



Test Report issued under the responsibility of:



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

Report Number.....: E135494-A6034-CB-1
Date of issue.....: 2020-03-27 ; Amendment 1 : 2021-04-19
Total number of pages..... 18

Name of Testing Laboratory UL VS Limited
preparing the Report .....: Unit 1-3 Horizon, Wade Road, Kingsland Business Park, Basingstoke
RG24 8AH, United Kingdom

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

Test specification:
Standard.....: IEC 60950-1:2005, AMD1:2009, AMD2:2013
Test procedure .....: CB Scheme
Non-standard test method .....: N/A

Test Report Form No. ....: IEC60950\_1G
Test Report Form(s) Originator ....: SGS Fimko Ltd
Master TRF.....: Dated 2019-07-02

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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.

<b>Test item description</b> .....	AC-DC Power Supply
<b>Trade Mark</b> .....	TDK-Lambda
<b>Manufacturer</b> .....	<b>TDK-Lambda</b> TDK-LAMBDA UK LTD KINGSLEY AVE ILFRACOMBE EX34 8ES UNITED KINGDOM
<b>Model/Type reference</b> .....	DRB240-48-1/yyy  (where yyy is optional and can be alphanumeric characters or blank and is for non-safety related information - product ratings unchanged)
<b>Ratings</b> .....	Input: 100-240 VAC, 2.7 A, 50/60 Hz  Output: Rated: 48 - 52.8 Vdc, 5 - 4.55 A Peak: 48 - 52.8 Vdc, 6 - 5.45 A/Max 10sec.

**Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):**

<input checked="" type="checkbox"/>	<b>CB Testing Laboratory:</b>	
<b>Testing location/ address</b> .....	UL VS Limited, Unit 1-3 Horizon, Wade Road, Kingsland Business Park, Basingstoke RG24 8AH, United Kingdom	
<b>Tested by (name, function, signature)</b> .....	Guoqing Zhang / Project Handler	
<b>Approved by (name, function, signature)</b> ...:	Hubert Koszewski / Reviewer	

<input type="checkbox"/>	<b>Testing procedure: CTF Stage 1:</b>	
<b>Testing location/ address</b> .....		
<b>Tested by (name, function, signature)</b> .....		
<b>Approved by (name, function, signature)</b> ...:		

<input type="checkbox"/>	<b>Testing procedure: CTF Stage 2:</b>	
<b>Testing location/ address</b> .....		
<b>Tested by (name + signature)</b> .....		
<b>Witnessed by (name, function, signature) .:</b>		
<b>Approved by (name, function, signature)</b> ...:		

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

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

National Differences (0 pages)

Enclosures (0 pages)

**Summary of testing:****Tests performed (name of test and test clause):** None**Testing Location:** None**Summary of compliance with National Differences:****List of countries addressed:** Argentina, Australia / New Zealand, China, EU Group and National Differences, Israel, Japan, Korea, Singapore, 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:** 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.



Note: The above markings are the minimum requirements required by the safety lab. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.

<b>Test item particulars</b> ..... :	
Equipment mobility	for building-in
Connection to the mains	for building-in, to be provided in end-product
Operating condition	continuous
Access location	N/A (for building-in)
Over voltage category (OVC)	OVC II
Mains supply tolerance (%) or absolute mains supply values	+10%, -15%
Tested for IT power systems	No
IT testing, phase-phase voltage (V)	-
Class of equipment	Class I (earthed)
Considered current rating of protective device as part of the building installation (A)	20
Pollution degree (PD)	PD 2
IP protection class	IP X0
Altitude of operation (m)	3000m
Altitude of test laboratory (m)	less than 2000 meters
Mass of equipment (kg)	0.45

<b>Possible test case verdicts:</b>	
- 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)
<b>Testing</b> ..... :	
Date of receipt of test item.....	N/A
Date (s) of performance of tests .....	N/A
<b>General remarks:</b>	
<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>	
<b>Manufacturer's Declaration per sub-clause 4.2.5 of IEC60950-1:</b>	
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"/> <b>Yes</b> <input type="checkbox"/> <b>Not applicable</b>
<b>When differences exist; they shall be identified in the General product information section.</b>	

<p><b>Name and address of factory (ies) .....</b> :</p>	<p>TDK-LAMBDA UK LTD                  KINGSLEY AVE                  ILFRACOMBE                  EX34 8ES UNITED KINGDOM</p> <p>PANYU TRIO MICROTRONICS CO LTD                  SHIJI INDUSTRIAL ESTATE                  DONGYONG                  NANSHA                  GUANGZHOU                  GUANGDONG 511453 CHINA</p>
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**General product information:**

**Report Summary**  
 The original report was modified on 2021-04-19 to include the following changes/additions:  
 Technical amendment Update CCL with the addition of 2 alternate Relays: Tyco (TE Connectivity) OJ-SH-112HM2-WG.0000(2071505-1) & Hongfa HF32FV-G/12-HSTF.  
 This test report should be read in conjunction with the original Report, No.: E135494-A6034-CB-1, issued date 2020-03-27 with CB Certificate DK-95091-UL, issued on 2020-03-30.

**Product Description**  
 The product covered in this report is a building-in component switch-mode power supply (DIN rail type).

**Model Differences**  
 N/A

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

Project # 4789845826 line 2:

The original report was revised to include the following technical/administrative changes/additions:

Update CCL with the addition of 2 alternate Relays: Tyco (TE Connectivity) OJ-SH-112HM2-WG.0000(2071505-1) & Hongfa HF32FV-G/12-HSTF.

The alternate components have same or better ratings, considered technically equivalent, no tests were deemed necessary, the sample requirements were waived, the product continues to comply with the standard.

This test report should be read in conjunction with the original Report, No.: E135494-A6034-CB-1, issued date 2020-03-27 with CB Certificate DK-95091-UL, issued on 2020-03-30.

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Output Test Load:

Condition A (rated output)

48 Vdc, 5 A

Condition B (maximum rated output)

52.8 Vdc, 4.55 A

Condition C (50% power at maximum ambient)

48 Vdc, 2.5A @ 70°C

Condition D (peak output for maximum 10 seconds)

Cyclic @ 48Vdc output: 6 A load for 10 sec. then 1.5 A for 19 sec.

**Technical Considerations**

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : 55°C, above 55°C derated linearly to 50% output power at 70°C
- The product is intended for use on the following power systems : TN
- The equipment disconnect device is considered to be : provided in end-product
- 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).
- 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
- LEDs provided in the product are considered low power devices : Yes

**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 : Earthing Continuity, Electric Strength
- The end-product Electric Strength Test is to be based upon a maximum working voltage of : Primary-Secondary: 281.1 Vrms/500 Vpk, Primary – Earthed Dead Metal: 261.9 Vrms/460 Vpk
- The following secondary output circuits are SELV : PSU output
- The following secondary output circuits are at hazardous energy levels : PSU output
- The following output terminals were referenced to earth during performance testing : Input Neutral and “V-“ on the Secondary
- 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 : Been conducted
- 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 (Class 155(F))
- The following end-product enclosures are required : Electrical, Fire
- The following LEDs operate within the exempt group per IEC 62471 : Indication LED

**Abbreviations used in the report:**

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

**Indicate used abbreviations (if any)**