



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-A6033-CB-1  
**Date of issue**.....: 2020-03-27 ; Amendment 1 : 2021-04-19  
**Total number of pages** .....: 17

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

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

**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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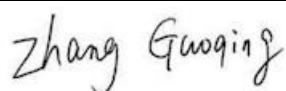
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**General disclaimer:**  
The test results presented in this report relate only to the object tested.  
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The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.



Test Item description	: AC-DC Power Supply	
Trade Mark	: <b>TDK-Lambda</b>	
Manufacturer	: TDK-LAMBDA UK LTD KINGSLEY AVE ILFRACOMBE EX34 8ES UNITED KINGDOM	
Model/Type reference	: DRB240-48-1/yyy  (where yyy is optional and can be alphanumeric characters or blank and is for non-safety related changes - product ratings unchanged)	
Ratings	: 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.	
Testing procedure and testing location:		
<input checked="" type="checkbox"/>	CB Testing Laboratory:	
Testing location/ address	: UL VS Limited, Unit 1-3 Horizon, Wade Road, Kingsland Business Park, Basingstoke RG24 8AH, United Kingdom	
Tested by (name + signature)	Guoqing Zhang / Project Handler	
Approved by (name + signature)	Hubert Koszewski / 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 (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:** 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:** EN 62368-1:2014+A11:2017

**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.

<p><b>DRB240-48-1</b> Input Details 100-240VAC 2.7A Frequency: 50 / 60Hz Rated Output Details DC 48-52.8V/5-4.55A Peak Output Details* DC 48-52.8V/6-5.45A/Max 10sec. Maximum power: 240W</p>	<p><b>TDK-Lambda</b></p> <p><b>UL</b> US LISTED IND. CONT. EQ. E362999</p> <p><b>RA</b> US CE</p>	<p>Caution: For use in a controlled environment, refer to manual for conditions. Attention: Pour une utilisation dans un environnement contrôlé, reportez-vous au manuel d'instructions pour les conditions.</p> <p>TDK-Lambda Germany GmbH Karl-Bold-Str. 40, D-77855 Achern. RISK OF ELECTRIC SHOCK</p> <p>*Read manual for details of derating curve, peak output, wire sizes, torque values and other information. Further information at: <a href="http://www.emea.lambda.tdk.com/uk">www.emea.lambda.tdk.com/uk</a></p>	<p>Warning / Avertissement Surrounding Air Temperature : -25°C to 70°C Wiring must be ≥105°C rated Le câblage doit être ≥105°C nominale</p> <p><b>EAC</b></p> <p><b>Made in UK</b></p>
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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>	
Classification of use by	Instructed person
Supply Connection	AC Mains
Supply % Tolerance	+10% / -15%
Supply Connection – Type	Terminal Block for internal connection within end product
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	N/A
Pollution degree (PD)	PD 2
Manufacturer’s specified maximum operating ambient (°C)	55°C, above 55°C derated linearly to 50% output power at 70°C
IP protection class	IPX0
Power Systems	TN
Altitude during operation (m)	3000m m
Altitude of test laboratory (m)	2000 m or less
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><b>"(See Enclosure #)" refers to additional information appended to the report.</b>  <b>"(See appended table)" refers to a table appended to the report.</b></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 IEC60335-1:</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>	
<b>Name and address of factory (ies) .....</b>	TDK-LAMBDA UK LTD KINGSLEY AVE ILFRACOMBE EX34 8ES UNITED KINGDOM  PANYU TRIO MICROTRONICS CO LTD SHIJI INDUSTRIAL ESTATE DONGYONG NANSHA GUANGZHOU GUANGDONG 511453 CHINA
<b>GENERAL PRODUCT INFORMATION:</b>	
<b>Report Summary</b>	
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-A6033-CB-1, issued date 2020-03-27 with CB Certificate DK-95088-UL, issued on 2020-03-28.	
<b>Product Description</b>	
The product covered in this report is a building-in component switch-mode power supply (DIN rail type).	
<b>Model Differences</b>	
N/A	
<b>Additional application considerations – (Considerations used to test a component or sub-assembly) -</b>	
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-A6033-CB-1, issued date 2020-03-27 with CB Certificate DK-95088-UL, issued on 2020-03-28.	
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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 (T<sub>ma</sub>) 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
- Considered current rating of protective device as part of the building installation (A) : 20
- Mains supply tolerance (%) or absolute mains supply values : +10%/-15%
- The equipment disconnect device is considered to be : Provided in end product
- The following were investigated as part of the protective earthing/bonding : Printed wiring board trace (refer to Enclosure - Schematics + PWB for layouts)
- The Risk Group of a lamp or lamp system (including LEDs) is : Exempt
- The following are available from the Applicant upon request : Installation (Safety) Instructions / Manual
- The product was investigated to the following additional standard : EN 62368-1:2014 + A11:2017

### 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-Secondary: 281.1 Vrms/500 Vpk, Primary – Earthed Dead Metal: 261.9 Vrms/460 Vpk
- The following output circuits are at ES1 energy levels : Output
- 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 : been conducted
- The following end-product enclosures are required : Electrical, Fire
- 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, L3 (Class 155(F))
- The equipment is suitable for direct connection to : AC mains supply
- The power supply was evaluated to be used at altitudes up to : 3000 m