


	<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	4786910627-5
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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																					
Manufacturer	TDK-LAMBDA CORP NAGAOKA TECHNICAL CENTER R&D DIV 2704-1 SETTAYA-MACHI NAGAOKA-SHI NIIGATA 940-1195 JAPAN																				
Model/Type reference	JWS50-abcd, JWS50-5.7/BSO, JWS50-24/508 (series name: JWS50 series) a= 3, 5, 9, 12, 15, 24, 28, 48 b = "/", /RFG, /TSK or blank c = R or blank d =A, B, C or blank																				
Ratings	Input: AC 100-240V, 50/60Hz, 0.7A for model JWS50-3bcd, 0.9A for the other models Output: <table border="0"> <tr><td>model JWS50-3bcd</td><td>DC3.3V, 10A</td></tr> <tr><td>model JWS50-5bcd</td><td>DC5V, 10A</td></tr> <tr><td>model JWS50-9bcd</td><td>DC9V, 5.6A</td></tr> <tr><td>model JWS50-12bcd</td><td>DC12V, 4.3A</td></tr> <tr><td>model JWS50-15bcd</td><td>DC15V, 3.5A</td></tr> <tr><td>model JWS50-24bcd</td><td>DC24V, 2.2A</td></tr> <tr><td>model JWS50-28bcd</td><td>DC28V, 2.0A</td></tr> <tr><td>model JWS50-48bcd</td><td>DC48V, 1.1A</td></tr> <tr><td>model JWS50-5.7/BSO</td><td>DC5.7V, 8.7A</td></tr> <tr><td>model JWS50-24/508</td><td>DC24V, 2.2A</td></tr> </table>	model JWS50-3bcd	DC3.3V, 10A	model JWS50-5bcd	DC5V, 10A	model JWS50-9bcd	DC9V, 5.6A	model JWS50-12bcd	DC12V, 4.3A	model JWS50-15bcd	DC15V, 3.5A	model JWS50-24bcd	DC24V, 2.2A	model JWS50-28bcd	DC28V, 2.0A	model JWS50-48bcd	DC48V, 1.1A	model JWS50-5.7/BSO	DC5.7V, 8.7A	model JWS50-24/508	DC24V, 2.2A
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model JWS50-5.7/BSO	DC5.7V, 8.7A																				
model JWS50-24/508	DC24V, 2.2A																				

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 (30 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)	
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	N/A
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
Pollution degree (PD)	PD 2
IP protection class	IPX0
Altitude of operation (m)	≤ 2000m
Altitude of test laboratory (m)	< 1000m
Mass of equipment (kg)	0.35kg

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	1997-05, 2005-09-23
Date(s) of Performance of tests	1997-05, 1999-04, 2000-08, 2005-10-28, 2012-10 to 2012-11

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 IEC60950-1:

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

The product tested is built-in type switching power supply for use in general office equipment (host equipment is not specified).

Model Differences

All models are identical each other except for model name, rated input current, output rating, winding of transformer T1, and minor secondary components.

Model JWS50-5.7/BSO is identical to model JWS50-5 except for the model name, output rating, and

secondary components (R54, R204, R209, Z202).

Model JWS50-24/508 is identical to model JWS50-24 except the optional cover is not provided.

Variable	Range of variable	Content
a	3, 5, 9, 12, 15, 24, 28, 48	Output voltage (see page 2)
b	"/", /RFG, /TSK or blank	"/": separator RFG: provided with remote control circuit and the capacitance value of capacitors C2, C3 and C8 is reduced TSK: provided with cover (overall 149 by 83.4 by 35.4 mm)
c	R or blank	R: provided with remote control circuits, optical isolator PC3
d	A, B, C or blank	A: provided with cover (overall 142.3 by 83.4 by 35.4 mm) B: provided with input and output connectors instead of input and output terminal block C: provided with cover, and input and output connectors instead of input and output terminal block

*) b = c = d = blank: basic model

Additional Information

This report is a reissue of CBTR Ref. No.: 12027288 001 and 12027288 002, CB Test Certificate Ref. No. JPTUV-047953 and JPTUV-047953-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 (T_{ma}) permitted by the manufacturer's specification of: 50°C at 100% load without cover, 45°C at 100% load with cover, 60°C at 60% load without cover, 55°C at 60% load with cover
- 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: 382 Vrms, 870 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 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 (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)