



Test Report issued under
the responsibility of:



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

Report Reference No: E317867-A88-CB-1

Date of issue: 2015-07-09

Total number of pages: 14

CB Testing Laboratory: UL San Jose

Address: 455 E. Trimble Rd., San Jose, CA, 95131-1230, USA

Applicant's name: XP POWER L L C
15641 RED HILL AVE, SUITE 100

Address: 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

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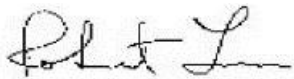

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General disclaimer

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Test item description	Power supply for building-in, switch mode type
Trade Mark	None
Manufacturer	XP POWER L L C 15641 RED HILL AVE, SUITE 100 TUSTIN CA 92780 UNITED STATES
Model/Type reference	ECP130PSxx, where xx can be any number between 12 and 48, may be followed by additional suffixes denoting non-safety options.
Ratings	Input: 100-240 Vac, 50/60 Hz, 1.3A Output: See Enclosure - Miscellaneous for max Power Output ratings.

Testing procedure and testing location:	
<input checked="" type="checkbox"/> CB Testing Laboratory	
Testing location / address	UL San Jose 455 E. Trimble Rd., San Jose, CA, 95131-1230, USA
<input type="checkbox"/> Associated CB Test Laboratory	
Testing location / address	
Tested by (name + signature)	Robert Leon 
Approved by (name + signature).....	Luis Martinez 
<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) ..	
<input type="checkbox"/> Testing Procedure: RMT	
Testing location / address	
Tested by (name + signature)	
Approved by (name + signature).....	
Supervised by (name + signature) ..	

List of Attachments
National Differences (0 pages)
Enclosures (0 pages)
Summary of Testing:
No tests were conducted
Summary of Compliance with National Differences:
Countries outside the CB Scheme membership may also accept this report.

Issue Date: 2015-07-09

Page 4 of 14

Report Reference #

E317867-A88-CB-1

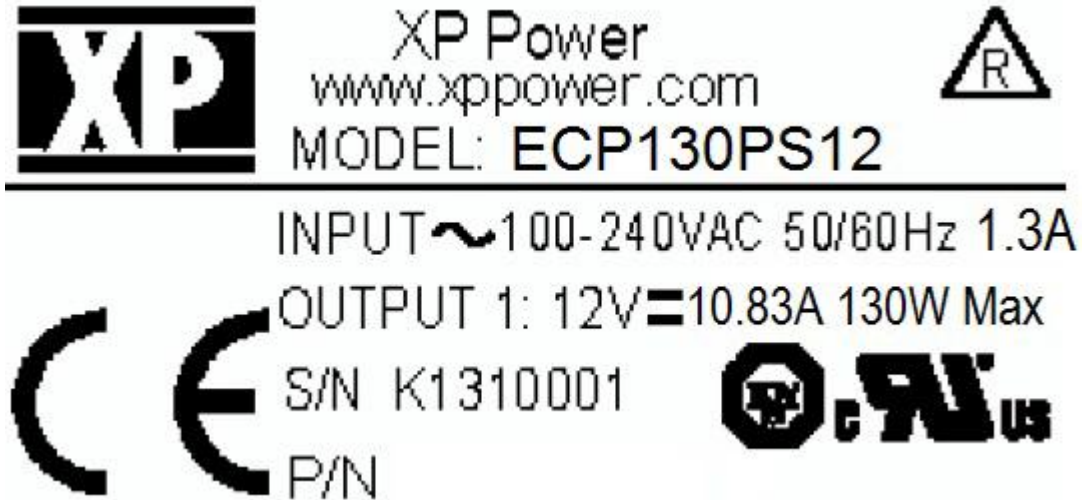
Correction 1 2015-08-18

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, NO, NZ, PL, PT, RO, SA, SE, SG, SI, SK, UA, US, ZA

The product fulfills 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 NCBS that own these marks.



Test item particulars :

Equipment mobility	for building-in
Connection to the mains	To be determined in end-use product
Operating condition	continuous
Access location	To be determined in end-use 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)	230
Class of equipment	Class I or Class II (Determined by end product)
Considered current rating of protective device as part of the building installation (A)	20A
Pollution degree (PD)	PD 2
IP protection class	IPX0
Altitude of operation (m)	5000
Altitude of test laboratory (m)	less than 2000 meters
Mass of equipment (kg)	0.6 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	N/A
Date(s) of Performance of tests	N/A

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 IEC 60950-1:

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): ABES TECHNOLOGY CO LTD
 3 LANE 891, SEC 1 ZHANGSHUI RD
 XIUSHUI HSIANG
 CHANGHUA HSIEN
 504 TAIWAN

XP POWER (KUNSHAN) LTD
230 BIN JIANG NAN RD
ZHANGPU TOWN
KUNSHAN
JIANGSU 215321 CHINA

GENERAL PRODUCT INFORMATION:

Report Summary

The original report was modified on 2015-08-18 to include the following changes/additions:

Correction:

- Added "80°C at 30% of Output Rating" to technical considerations
- Corrected description of Transformer TR1 Insulation system for Ain Hsin Electronics, Type SB14.2 to Class (130)B.
- Corrected TR1 max. allowed temperature limits in Table 4.5 to 110°C
- Added Type "PM9820" to Transformer T1 Bobbin in critical components table.

Product Description

The model covered in this report is a component power supply intended for use in Information Technology Equipment. It is an open frame power supply intended for building-in Class I or Class II end-products. Double insulated symbol is optionally provided. Earthing symbol may only be provided for Class I power supplies.

Model Differences

All models in the Model ECP130PSXX series are identical with exception of the Mains Transformer, TR1, and secondary components/circuitry that allow for different output voltage ratings.

See Enclosure - Miscellaneous for max Power Output ratings based on model, forced air and ambient.

Additional Information

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

Licenses older than 3 years to be provided by the manufacturer upon request. The acceptability of CB certificates and/or licenses which are greater than 3 years old will be left to the discretion of the governing NCB.

Marking label is representative of all models. Testing of the marking label for durability was conducted previously as part of TRF E139109-A141, CBTC US-24246-UL.

Technical Considerations

- 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).

- Power supplies covered by this report were evaluated for both Class I and Class II (double insulated). Double insulated symbol is optionally provided. See Conditions of Acceptability for insulation required for Class II. Earthing symbol may only be provided for Class I power supplies. --
- The product is intended for use on the following power systems: TN IT --
- The following accessible locations (with circuit/schematic designation) are within a limited current circuit: Load side of C21 (Pri to Sec bridging capacitor) --
- The means of connection to the mains supply is: for building-in, to be determined in the end product. --
- 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 100% of Output Rating, 70°C at 50% of Output Rating, , 80°C at 30% of Output Rating. See Miscellaneous enclosure Power Output Table for additional information regarding power output and the various configurations. --
- According to IEC60664-1, Table A2, required Clearances have been adjusted by multiplying the clearance at sea level by a factor of 1.48 for operating at an altitude of 5000 meters. The correction factor is based on barometric pressure of 70kPa and Overvoltage Category II. If the calculated Clearance exceeded the Creepage, the Creepage was adjusted to the value of clearance. --

Engineering Conditions of Acceptability

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

- The following secondary output circuits are at non-hazardous energy levels: All
- Printed Wiring Board rated 130°C. --
- Touch Current test to be conducted in the end-product evaluation. --
- Clearance spacing evaluated for 5000 m altitude. Additional consideration maybe necessary in the end-use product. --
- End product to determine the need for "Double Pole Fuse" Marking for units provided with double , pole fusing. --
- The equipment may be provided with a fuse in both the Line and Neutral of the primary circuit. --
- Heating test should be repeated in the end-use 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. --
- 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 Dead Metal: 240 Vrms, 340 Vpk Primary-SELV: 240 Vrms, 340 Vpk --
- The following secondary output circuits are SELV: 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 --
- Proper bonding to the end-product main protective earthing termination is: required when the power supply is used in a Class I end product. The power supply will be considered Class II only when protection against electric shock does not rely on Basic Insulation. --
- 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: CN1 -
- 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): L2, L3, L4 and TR1 (Class F, 155°C) -

- The following end-product enclosures are required: Mechanical, Fire, Electrical --
- The equipment is suitable for direct connection to: AC mains supply. Means of connection will need to be evaluated in the end product. --

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)

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
C	Rated values	Class (130)B	-

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: list of critical components					Pass
object/part or Description	manufacturer/ trademark	type/model	technical data	standard (Edition or year)	mark(s) of conformity ¹⁾	
Primary Connector (CN1)	Long Chu Electronics co., ltd.	P101	Rated 7A, 250V, min. 85°C (Internal Connection only).	UL1977, CSA-C22.2 NO 182.3-M1987	UL, -	
Secondary Connector (CN2)(SELV)	Long Chu Electronics co., ltd.	P101	Rated min. 12A, min. 48V, min. 85°C	UL1977, CSA-C22.2 NO 182.3-M1987	UL, -	
Secondary Connector (CN2)(SELV) - Alternate	Interchangeable	Interchangeable	Rated min. 12A, min. 48V, min. 85°C	UL1977, CSA-C22.2 NO 182.3-M1987	UL, -	
Fuses (F1, F2)	Save Fusetech Inc. (Cooper Bussmann)	SS-5 Series	Rated T3.15A, 250 V, 105°C, soldered to PWB. Non-operator accessible.	UL248, CSA C22.2 No. 248.14, IEC 60127-2	UL, cUL, -	
Fuse (F2) – Alternate - For Models with Suffix "SF"	-	-	Not Provided. Trace continued where Fuse (F2) would normally be provided.	-	-, -	
Thermistor (TH1)	Thinking Electronic Industrial Co., Ltd.	SCK type	NTC. Rated 240 V, 150°C, 1.5 ohm, I _{max} . 5 A (Not relied upon for safety).	-	UL, cUL, -	
Thermistor (TH1) - Alternate	Interchangeable	Interchangeable	NTC. Rated 240 V, 150°C, 1.5 ohm, I _{max} . 5 A (Not relied upon for safety).	-	-, -	
Bridge Diodes (BD1)	Interchangeable	Interchangeable	Rated Rev. voltage (rms) 600 V, min. 15 A, 150°C.	-	-, -	
X-Capacitors (CX1)	Carli Electronics Co., Ltd.	MPX Series	Rated max. 0.47uF, min. 250 V, min. 100°C, marked "X2".	UL60384-14, CSA C22.2 No. 1, IEC60384-14	UL, cUL, VDE (Lic. #40008520)	
Y-Capacitors (CY7, CY8) - Optional	TDK Corp	CS or CD Series	Rated max. 2200 pF, min. 250 Vac, min. 85°C, marked "Y1" or "Y2".	UL60384-14, CSA C22.2 No. 1, IEC60384-14	UL, VDE (Lic. #40017931)	

IEC 60950-1					
Clause	Requirement + Test		Result - Remark		Verdict
Y-Capacitors (CY9) - Optional	TDK Corp	CS or CD Series	Rated max. 1000 pF, min. 250 Vac, min. 85°C, marked "Y1" or "Y2".	UL60384-14, CSA C22.2 No. 1, IEC60384-14	UL, VDE (Lic. #40017931)
Electrolytic Capacitor (C2) (PRI)	Interchangeable	Interchangeable	Rated 82uF, 400 V min., 105°C. Provided with integral pressure relief.	-	-, -
Transistor (Q1) (PRI)	Interchangeable	Interchangeable	Rated 500 V, 10A, 150°C.	-	-, -
Transistors (Q2, Q3) (PRI)	Interchangeable	Interchangeable	Rated 500 V, 10A, 150°C.	-	-, -
Inductor (L2)	Interchangeable	Interchangeable	Toroidal. Core: Approx. Coil: (OBMW2), Magnet wire, rated min. 130°C.	UL 60950-1, IEC60950-1	-, Evaluated as part of this investigation.
Inductor (L3)	Interchangeable	Interchangeable	Toroidal. Core: Approx. Coil: (OBMW2), Magnet wire, rated min. 130°C.	UL 60950-1, IEC60950-1	-, Evaluated as part of this investigation.
Inductor (L4)	Interchangeable	Interchangeable	Open-type Overall Core: Ferrite. Bobbin: Plastics	UL 60950-1, IEC60950-1	-, Evaluated as part of this investigation.
Inductor (L4) - Insulation System - Insulating Tape	3M	1351F-1	Rated 130°C.	UL 60950-1, IEC60950-1	UL, Evaluated as part of this investigation.
Inductor (L4) - Insulation System - Insulating Tape - Alternate	CHYUN YIH YAHUA	P2XXF CT	Rated 130°C.	UL510	UL, -
Transformer (TR1)	Interchangeable	Interchangeable	Open-type. Core: Approx. Provided with a Class B insulation system, see below for details.	UL 60950-1, IEC60950-1	-, Evaluated as part of this investigation.
Transformer (TR1) - Insulation System	Ain Hsin Electronics	SBI4.2	Class (130)B.	UL 60950-1, IEC60950-1	UL, Evaluated as part of this investigation.

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

Transformer (TR1) - Bobbin	Sumitomo Bakelite Co., Ltd.	PM-9630 or PM9820	Rated V-0, min. 0.71 mm thick, 150°C.	-	UL, -
Transformer (TR1) - Triple Insulating Wire	Totoku	TIW-2LZX (TIW-2LZ)	Reinforced Insulation. Rated 130°C	-	UL, -
Transformer (TR1) - Insulating Tape	3M, YAHUA	1350F-1(b),CT*	Rated 130°C (Tape is not relied upon for DI/RI insulation)	-	UL, -
Transformer (TR1) -Tubing	Great Holding Industrial Co. LTD.	TFL	Rated 200°C max, 150 V max, VW-1	-	UL, -
Optical Isolators (IC3, IC4)	Vishay	VOL618A Series	Isolation voltage 5000 V. (DTI min. 0.4mm)	UL1577, IEC 607047-5-5, VDE 0884	UL, cUL, VDE (Lic. #132473)
PWB	Interchangeable	Interchangeable	Overall Rated min. V-0, 130°C, rated for direct support of live parts.	-	UL, -
Optical Isolators (IC3, IC4) - Alternate	RENESAS	PS2381-1	Isolation voltage 5000 V. (DTI min. 0.4mm)	UL1577, IEC 607047-5-2, VDE 0884	UL, cUL, VDE (Lic. #40028917)
Optical Isolators (IC3, IC4) - Alternate	TOSHIBA	TLP385	Isolation voltage 5000 V. (DTI min. 0.4mm)	UL1577, IEC 60747-5-5, VDE 0884	UL, cUL, VDE (Lic. #40040216)
Label Marking System	Brady Worldwide Inc.	B-423	150 °C, for application to aluminum	UL969, IEC60950-1	UL, cUL, -

Supplementary information:

¹⁾ Provided evidence ensures the agreed level of compliance. See OD-CB2039.

The CBTL has verified the component information.

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

4.5	TABLE: Thermal requirements							Pass
	Supply voltage (V) :	See Below	See Below	See Below	See Below	See Below	---	
	Ambient Tmin (°C) :	See Below	See Below	See Below	See Below	See Below	---	
	Ambient Tmax (°C) :	See Below	See Below	See Below	See Below	See Below	---	
	Maximum measured temperature T of part/at:	T (°C) #1	T (°C) #2	T (°C) #3	T (°C) #4	T (°C) #5	Allowed Tmax (°C)	
	TR1 COIL (Class B)	102	100	-	99	98	110	
	TR1 CORE (Class B)	102	99	-	100	98	110	
	TR1 COIL (Class B)	102	101	-	-	-	110	
	TR1 CORE (Class B)	102	101	-	-	-	110	
	TR1 COIL (Class B)	74	71	-	80	79	110	
	TR1 CORE (Class B)	69	66	-	79	78	110	
	TR1 COIL (Class B)	93	89	-	97	96	110	
	TR1 CORE (Class B)	96	90	-	99	98	110	
	TR1 COIL (Class B)	69	67	-	79	79	110	
	TR1 CORE (Class B)	68	66	-	79	79	110	
	TR1 COIL (Class B)	106	99	-	102	99	110	
	TR1 CORE (Class B)	100	93	-	98	96	110	
	TR1 COIL (Class B)	104	103	-	-	-	110	
	TR1 CORE (Class B)	102	101	-	-	-	110	
	TR1 COIL (Class B)	76	74	-	82	82	110	
	TR1 CORE (Class B)	79	61	-	76	75	110	
	Temperature T of winding:	t1 (°C)	R1 (ohm)	t2 (°C)	R2 (ohm)	T (°C)	Allowed Tmax (°C)	Insulation class
supplementary information:								

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, switch mode type

Name and address of the applicant
Nom et adresse du demandeur

XP POWER L L C
15641 RED HILL AVE, SUITE 100
TUSTIN, CA 92780 USA

Name and address of the manufacturer
Nom et adresse du fabricant

XP POWER L L C
15641 RED HILL AVE, SUITE 100
TUSTIN, CA 92780 USA

Name and address of the factory
Nom et adresse de l'usine

ABES TECHNOLOGY CO LTD
3 LANE 891, SEC 1 ZHANGSHUI RD
XIUSHUI HSIANG
CHANGHUA HSIEN, 504 Taiwan

Note: When more than one factory, please report on page 2
Note: Lorsque il y a plus d'une usine, veuillez utiliser la 2^{ème} page

Additional Information on page 2

Ratings and principal characteristics
Valeurs nominales et caractéristiques principales

Input: 100-240 Vac; 50/60 Hz; 1.3A; Output: See Enclosure -
Miscellaneous in the Test Report for max Power Output ratings.

Trademark (if any)
Marque de fabrique (si elle existe)
Type of Manufacturer's Testing Laboratories used
Type de programme du laboratoire d'essais
constructeur

None

SMT

Model / Type Ref.
Ref. De type

ECP130PSxx
See Page 2

Additional information (if necessary may also be
reported on page 2)
Les informations complémentaires (si nécessaire,,
peuvent être indiqués sur la 2^{ème} page

Additionally evaluated to EN 60950-1:2006/ A11:2009/ A1:2010/
A12:2011/A2:2013; National Differences specified in the CB Test
Report.

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), IEC 60950-1(ed.2);am1,
IEC 60950-1(ed.2);am2

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

E317867-A88-CB-1 issued on 2015-07-09

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: 2015-07-15

Signature:

Jolanta M. Wroblewska



Ref. Certif. No.

US-25580-UL

Model Details:

ECP130PSxx where xx can be any number between 12 and 48, may be followed by additional suffixes denoting non-safety options.

Factories:

XP POWER (KUNSHAN) LTD
230 BIN JIANG NAN RD
ZHANGPU TOWN
KUNSHAN, 215321 JIANGSU China

Additional information (if necessary)

Information complémentaire (si nécessaire)



- 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: 2015-07-15

Signature:

Jolanta M. Wroblewska