

	<p>Test Report issued under the responsibility of:</p>	
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<p>TEST REPORT IEC 60950-1 Information technology equipment - Safety - Part 1: General requirements</p>	
Report Reference No	4787306078
Date of issue	2016-02-15
Total number of pages	21
CB Testing Laboratory	UL Japan, Inc.
Address	4383-326 Asama-cho, Ise-shi, Mie, 516-0021, Japan
Applicant's name	TDK-LAMBDA CORP
Address	NAGAOKA TECHNICAL CENTER R&D DIV 2704-1 SETTAYA-MACHI NAGAOKA-SHI NIIGATA 940-1195 JAPAN
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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General disclaimer	
<p>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.</p>	

Test item description	Switching Power Supply
Trade Mark	TDK·Lambda
Manufacturer	TDK-LAMBDA CORP NAGAOKA TECHNICAL CENTER R&D DIV 2704-1 SETTAYA-MACHI NAGAOKA-SHI NIIGATA 940-1195 JAPAN
Model/Type reference	ZWS300BAF-abcdef a = 12, 15, 24, 36, 48, b = "/" or blank, c = T or blank, d = R or blank, e = A, L or blank, f = CO2, FG or blank ZWS300BAF-24/wxyz17 (Suffix; w = T or blank. x = R or blank, y = A, L or blank, z = CO2, FG or blank) EVS18-16R7abcde, EVS36-8R4abcde, EVS57-5R3abcde a = "/" or blank, b = B or blank. c = R or blank, d = A, L or blank, e = CO2, FG or blank
Ratings	For Models other than ZWS300BAF-24/wxyz17: Input: AC 100-240V, 50-60Hz, 4.0A Output: Refer to Model Differences For Model ZWS300BAF-24/wxyz17: Input: AC 100-240V, 50-60Hz, 3.4A Output: Refer to Model Differences

Testing procedure and testing location:	
<input checked="" type="checkbox"/> CB Testing Laboratory Testing location / address: UL Japan, Inc. 4383-326 Asama-cho, Ise-shi, Mie, 516-0021, Japan <input type="checkbox"/> Associated CB Test Laboratory Testing location / address: Tested by (name + signature): Tetsuo Iwasaki Approved by (name + signature).....: Toshiyuki Suzuki	<div style="border-bottom: 1px solid black; margin-bottom: 5px;"> Tetsuo Iwasaki </div> <div style="border-bottom: 1px solid black;"> Toshiyuki Suzuki </div>
<input type="checkbox"/> Testing Procedure: TMP/CTF Stage 1 Testing location / address: Tested by (name + signature): Approved by (name + signature).....:	<hr/> <hr/> <hr/>
<input type="checkbox"/> Testing Procedure: WMT/CTF Stage 2 Testing location / address: Tested by (name + signature): Witnessed by (name + signature) ..: Approved by (name + signature).....:	<hr/> <hr/> <hr/> <hr/>
<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) .:	<hr/> <hr/> <hr/> <hr/>
<input type="checkbox"/> Testing Procedure: RMT Testing location / address: Tested by (name + signature): Approved by (name + signature).....: Supervised by (name + signature) .:	<hr/> <hr/> <hr/> <hr/>

List of Attachments	
Summary Of Testing	
Unless otherwise indicated, all tests were conducted at UL Japan, Inc. 4383-326 Asama-cho, Ise-shi, Mie, 516-0021, Japan..	
Tests performed (name of test and test clause)	Testing location / Comments

Input: Single-Phase (1.6.2)

Energy Hazard Measurements (2.1.1.5, 2.1.2, 1.2.8.10)

Summary of Compliance with National Differences:

Countries outside the CB Scheme membership may also accept this report.

List of countries addressed: CA, DE, DK, EU, FI, GB, KR, SE, SI, US

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

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

Test item particulars :

Equipment mobility	for building-in
Connection to the mains	not directly connected to the mains
Operating condition	continuous
Access location	N/A
Over voltage category (OVC)	OVC II
Mains supply tolerance (%) or absolute mains supply values	±10%
Tested for IT power systems	Yes
IT testing, phase-phase voltage (V)	230V (for Norway)
Class of equipment	Not classified, Class I construction
Considered current rating of protective device as part of the building installation (A)	16A (for Europe), 20A (for Canada and USA)
Pollution degree (PD)	PD 2
IP protection class	IPX0
Altitude of operation (m)	Up to 3000m
Altitude of test laboratory (m)	< 2000 m
Mass of equipment (kg)	Approx. 0.54 (except for suffix e=A, L) Approx. 0.80 (for suffix e=A) Approx. 0.74 (for suffix e=L)

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	2016-01-21
Date(s) of Performance of tests	2016-02-11

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 IEC60950 02:

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 Yes

When differences exist, they shall be identified in the General Product Information section.

Name and address of Factory(ies):	<p>TDK-LAMBDA CORP 2704-1 SETTAYA-MACHI NAGAOKA-SHI NIIGATA-KEN 940-1195 JAPAN</p> <p>TDK-LAMBDA MALAYSIA SDN BHD PLO33 KAWASAN PERINDUSTRIAN SENAI 81400 SENAI MALAYSIA</p> <p>TDK-LAMBDA MALAYSIA SDN BHD LOT 2 & 3, BATU 9 3/4 KAWASAN PERINDUSTRIAN BANDAR BARU JAYA GADING 26070 KUANTAN MALAYSIA</p> <p>Wuxi TDK-Lambda Electronics Co Ltd NO 6 XING CHUANG ER LU WUXI JIANGSU 214028 CHINA</p> <p>ZHANGJIAGANG HUA YANG ELECTRONICS CO LTD TONGXIN RD ZHAOFENG ECONOMIC DEVELOPMENT ZONE LEYU TOWN ZHANGJIAGANG JIANGSU 215622 CHINA</p> <p>ALPS LOGISTICS FACILITIES CO LTD 593-1 NISHIOHASHI TSUKUBA-SHI IBARAKI-KEN 305-0831 JAPAN</p>
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GENERAL PRODUCT INFORMATION:
<p>Report Summary</p> <p>This amendment Test Report, No. 4787306078 is only valid in conjunction with CB Test Report No. 4786910622-7 (Original), and No. 4787022573 (Amendment 1) for the following modifications.</p> <p>Test Report, No. 4787306078 covers following modifications. - Addition of Models ZWS300BAF-24/wxyz17.</p> <p>Only limited tests were performed on models ZWS300BAF-24/wxyz17, because the additional models are similar construction to previously evaluated model ZWS300BAF-24bcdef.</p>
<p>Product Description</p> <p>The product is a switching power supply intended for building in to an end product</p>
<p>Model Differences</p>

Model	Nominal output voltage	Output current (Convection)	Output power (Convection)	Output current (Forced Air)	Output power (Forced Air)
ZWS300BAF-12bcdef	DC 12V (DC 9.6 – 13.2V)*	25.0A	300.0W	26.0A	312.0W
ZWS300BAF-15bcdef	DC 15V (DC 13.5 – 16.5V)*	20.0A	300.0W	22.0A	330.0W
ZWS300BAF-24bcdef	DC 24V (DC 21.6 – 27.5V)*	12.5A	300.0W	14.0A	336.0W
ZWS300BAF-36bcdef	DC 36V (DC 32.4 – 39.6V)*	8.4A	302.4W	9.4A	338.4W
ZWS300BAF-48bcdef	DC 48V (DC 39.5 – 52.8V)*	6.3A	302.4W	7.0A	336.0W

*) Output voltage can be changed with the adjustable volume VR51 within the range.

Model : ZWS300BAF-abcdef
 (a = 12, 15, 24, 36, 48. b = "/" or blank. c = T or blank. d = R or blank. e = A, L or blank. f = CO2, FG or blank)

a; output voltage as above

b; (separator)

c; type of input connector CN1

d; remote control

e; A = with covers on both component side and solder side,

L = with cover on solder side

f ; CO2 = coating of both sides of PWB for functional purpose,

FG = low leakage current

Suffixes b, d and f are not safety relevant.

Model	Nominal output voltage	Output current (Convection)	Output power (Convection)	Output current (Forced Air)	Output power (Forced Air)
EVS18-16R7abcde	DC 18V (DC 12-18V)*	16.7A	300.6W	16.7A	300.6W
EVS36-8R4abcde	DC 36V (DC 24-36V)*	8.4A	302.4W	8.4A	302.4W
EVS57-5R3abcde	DC 57V (DC 48-57V)*	5.3A	302.1W	5.3A	302.1W

*) Output voltage can be changed with adjustable volume VR51 within the range.

Model : EVS18-16R7abcde, EVS36-8R4abcde, EVS57-5R3abcde
 (a = "/" or blank, b = B or blank. c = R or blank, d = A, L or blank, e = CO2, FG or blank)

a; (separator),
 b; B = Connector Type
 c; remote control,
 d; A = with covers on both component side and solder side,
 L = with cover on solder side
 e; CO2 = coating of both sides of PWB for functional purpose,
 FG = low leakage current
 Suffixes a, c and e are not safety relevant.

Model EVS18-16R7 and EVS36-8R4 are similar to model ZWS300BAF-15 and ZWS300BAF-36 respectively, except for PWB pattern, Surge Absorber, Input Terminal, Shape of Cover (for model with -/L), and some minor components.

Model EVS57-5R3 is similar to model ZWS300BAF-48, except for Transformer T2, PWB pattern, Surge Absorber, Input Terminal, Shape of Cover (for model with -/L), and some minor components.

Models EVS Series has wider adjustable range of overcurrent protection than RWS300BAF series, and its' adjustment of overcurrent protection by VR1 is available for end-product manufacturer.

Model	Nominal output voltage	Output current (Convection)	Output power (Convection)	Output current (Forced Air)	Output power (Forced Air)
ZWS300BAF-24/wxyz17	DC 17.5V (DC 16.5-19.3V)*	12.5A	218.75W	14.0A	245.0W

*) Output voltage can be changed with adjustable volume VR51 within the range.

ZWS300BAF-24/wxyz17
 (Suffix; w = T or blank. x = R or blank, y = A, L or blank, z = CO2, FG or blank)

w; type of input connector

x; remote control

y; A = with covers on both component side and solder side,
 L = with cover on solder side

z; CO2 = coating of both sides of PWB for functional purpose,
 FG = low leakage current

Suffixes x and z are not safety relevant.

Model ZWS300BAF-24/wxyz17 is identical to model ZWS300BAF-24bcdef, except electrical ratings for input ampere, output voltage, and some minor components.