

	<p>Test Report issued under the responsibility of:</p>	
---	--	---

<p>TEST REPORT IEC 60950-1 Information technology equipment - Safety - Part 1: General requirements</p>	
Report Reference No	4786910624-6
Date of issue	2015-09-16
Total number of pages	156
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
<p>Copyright © 2014 Worldwide System for Conformity Testing and Certification of Electrotechnical Equipment and Components (IECEE), Geneva, Switzerland. All rights reserved.</p> <p>This publication may be reproduced in whole or in part for non-commercial purposes as long as the IECEE is acknowledged as copyright owner and source of the material. IECEE takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.</p> <p>If this test Report is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.</p> <p>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.</p>	
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 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	RTWx-y (RTW150W series) RTWx-y# (RTW150W series) RTWx-y* (RTW150W series) (Suffix: x = 1 to 3 digit number which may include a period, y = 1 to 3 digit number which may include a period or the letter R and which may be followed by the letter K, # = A, B, D, J, L, M or U, * = C, E, G, H, N, S, T or V)
Ratings	Input: 100-240Vac, 1.6 – 0.8A, 50 – 60Hz (output type A) 100-240Vac, 1.9 – 0.9A. 50 - 60Hz (output type B - G) Output: 2.6 – 4.0Vdc, 35A max., 115.5W max. (type A) 4.0 – 5.8Vdc, 30A max., 150W max. (type B) 9.6 – 13.2Vdc, 12.5A max., 150W max. (type C) 12.0 – 16.5Vdc, 10A max., 150W max. (type D) 19.2 – 26.4Vdc, 6.3A max., 151.2W max. (type E) 22.4 – 30.8Vdc, 5.4A max., 151.2W max. (type F) 38.4 – 52.8Vdc, 3.2A max., 153.6W max. (type G)

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 (73 pages)
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)	
Capacitance Discharge (2.1.1.7)	
SELV Reliability Test Including Hazardous Voltage Measurements (2.2.2, 2.2.3, 2.2.4)	
Protective Bonding I (2.6.3.4, 2.6.1)	
Humidity (2.9.1, 2.9.2, 5.2.2)	
Determination of Working Voltage; Working Voltage Measurement (2.10.2)	
Transformer and Wire /Insulation Electric Strength (2.10.5.13)	
Heating (4.5.1, 1.4.12, 1.4.13)	
Ball Pressure (4.5.5, 4.5)	
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)	
Power Supply Output Short-Circuit/Overload (5.3.7)	
<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
Considered current rating of protective device as part of the building installation (A)	20A (for Canada and USA)
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. 0.6kg
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	2008-08-28 – 2008-09-18
General remarks:	
<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 point is used as the decimal separator.</p>	
Manufacturer's Declaration per Sub Clause 4.2.5 of IEC60950:	
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 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

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

Models are essentially identical to each other except for type of transformer T3, electrical ratings, cover and secondary components.

RTW150W series: RTWx-y, RTWx-y# and RTWx-y*

(Suffix: x = 1 to 3 digit number which may include a period (output voltage,)

y = 1 to 3 digit number which may include a period or the letter R (output current) and which may be followed by the letter K,

= A, B, D, J, L, M or U,

* = C, E, G, H, N, S, T or V)

Models RTWx-y and RTWx-y# are not equipped with cover. Models RTWx-y* are equipped with cover.

Differences between output types are as follows:

Output type [Ⓟ]	Output [Ⓟ]			Transformer T3 [Ⓟ]
A [Ⓟ]	2.6 – 4.0Vdc,	35A max.,	115.5W max. [Ⓟ]	SRW3220PQ-T25V014 [Ⓟ]
B [Ⓟ]	4.0 – 5.8Vdc,	30A max.,	150W max. [Ⓟ]	SRW3220PQ-T19V014 [Ⓟ]
C [Ⓟ]	9.6 – 13.2Vdc,	12.5A max.,	150W max. [Ⓟ]	SRW3220PQ-T20V014 [Ⓟ]
D [Ⓟ]	12.0 – 16.5Vdc,	10A max.,	150W max. [Ⓟ]	SRW3220PQ-T26V014 [Ⓟ]
E [Ⓟ]	19.2 – 26.4Vdc,	6.3A max.,	151.2W max. [Ⓟ]	SRW3220PQ-T21V014 [Ⓟ]
F [Ⓟ]	22.4 – 30.8Vdc,	5.4A max.,	151.2W max. [Ⓟ]	SRW3220PQ-T27V014 [Ⓟ]
G [Ⓟ]	38.4 – 52.8Vdc,	3.2A max.,	153.6W max. [Ⓟ]	SRW3220PQ-T22V014 [Ⓟ]

Additional Information

This report is a reissue of CBTR Ref. No.:12027302 001, CB Test Certificate Ref. No.JPTUV-048514. 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.

Sample Received date is 2008-03-06.

Construction review was conducted on 2008-03-11.

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 (T_{ma}) permitted by the manufacturer's specification of: 50°C (models without cover), 40°C (models with cover)
- The product is intended for use on the following power systems: TN, IT (for Norway)
- 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: 240 Vrms, 474 Vpk
- The following secondary output circuits are SELV: All 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
- An investigation of the protective bonding terminals has: Not 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): T2 (Class B), T3 (Class B)
- 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)