + signature).....:	Editha Vergara	
Witnessed by (name + signature) ....:	George Daverin	
Approved by (name + signature).....:	Jeff Busch	

Report History:
Original report

List of Attachments (including a total number of pages in each attachment):	
Attachment 1:	European Group Differences and National Deviations .....76 pages Documented deviations contain individual national documents for several European countries that are included in the European Group Deviations. The European Group Difference: EN60950:2006/A11:2009/A:2010/A12:2011/A2:2013 are considered "Normative". The individual national documents (Denmark, Finland, Germany, Ireland, Norway, Spain, Sweden, Switzerland and United Kingdom) are considered "informative" and included at the manufacturer's request.
Attachment 2:	Miscellaneous Documentation, e.g. Photos, PWB Layout, Schematic etc. .....23 pages (Not for publication – Engineering use only)

Summary of testing	
General	All comments relate to all models, unless specifically stated.
Power supply	The equipment are open frame, Class I AC/DC Linear power supplies with universal AC input and single DC voltage output for building-in. This report covers multiple models and all comments / tests apply to all models unless otherwise indicated. Testing was conducted on various models as indicated.
1.5, 3.2.5; Power supply cord set.	A power supply cord set is not provided with the power supply. A power supply cord set, complying with the national regulations of the country in which the product is to be sold, shall be provided with the end-use equipment.
1.7.2; Safety instructions.	Instructions and equipment markings related to safety are to be provided in a language, which is acceptable in the country in which the equipment is to be sold. English language verified.
1.7.2.4; IT power distribution systems.	The equipment complies with the requirements for connection to the Norwegian IT power systems. The following information should be given (but is not required) in the installation instruction: "This product is also designed for IT power system with Phase to Phase voltage 230V."
2.7.4; Number and location of protective devices.	In Norway, IT power distribution system is used. Equipment with a single protective device is accepted in Norway. Other countries may have additional requirements.
2.7.6; Warning to service personnel.	After operation of the protective device, the equipment is still under voltage if it is connected to an IT-power system. A warning is required for service personnel. Norway does not require this warning.

Summary of testing:	
Tests performed (name of test and test clause)**:** 1) Input Test ..... 1.6.2 2) Durability Test ..... 1.17.11 3) Capacitance Discharge Test ..... 2.1.1.7 4) SELV Reliability Test ..... 2.2 5) Protective Bonding Test ..... 2.6.3.4 6) Humidity Test ..... 2.9.2 7) Working Voltage Measurement ..... 2.10.2 8) Hazardous Voltage Measurement ..... 2.10.2 9) Heating Test ..... 4.5.1 10) Touch Current Test ..... 5.1 11) Electric Strength Test ..... 5.2.2 12) Component Failure Test ..... 5.3 13) Abnormal Operation Test ..... 5.3 14) PS Output Overload and Short Test ..... 5.3 Additional Testing: Model HC28-2-AG1 1) Input Test ..... 1.6.2 2) Max VA measurement ..... 2.1.1.5 3) SELV Reliability Test ..... 2.2 4) Humidity Test ..... 2.9.2 5) Working Voltage Measurement ..... 2.10.2 6) Hazardous Voltage Measurement ..... 2.10.2 7) Heating Test ..... 4.5.1 8) Touch Current Test ..... 5.1 9) Electric Strength Test ..... 5.2.2 10) Component Failure Test ..... 5.3 11) Abnormal Operation Test ..... 5.3 12) Transformer abnormal test ..... Annex C	**Testing location:** See page 2.

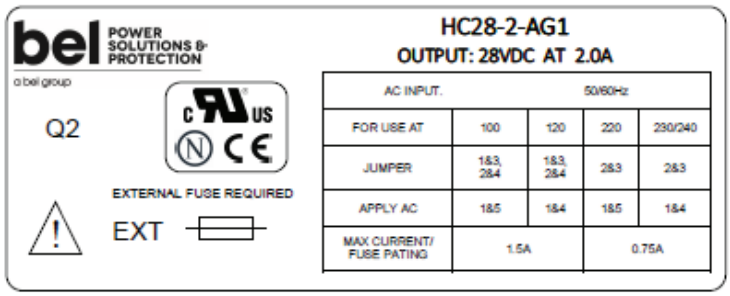
Summary of compliance with National Differences:

List of countries addressed

Austria (AT), Australia (AU), Canada (CA), Denmark (DK), Finland (FI), Germany (DE), Ireland (IE), Israel (IS), Korea (KR), Norway (NO), Slovenia (SI), Spain (ES), Sweden (SE), Switzerland (CH), United Kingdom (GB), United States of America (US)

☒**The product fulfils the requirements of :**
EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013

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 Certification Bodies that own these marks. (Additional requirements for markings. See 1.7 NOTE)



Calibration	All instruments used in the tests given in this test report are calibrated and traceable to national or international standards. Further information about traceability will be given on request.
Measurement uncertainty	Measurement uncertainties are calculated for all instruments and instrument set-ups given in this report. Calculations are based on the principles given in the standard EA-4/02 (Dec. 1999), IEC Guide 115:2007, Nemko routine L227 and other relevant internal Nemko-procedures. Further information about measurement uncertainties will be given on request.
Evaluation of results	If not explicitly stated otherwise in the standard, the test is passed if the measured value is equal to or below (above) the limit line, regardless of the measurement uncertainty. If the measured value is above (below) the limit line, the test is not passed - ref IEC Guide 115:2007, and Nemko routine L220. The instrumentation accuracy is within limits agreed by IECEE-CTL (ref. Nemko routine L227).

Test item particulars:	
Equipment mobility ..... :	[] movable [] hand-held [] transportable [] stationary [**X**] for building-in [] direct plug-in
Connection to the mains..... :	[] pluggable equipment [] type A [] type B [**X**] permanent connection [] detachable power supply cord [] non-detachable power supply cord [] not directly connected to the mains
Operating condition ..... :	[**X**] continuous [] rated operating / resting time:
Access location ..... :	[**X**] operator accessible [] restricted access location
Over voltage category (OVC) ..... :	[] OVC I [**X**] OVC II [] OVC III [] OVC IV [] other:
Mains supply tolerance (%) or absolute mains supply values ..... :	-10%, +6%
Tested for IT power systems ..... :	[**X**] Yes (Norway only) [] No
IT testing, phase-phase voltage (V) ..... :	230
Class of equipment ..... :	[**X**] Class I (at end use) [] Class II [] Class III [] Not classified
Considered current rating of protective device as part of the building installation (A) ..... :	To be evaluated at end use
Pollution degree (PD) ..... :	[] PD 1 [**X**] PD 2 [] PD 3
IP protection class ..... :	IPX0
Altitude during operation (m) ..... :	2000 m
Altitude of test laboratory (m) ..... :	38 m
Mass of equipment (kg) ..... :	1.98 kg
Temperature, Ambient (°C)..... :	50°C

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 ..... :	N/A – Testing performed at manufacturer's location
Date (s) of performance of tests..... :	2001-05-09 to 2001-05-21 2015-06-22 to 2015-07-01

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 ☐ comma / ☒ point is used as the decimal separator.**

Manufacturer's Declaration per sub-clause 6.2.5 of IECEE 02:	
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) .....:** BPS Asia Pacific Electronics (Shenzhen) Co., Ltd. Building# 6, Nanming Road, Gongming Town Huahong Xintong Industrial Park Guangming District 518108 Shenzhen PEOPLE'S REPUBLIC OF CHINA	

General product information:
This test report is based on a TUV SUD test report Ref. No. SI1300016132-000 with appended CB cert Ref. No. DE 3 - 500303, evaluated to the requirements of IEC 60950-1:2005 2nd ed. + A1:2009. This test report includes an upgrade to IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013 and additional evaluation of the power supply to the requirements of IT power systems. For continuity, data from the original TUV report is included in this report, along with the additional evaluation referenced. These linear power supply models are open frame AC/DC linear power supplies. They have been evaluated for use in a maximum operating temperature of 50°C. The units were tested with 100% of normal rated load at 60Hz input and load is derated by 10% at 50 Hz.

Additional Electrical Rating Information

Model	Required Input Fuse	Input (AC) V	Input (AC) A	Hz	Outputs (DC) V	Outputs (DC) A	Airflow Required LFM
HC5-6/OVP	1.00 0.50	100/120 / 220/230/240	2.0 / 1.0	50/60	5	6.0	—
HC12-3.4	1.00 0.50	100/120 / 220/230/240	2.0 / 1.0	50/60	12	3.4	—
HC15-3	1.00 0.50	100/120 / 220/230/240	2.0 / 1.0	50/60	15	3.0	25
HC24-2.4	1.50 0.75	100/120 / 220/230/240	2.0 / 1.0	50/60	24	2.4	100
HC28-2	1.50 0.75	100/120 / 220/230/240	2.0 / 1.0	50/60	28	2.0	50
HC48-1	1.00 0.50	100/120 / 220/230/240	3.0 / 1.5	50/60	48	1.0	—

Followed by suffix -A. Suffixes after the first hyphen may be replaced by -5XX or -7XX where X is 0-9. Model name may be followed by G or GX or SXXX or SXXXG where X is from 0-9, indicating non-safety critical options.

Conditions of Acceptability:

When installed in the end use equipment, the following are among the considerations to be made.

Model HC15-3, HC24-2.4 and HC28-2 may require forced air cooling when used in an ambient between 25°C and 50°C in order to comply with standard requirement. Compliance at end use.

Input voltages of 230 Vac and 240 Vac have the same transformer configuration. No tests done at 230 Vac.

All models require:

1) A suitable electrical fire enclosure at end use.
2) A reliable ground (Protective Earth) connection at end use.
3) External fusing as specified in the installation instructions. (See Above)

Abbreviations used in the report:

- normal conditions ..... N.C.
- functional insulation ..... OP
- double insulation ..... DI
- between parts of opposite polarity ..... BOP
- single fault conditions ..... S.F.C
- basic insulation ..... BI
- supplementary insulation ..... SI
- reinforced insulation ..... RI

Indicate used abbreviations (if any): ..... None