

	<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	4786910628-6
Date of issue	2015-11-05
Total number of pages	138
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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Test item description	Switching Power Supply
Trade Mark	TDK-Lambda or 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	ZWS5-x x = 3, 5, 12, 15, or 24 May be followed suffix /J, /A, /JA or /JVY
Ratings	Input: AC 100-240V, 50/60Hz, 0.14A Output: ZWS5-3 series DC 3.3V 1.0 A ZWS5-5 series DC 5V 1.0 A ZWS5-12 series DC 12V 0.42 A ZWS5-15 series DC 15V 0.34 A ZWS5-24 series DC 24V 0.22 A

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).....: Ayano Matsumoto <i>A. Matsumoto</i>
	Approved by (name + signature) ...: Tetsuo Iwasaki Tetsuo Iwasaki
<input type="checkbox"/> Testing Procedure: TMP/CTF Stage 1	Testing location / address:
	Tested by (name + signature).....: _____
	Approved by (name + signature) ...: _____
<input type="checkbox"/> Testing Procedure: WMT/CTF Stage 2	Testing location / address:
	Tested by (name + signature).....: _____
	Witnessed by (name + signature) ..: _____
	Approved by (name + signature) ...: _____
<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) .: _____
<input type="checkbox"/> Testing Procedure: RMT	Testing location / address:
	Tested by (name + signature).....: _____
	Approved by (name + signature) ...: _____
	Supervised by (name + signature) .: _____

List of Attachments
National Differences (24 pages)
Enclosures (66 pages)
Summary Of Testing
Unless otherwise indicated, all tests were conducted at TDK-LAMBDA CORPORATION, NAGAOKA TECHNICAL CENTER, 2704-1 SETTAYA-MACHI, NAGAOKA-SHI, NIIGATA-KEN, 940-1195 JAPAN.

Tests performed (name of test and test clause)	Testing location / Comments
Input: Single-Phase (1.6.2)	
Capacitance Discharge (2.1.1.7)	
SELV Reliability Test Including Hazardous Voltage Measurements (2.2.2, 2.2.3, 2.2.4)	
Humidity (2.9.1, 2.9.2, 5.2.2)	
Determination of Working Voltage; Working Voltage Measurement (2.10.2)	
Heating (4.5.1, 1.4.12, 1.4.13)	
Touch Current (Single-Phase; TN/TT System) (5.1, Annex D)	
Electric Strength (5.2.2)	
Component Failure (5.3.1, 5.3.4, 5.3.7)	
Abnormal Operation (5.3.1 - 5.3.9)	
Transformer Abnormal Operation (5.3.3, 5.3.7b, Annex C.1)	
<p>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</p>	

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	restricted access location
Over voltage category (OVC)	OVC II
Mains supply tolerance (%) or absolute mains supply values	-10%, +6%
Tested for IT power systems	Yes
IT testing, phase-phase voltage (V)	230V
Class of equipment	Not classified, Class I construction
Considered current rating of protective device as part of the building installation (A)	B/I, Not considered.
Pollution degree (PD)	PD 2
IP protection class	Not rated, indoor use only
Altitude of operation (m)	≤ 2000 m
Altitude of test laboratory (m)	< 1000 m
Mass of equipment (kg)	approx. 0.12kg

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	2003-10, 2005-09-22
Date(s) of Performance of tests	2003-10, 2005-10-21, 2013-01-11 to 2013-01-31

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 IEC60950-1:

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): 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

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

Wuxi TDK-Lambda Electronics Co Ltd
NO 6
XING CHUANG ER LU
WUXI
JIANGSU 214028 CHINA

SENDAN ELECTRONICS MFG CO LTD
1010 HABUSHIN
NANTO-SHI
TOYAMA-KEN 939-1756 JAPAN

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

GENERAL PRODUCT INFORMATION:

Report Summary

All applicable tests according to the referenced standard(s) have been carried out.

Product Description

Switching power supply for use in general office equipment (host equipment is not specified).

Model Differences

ZWS5 series are identical each other except for output rating, winding of Transformer T1, and minor components.

Definition of variable(s):

Variable:	Range of variable:	Content:
x	3, 5, 12, 15, 24	Output voltage
suffix	/J, /A, /JA, or /JVY	<p>” /J” : denotes type of input and output connector</p> <p>” /A” : denotes models with optional cover and chassis provided</p> <p>” /JA” : denotes combination of suffix ”/A” and ”/J”</p> <p>” /JVY” : denotes removal of C4 (Y-capacitor) and type of input and output connector</p>

Unless otherwise stated, tests were conducted on models ZWS5-5, ZWS5-24 considered to represent the worst case condition the respective tests.

Additional Information

This report is a reissue of CBTR Ref. No.: 12027280 001 and 12027280 002, CB Test Certificate Ref. No.JPTUV-047078 and JPTUV-047078-M1. 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 tests were conducted at TDK-LAMBDA CORPORATION, NAGAOKA TECHNICAL CENTER, 2704-1 SETTAYA-MACHI, NAGAOKA-SHI, NIIGATA-KEN, 940-1195 JAPAN under CTF program by TUV Rheinland Japan.

Abbreviations used in the report.

- built-in application: B/I

In this Test Report, CENELEC mark license indicating compliance to EN standard was used to verify component compliance to IEC standard because the standards are technically equivalent.

It was considered that UL Standard has requirements that meet or exceed the relevant IEC requirements.

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 with 100% load and 60°C with 70% load for models without chassis and cover, 40°C with 100% load and 50°C with 70% load for models with chassis and cover, model suffixes /A, /JA for only mounting A.
- The product is intended for use on the following power systems: TN
- 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).

Engineering Conditions of Acceptability

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

- The end-product Electric Strength Test is to be based upon a maximum working voltage of: max

working voltage: 274 Vrms, 472 Vpk

- The following secondary output circuits are SELV: All output
- The power supply terminals and/or connectors are: Suitable for factory wiring only
- 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 end-product enclosures are required: Fire, Electrical

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)