





Test Report issued under the responsibility of:



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

Report Reference No	4787377261
Date of issue	2016-04-04
Total number of pages	14
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	 <p>or</p> 
Manufacturer	TDK-LAMBDA CORP NAGAOKA TECHNICAL CENTER R&D DIV 2704-1 SETTAYA-MACHI NAGAOKA-SHI NIIGATA 940-1195 JAPAN
Model/Type reference	HWS300-acdef HWS300P-bcde HWS300-24/OR Suffixes: a = 3, 5, 12, 15, 24, or 48 b = 24, 36 or 48 c = / or blank d = PV or blank e = CO, CO2, HD or blank f = HU or blank (HWS300-24 only)
Ratings	Input: AC 100-240 V, 50/60 Hz, 4.1 A for models HWS300-acdef, HWS300-24/OR 4.4 A for models HWS300P-bcde Output: HWS300-3cdef DC 3.3V (DC 2.64-3.96V), 60A (max. 198 W) HWS300-5cdef DC 5V (DC 4.0-6.0V), 60A (max. 300 W) HWS300-12cdef DC 12V (DC 9.6-14.4V), 27A (max. 324 W) HWS300-15cdef DC 15V (DC 12.0-18.0V), 22A (max. 330 W) HWS300-24cdef, HWS300-24/OR DC 24V (DC 19.2-28.8V), 14A (max. 336 W) also following peak output applied for HWS300-24/HU: peak current 16.5A for AC 200-240V input, max. 10sec., Max. duty 35%. HWS300-48cdef DC 48V (DC 38.4-52.8V), 7A (max. 336 W)

HWS300P-24cde

DC 24V (DC 19.2-28.8V), 12.5A (max.300 W)

also following peak output applied:

peak current 21A (max. 504W) for AC 100-170V input,

peak current 42A (max.1008W) for AC 170-240V input, max. 5 sec.,

Max. duty 35%

HWS300P-36cde

DC 36V (DC 28.8-39.6V), 8.4A (max. 302.4 W)

also following peak output applied:

peak current 14A (max. 504W) for AC 100-170V input,

peak current 28A (max.1008W) for AC 170-240V input, max. 5 sec.,

Max. duty 35%

HWS300P-48cde

DC 48V (DC 38.4-52.8V), 6.3A (max. 302.4W)

also following peak output applied:

peak current 10.5A (max. 504W) for AC 100-170V input,

peak current 21A (max.1008 W) for AC 170-240V input, max. 5

sec., Max. duty 35%

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 (0 pages)
Enclosures (2 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
Energy Hazard Measurements (2.1.1.5, 2.1.2, 1.2.8.10)	
Determination of Working Voltage; Working Voltage Measurement (2.10.2)	
Heating (4.5.1, 1.4.12, 1.4.13)	
Transformer Abnormal Operation (5.3.3, 5.3.7b, Annex C.1)	
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:

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.

See original report for details.

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)	B/I, Not considered.
Pollution degree (PD)	PD 2
IP protection class	Not rated, built-in application
Altitude of operation (m)	Up to 2000 m
Altitude of test laboratory (m)	< 1000 m
Mass of equipment (kg)	1.0kg (approx.)

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	2016-03-24
Date(s) of Performance of tests	2016-03-30 to 2016-03-31

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