



Test Report issued under the responsibility of:



TEST REPORT
IEC 62368-1
Audio/video, information and communication technology equipment
Part 1: Safety requirements

Report Number: E135494-A6046-CB-2
 Date of issue.....: 2020-11-19
 Total number of pages: 85

Applicant's name.....: **TDK-LAMBDA UK LTD**
Address: **KINGSLEY AVE**
ILFRACOMBE
EX34 8ES UNITED KINGDOM

Name of Test Laboratory: UL International Polska sp. z o.o.
preparing the Report: Równoległa 4, PL-02-235 Warszawa, Poland

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.
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 The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test Item description	: Switch Mode Power supply	
Trade Mark	: TDK-Lambda 	
Manufacturer	: TDK-LAMBDA UK LTD KINGSLEY AVE ILFRACOMBE EX34 8ES UNITED KINGDOM	
Model/Type reference	: ZPSAx-yz Where x may be replaced with 20, 40 or 60 and y may be replaced with any number between 3R3-24 (ZPSA20), or 3R3-48 (ZPSA40 & ZPSA60) and z may be "/SE" or blank	
Ratings	: ZPSA20: 100-240V, 0.5A, 50-60Hz ZPSA40: 100-240V, 1.2A, 50-60Hz ZPSA60: 100-240V, 1.4A, 50-60Hz	
Testing procedure and testing location:		
<input checked="" type="checkbox"/> CB Testing Laboratory:		
Testing location/ address	: UL International Polska sp. z o.o., Równoległa 4, PL-02-235 Warszawa, Poland	
Tested by (name + signature).....	Pawel Ciuba / Project Handler	
Approved by (name + signature)	Robert Dmitruk / Reviewer	
Testing procedure: CTF Stage 1		
Testing location/ address	:	
Tested by (name + signature).....		
Approved by (name + signature)		
Testing procedure: CTF Stage 2		
Testing location/ address	:	
Tested by (name + signature).....		
Witnessed by (name + signature).....		
Approved by (name + signature)		

<input type="checkbox"/>	Testing procedure: CTF Stage 3	
<input type="checkbox"/>	Testing procedure: CTF Stage 4	
Testing location/ address..... :		
Tested by (name + signature).....:		
Witnessed by (name + signature).....:		
Approved by (name + signature)		
Supervised by (name + signature)		

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

National Differences (30 pages)
 Enclosures (33 pages)

Summary of testing:

Tests performed (name of test and test clause):

CLASSIFICATION OF ELECTRICAL ENERGY SOURCES (5.2, 5.7)
 DETERMINATION OF WORKING VOLTAGE (5.4.1.8)
 HUMIDITY CONDITIONING (5.4.8)
 ELECTRIC STRENGTH TEST (5.4.9)
 SAFEGUARDS AGAINST CAPACITOR DISCHARGE AFTER DISCONNECTION OF A CONNECTOR (5.5.2.2)
 PROSPECTIVE TOUCH VOLTAGE AND TOUCH CURRENT MEASUREMENT (5.7)
 POWER MEASUREMENTS (6.2.2.2, 6.2.2.3)
 INPUT TEST: SINGLE PHASE (B.2.5)
 NORMAL OPERATING CONDITIONS TEMPERATURE MEASUREMENT (B.2.6)
 SIMULATED ABNORMAL OPERATING CONDITIONS (B.3)
 SIMULATED SINGLE FAULT CONDITIONS (B.4)
 TRANSFORMER OVERLOAD (ANNEX G.5.3.3)
 LIMITED POWER SOURCE (ANNEX Q.1)

Testing Location:

CBTL: UL International Polska sp. z o.o., Równoległa 4, PL-02-235 Warszawa, Poland

Summary of compliance with National Differences:

List of countries addressed: Australia / New Zealand, EU Group and National Differences, Japan, USA / Canada

EU Group and National Differences applies to CENELEC member countries: Austria , Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom

The product fulfils the requirements of: IEC 62368-1:2014, CAN/CSA C22.2 No. 62368-1:19, 3rd Edition, EN 62368-1:2014 + A11:2017

Copy of Marking Plate - Refer to Enclosure titled Marking Plate for copy.

TEST ITEM PARTICULARS:	
Classification of use by	Skilled person
Supply Connection	AC Mains
Supply % Tolerance	+10%/-10%
Supply Connection – Type	for building-in
Considered current rating of protective device as part of building or equipment installation	20 A; building;
Equipment mobility	for building-in
Over voltage category (OVC)	OVC II
Class of equipment	Class I
Access location	service access area
Pollution degree (PD)	PD 2
Manufacturer’s specified maximum operating ambient (°C)	45, 70 with de-rating
IP protection class	IPX0
Power Systems	TN TT
Altitude during operation (m)	3000 m
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	ZPSA20 - 0.1; ZPSA40/60 - 0.13
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..... :	2020-06-19 TO 2020-07-07
Date (s) of performance of tests..... :	2020-08-27 TO 2020-09-22
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 IEC 60335-1:	

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

Name and address of factory (ies) :	DONGGUAN CINCON ELECTRONICS LTD 1 JING XIANG RD DONGCHENG FOREIGN TRADE INDUSTRIAL PARK ZHUSHAN DONGCHENG DISTRICT DONGGUAN GUANGDONG 523128 CHINA CINCON ELECTRONICS CO LTD 8-1 FU KUNG RD FU HSING PARK FU HSING HSIANG CHANGHUA HSIEN 506 TAIWAN
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GENERAL PRODUCT INFORMATION:

Product Description
 The ZPSAx-yz series are switch mode power supplies for building into host equipment

ZPSA20-y, 20W Series, x=20 for power rating, y=3R3-24 in steps of 0,1
 ZPSA40-y, 40W Series, x=40 for power rating, y=3R3-48 in steps of 0,1
 ZPSA60-yz, 60W Series, x=60 for power rating, y=3R3-48 in steps of 0,1 and z may be 12/SE or blank

Model Differences
 The ZPSAx-yz where:
 x may be 20, 40 or 60 and stands for power rating
 y may be from 3R3-24 range for ZPSA20 series or may be from 3R3-48 range for ZPSA40 and ZPSA60 series
 z may be "/SE" which stands for alternate TH1 thermistor use (see appended table 4.2.1) or blank
 The ZPSA20 has a different PWB layout from the ZPSA40 & ZPSA60. The ZPSA40 & ZPSA60 use the same PWB layout.

Additional application considerations – (Considerations used to test a component or sub-assembly) -
 The output of model ZPSA20-24 were evaluated as a Limited Power Source
 The product was evaluated for a maximum ambient of 70 °C.
 The ZPSA20 series products derate linearly from 100% load at 45°C to 37,5% load at 70°C.
 The ZPSA40/60-3R3, -5, -9, -12 products derate linearly from 100% load at 40°C to 25% load at 70°C.
 The ZPSA40/60-15, -24, -28, -30, -36, -48 products derate linearly from 100% load at 50°C to 50% load at 70°C.
 See also derating diagram on Enclosure (Diagrams 04-01)

Reissue No1

This CB Test Report is a reissue of CBTR E135494-A6046-CB-1 issued 2020-09-30, CB Test Certificate Ref. No. DK-103694-UL issued 2020-09-30.

Based on the previously conducted testing and the review of product technical documentation including photos, schematics, wiring diagrams and similar, has been determined that the product continues to comply with the standard.

All required tests were carried out under the original investigation

The original report was modified on 2020-10-21 to include the following changes/additions:

1. Added alternate thermistor for ZPSA60-12/SE model
2. Added DONGGUAN CINCON ELECTRONICS LTD factory
3. Minor editorial changes were made for clarification purpose.

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (T_{ma}) permitted by the manufacturer's specification of : 45°C Full load; 70°C maximum (output derated 2.5%/°C above 45°C).
- The product is intended for use on the following power systems : TN, TT
- Considered current rating of protective device as part of the building installation (A) : 20
- Mains supply tolerance (%) or absolute mains supply values : +10%/-10%
- The equipment disconnect device is considered to be : provided by the end equipment
- The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS) : ZPSA20-24 output
- The following were investigated as part of the protective earthing/bonding : Printed wiring board trace (refer to Enclosure - Schematics + PWB for layouts)
- The following are available from the Applicant upon request : Installation (Safety) Instructions / Manual including French for Canada
- The product was investigated to the following additional standard : CSA CAN/CSA-C22.2 NO. 62368-1 2nd Ed, Issued December 1, 2014, EN 62368-1:2014
- The following scope limitations apply to this test report and are confirmed by Applicant to be covered separately. Additional evaluation and/or tests may be required when submitting this CB Report to a National Certification Body (NCB) to obtain a national mark:
 - 1) no EMC tests nor evaluation to EMC Directive 2004/108/EC and 2014/30/EU,
 - 2) no evaluation to RoHS Directives 2002/95/EC, 2011/65/EU and (EU) 2016/585,
 - 3) no evaluation to Council Recommendation 1999/519/EC nor 2006/25/EC,
 - 4) only English version of markings and instructions provided and reviewed,
 - 5) no evaluation to Directive 96/29/Euratom,

Engineering Conditions of Acceptability

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

- The following product-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: 279 Vrms/525 Vpk, Primary-Secondary: 377Vrms/515Vpk
- The following output circuits are at ES1 energy levels : All outputs except ZPSA60-40 model

- The following output circuits are at ES2 energy levels : ZPSA60-48 model
- The following output circuits are at PS3 energy levels : All circuits
- 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 : ACN
- The following end-product enclosures are required : Electrical, Fire, Mechanical
- 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) : (Class B)
- The power supply was evaluated to be used at altitudes up to : 3000 m