



Test Report issued under  
the responsibility of:



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

**Report Reference No** .....: E122103-A173-CB-1

Date of issue .....: 2015-06-24

Total number of pages .....: 12

**CB Testing Laboratory** .....: UL Japan, Inc.

Address .....: 4383-326 Asama-cho, Ise-shi, Mie, 516-0021, Japan

**Applicant's name** .....: TDK-LAMBDA CORP  
NAGAOKA TECHNICAL CENTER

Address .....: 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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<b>Test item description</b> .....	Switching Power Supply
Trade Mark .....	<b><i>TDK·Lambda</i></b>
Manufacturer .....	TDK-LAMBDA CORP NAGAOKA TECHNICAL CENTER R&D DIV 2704-1 SETTAYA-MACHI NAGAOKA-SHI NIIGATA 940-1195 JAPAN
Model/Type reference .....	ZWS75BAF-abcd a = 3, 5, 12, 15, 24, 48. b = "/" or blank. c = A, L or blank. d = CO2, FG, FV or blank.
Ratings .....	Input: 100-240 Vac, 50/60 Hz 0.7 A (for Model ZWS75BAF-3) 1.0 A (for Models ZWS75BAF-5, ZWS75BAF-12, ZWS75BAF-15, ZWS75BAF-24, and ZWS75BAF-48)  Output: 3.3 Vdc, 15 A (Model ZWS75BAF-3) (2.64 - 3.63 Vdc, maximum 15 A, maximum 49.5 W) 5 Vdc, 15 A (Model ZWS75BAF-5) (4.0 - 5.5 Vdc, maximum 15 A, maximum 75.0 W) 12 Vdc, 6.3 A (Model ZWS75BAF-12) (9.6 - 13.2 Vdc, maximum 6.3 A, maximum 75.6 W) 15 Vdc, 5.0 A (Model ZWS75BAF-15) (12.0 - 16.5 Vdc, maximum 5.0 A, maximum 75.0 W) 24 Vdc, 3.2 A (Model ZWS75BAF-24) (19.2 - 26.4 Vdc, maximum 3.2 A, maximum 76.8 W) 48 Vdc, 1.6 A (Model ZWS75BAF-48) (38.4 - 52.8 Vdc, maximum 1.6 A, maximum 76.8 W)

<b>Testing procedure and testing location:</b>	
<input checked="" type="checkbox"/> <b>CB Testing Laboratory</b>	
Testing location / address .....	UL Japan, Inc. 4383-326 Asama-cho, Ise-shi, Mie, 516-0021, Japan
<input type="checkbox"/> <b>Associated CB Test Laboratory</b>	
Testing location / address .....	
Tested by (name + signature) .....	Ayano Matsumoto 
Approved by (name + signature).....	Tetsuo Iwasaki 
<input type="checkbox"/> <b>Testing Procedure: TMP/CTF Stage 1</b>	
Testing location / address .....	
Tested by (name + signature) .....	
Approved by (name + signature).....	
<input type="checkbox"/> <b>Testing Procedure: WMT/CTF Stage 2</b>	
Testing location / address .....	
Tested by (name + signature) .....	
Witnessed by (name + signature) ...	
Approved by (name + signature).....	
<input type="checkbox"/> <b>Testing Procedure: SMT/CTF Stage 3 or 4</b>	
Testing location / address .....	
Tested by (name + signature) .....	
Approved by (name + signature).....	
Supervised by (name + signature) ..	
<input type="checkbox"/> <b>Testing Procedure: RMT</b>	
Testing location / address .....	
Tested by (name + signature) .....	
Approved by (name + signature).....	
Supervised by (name + signature) ..	

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

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Amendment 1 2015-12-18

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**

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.

RoHS COMPLIANCE
4-R1

This is uncontrolled copy when without Authorized Mark on the printed drawing. Verification of the latest version shall be conducted by P.M. system.

1. MATERIAL ROLL 335-7 SATO : 9000-4-335\_(NO.7)  
 YUPO 80 MIC SYNTHETIC PAPER, WHITE (PURCHASED PRINTING)  
 PET SOMIC SYNTHETIC PAPER, WHITE (FOR INHOUSE PRINTING SEAL)
2. INK BLACK
3. SAFETY UL, C-UL APPROVAL TEMPERATURE -40°C TO 100°C
4. LETTERING :
 

	FONT	HEIGHT (mm)
ZWS75BAF-5	IMPACT	1.5
INPUT →, OUTPUT ←	ARIAL(BOLD)	1.0
MADE IN JAPAN	ARIAL	1.0
TDK-Lambda LOGO	ORIGINAL	1.5
LOT No., SERIAL No.	ARIAL(BOLD)	1.0
DATE CODE	ARIAL(BOLD)	1.0
△ EHP	ARIAL(BOLD)	0.8
5. OTHERS
 

△ MODEL	A	B	C	D	△ MODEL CODE	E: COUNTRY OF MANUFACTURE WILL BE SHOWN, JAPAN, MALAYSIA OR CHINA.
ZWS75BAF-3 EHP	3	0.7	3.3	15	CS2	
ZWS75BAF-5 EHP	5	1.0	5	15	CRV	F: LOT No.
ZWS75BAF-12 EHP	12	1.0	12	6.3	CRW	G: SERIAL No.
ZWS75BAF-15 EHP	15	1.0	15	5	CS3	H: DATE CODE
ZWS75BAF-24 EHP	24	1.0	24	3.2	CRZ	(FACTORY, WEEK AND YEAR CODE)
ZWS75BAF-48 EHP	48	1.0	48	1.6	CS1	

BAR CODE (QR)  
 [MODEL CODE | LOT No. | SERIAL No. | DATE CODE | FACTORY CONTROL CODE]

6. BRACKETS IN DOTTED LINES SHOULD NOT APPEAR ON THE FINAL FRONT SEAL.
7. RoHS Compliance : Refer to T-L Group Green Procurement Guideline : DL-EMS-010...

A	-7	△△△ ADD EHP △HFP+ => EHP			
		△△ ADD SAFETY MARK			
		△ CHANGE MODEL CODE			
	-2	NEW RELEASE	19.May.10	M.Banba	Tatsuya
				M.Watanabe	
D	REV	CONTENTS	DATE	ENGR	CHK
					APPD
	APPD	SCALE: 4/1	MATERIALS	TITLE: ZWS75BAF	
	CHK	UNITS: mm	FINISH	NAME PLATE	
	ENGR	ANGLE: 3RD ANGLE PROJECTION		DRAWING No. A248-33-01	PAGE 1/1

TDK-Lambda

**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%, -10%
Tested for IT power systems .....	No
IT testing, phase-phase voltage (V) .....	N/A
Class of equipment .....	Not classified, class I construction
Considered current rating of protective device as part of the building installation (A) .....	20 A
Pollution degree (PD) .....	PD 2
IP protection class .....	IP X0
Altitude of operation (m) .....	up to 2000 m
Altitude of test laboratory (m) .....	less than 1000 m
Mass of equipment (kg) .....	Approximately 0.23 kg (except for suffix /A and /L), approximately 0.38kg (suffix /A), approximately 0.35kg (suffix /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 .....	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):** TDK-LAMBDA CORP  
 2704-1 SETTAYA-MACHI  
 NAGAOKA-SHI  
 NIIGATA-KEN 940-1195 JAPAN

TDK-LAMBDA MALAYSIA SDN BHD  
PLO33 KAWASAN PERINDUSTRIAN SENAI  
81400 SENAI MALAYSIA

TDK-LAMBDA MALAYSIA SDN BHD  
LOT 2 & 3, BATU 9 3/4  
KAWASAN PERINDUSTRIAN  
BANDAR BARU JAYA GADING  
26070 KUANTAN MALAYSIA

WUXI TDK-LAMBDA ELECTRONICS CO LTD  
NO 6  
XING CHUANG ER LU  
WUXI  
JIANGSU 214028 CHINA

ALPS LOGISTICS FACILITIES CO LTD  
593-1 NISHIOHASHI  
TSUKUBA-SHI  
IBARAKI-KEN 305-0831 JAPAN

ZHANGJIAGANG HUA YANG ELECTRONICS CO LTD  
TONGXIN RD  
ZHAOFENG ECONOMIC DEVELOPMENT ZONE  
LEYU TOWN  
ZHANGJIAGANG  
JIANGSU 215622 CHINA

## GENERAL PRODUCT INFORMATION:

### Report Summary

The original report was modified on 2015-12-18 to include the following changes/additions:  
This Test Report is only valid in conjunction with CB Test Report Ref. No. E122103-A173-CB-1 for the following amendment.

#### Amendment 1:

- Minor modification of explanation for suffix for model name. (Editorial)
- Minor modifications of description in Table 1.5.1.
- Correction of typo in Table 1.5.1.

No tests were considered necessary because construction was not changed.

### Product Description

The product is a switching power supply intended for building in to an end product.

### Model Differences

All models are identical except for input rating of Model ZWS75BAF-3, model designation, output ratings, and suffixes.

ZWS75BAF-abcd

a = 3, 5, 12, 15, 24, 48. b = "/" or blank. c = A, L or blank. d = CO2, FG, FV or blank.

/A: Addition of L shaped metal chassis mounted solder side of unit and cover.  
/CO2: Coating on both sides of Printed Wiring Board (not relied upon to reduce spacings)  
/FG: Low Leakage option  
/FV: Fixed output voltage without adjustment  
/L: Addition of L shaped metal chassis mounted solder side of unit.

**Additional Information**

Abbreviations used in the report.  
- built-in application: B/I

**Technical Considerations**

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: Maximum 70°C. See Enclosure Id. 7-01, 7-02 and 7-03 for details.
- The product is intended for use on the following power systems: TN

**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: Electric Strength
- The end-product Electric Strength Test is to be based upon a maximum working voltage of: 357Vrms and 808 Vpk
- The following secondary output circuits are SELV: 3.3 Vdc Output, 5 Vdc Output, 12 Vdc Output, 15 Vdc Output, 24 Vdc Output, and 48 Vdc Output
- The following secondary output circuits are at non-hazardous energy levels: 3.3 Vdc Output, 5 Vdc Output, 12 Vdc Output, 15 Vdc Output, 24 Vdc Output, and 48 Vdc Output
- 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
- The following input terminals/connectors must be connected to the end-product supply neutral: Input Connector (CN1) (N) pin.
- 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): Transformer (T1) (Class F), Inductor (L1) (120°C), Inductor (L4) (120°C), and Inductor (L5) (120°C)
- The following end-product enclosures are required: Electrical and Fire

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)