Test Report issued under the responsibility of:

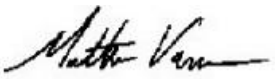
UL International Demko A/S

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

Report Reference No ..... :	E252373-A12-CB-2
Date of issue ..... :	2010-10-27
Total number of pages ..... :	71
CB Testing Laboratory ..... :	UL International Demko A/S
Address ..... :	Lyskaer 8, 2730, Herlev, Denmark
Applicant's name ..... :	TDK-LAMBDA SINGAPORE PTE LTD
Address ..... :	#06-01/08 1008 TOA PAYOH NORTH SINGAPORE 318996 SINGAPORE
Test specification:	
Standard ..... :	IEC 60950-1:2005 (Second Edition)
Test procedure ..... :	CB Scheme
Non-standard test method ..... :	N/A
Test Report Form No. ..... :	IEC60950_1A
Test Report Form originator ..... :	SGS Fimko Ltd
Master TRF ..... :	2009-09

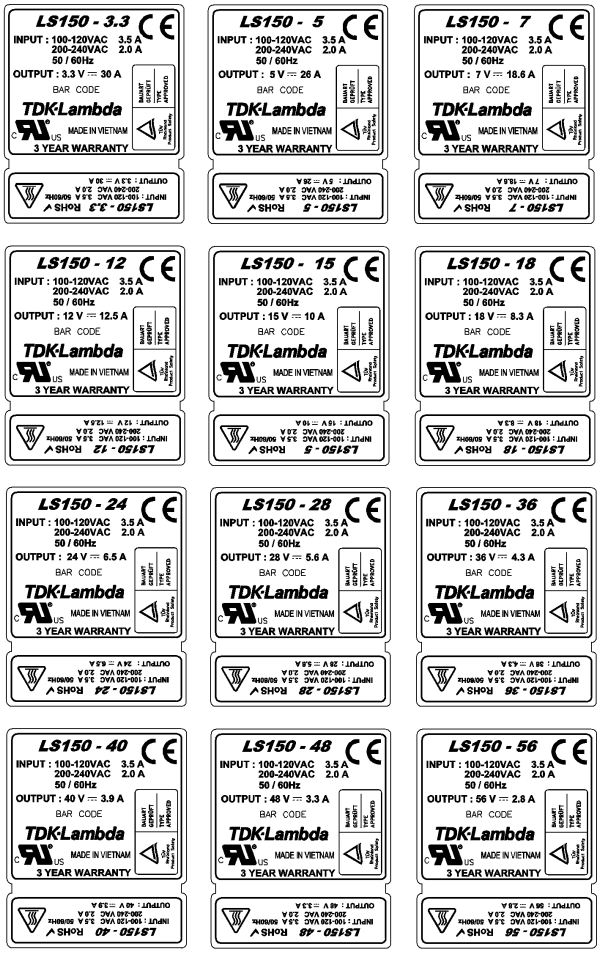
This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

Test item description ..... :	Switching Power Supply for building-in
Trade Mark ..... :	TDK·Lambda
Manufacturer ..... :	TDK-LAMBDA SINGAPORE PTE LTD #06-01/08 1008 TOA PAYOH NORTH SINGAPORE 318996 SINGAPORE
Model/Type reference ..... :	LS150-X /YYYYYY, where X can be 3.3, 5, 7, 12, 15, 18, 24, 28, 36, 40, 48, or 56. And /YYYYYY can be /B, /BCO, /BCO2, /BCOL, /BCO2L, /BL, /BM, /BMCO, /BMCO2, /BMCOL, /BMCO2L, /BML, /CO, /COL, /CO2, /CO2L, /L or blank.
Rating ..... :	Input: 100-120 V ac, 3.5 A, 50/60 Hz; Input: 200-240 V ac, 2.0 A, 50/60 Hz Output: LS150-3.3, 3.3 V dc, 30 A; LS150-5, 5 V dc, 26 A; LS150-7, 7 V dc, 18.6 A; LS150-12, 12 V dc, 12.5 A; LS150-15, 15 V dc, 10 A; LS150-18, 18 V dc, 8.3 A; LS150-24, 24 V dc, 6.5 A; LS150-28, 28 V dc, 5.6 A; LS150-36, 36 V dc, 4.3 A; LS150-40, 40 V dc, 3.9 A; LS150-48, 48 V dc, 3.3 A; LS150-56, 56 V dc, 2.8 A.

Testing procedure and testing location:			
[x]	**CB Testing Laboratory**		
	Testing location / address..... :	UL International Demko A/S Lyskaer 8, 2730, Herlev, Denmark	
[ ]	**Associated CB Test Laboratory**		
	Testing location / address..... :		
	Tested by (name + signature) ..... :	Matthew Vann	
	Approved by (+ signature) ..... :	William E. Platts	
[ ]	**Testing Procedure: TMP**		
	Tested by (name + signature) ..... :		
	Approved by (+ signature) ..... :		
	Testing location / address..... :		
[ ]	**Testing Procedure: WMT**		
	Tested by (name + signature) ..... :		
	Witnessed by (+ signature)..... :		
	Approved by (+ signature) ..... :		
	Testing location / address..... :		
[ ]	**Testing Procedure: SMT**		
	Tested by (name + signature) ..... :		
	Approved by (+ signature) ..... :		
	Supervised by (+ signature) ..... :		
	Testing location / address..... :		
[ ]	**Testing Procedure: RMT**		
	Tested by (name + signature) ..... :		
	Approved by (+ signature) ..... :		
	Supervised by (+ signature) ..... :		
	Testing location / address..... :		

Summary of Testing:
All Applicable tests according to the referenced standard(s) have been carried out
Summary of Compliance with National Differences:
AT, BE, CA, CH, CN, CZ, DE, DK, EU, FI, FR, GB, GR, HU, IL, IT, JP, KR, NL, NO, PL, SE, SG, SI, SK, US

Copy of Marking Plate



Test item particulars :	
Equipment mobility .....:	for building-in
Connection to the mains .....:	for building-in
Operating condition .....:	continuous
Access location .....:	for building-in
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 .....:	Class I (earthed)
Considered current rating (A) .....:	20A (16A North America)
Pollution degree (PD) .....:	PD 2
IP protection class .....:	IP X0
Altitude of operation (m) .....:	below 2000m
Altitude of test laboratory (m) .....:	below 2000m
Mass of equipment (kg) .....:	< 18 (0.70kg)
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 .....:	2008-03-02
Date(s) of Performance of tests .....:	2008-07-04

General remarks:

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 testing laboratory.

"(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.

GENERAL PRODUCT INFORMATION:

Report Summary

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

Product Description

Electronic components mounted on PWB.

Model Differences

All Models are similar to each other, except the following:-
a) Output rating;
b) Layout;
c) Transformer (T1) secondary winding;
d) Model designation (refer to Additional information more designation information);

Additional Information

LS150-X /YYYYYY, where X can be 3.3, 5, 7, 12, 15, 18, 24, 28, 36, 40, 48, or 56. And /YYYYYY can be /B, /BCO, /BCO2, /BCOL, /BCO2L, /BL, /BM, /BMCO, /BMCO2, /BMCOL, /BMCO2L, /BML, /CO, /COL, /CO2, /CO2L, /L or blank.

1) B => Input Connector (CN1) and Ouput connector (CN2) are from JST;
2) BM => Input Connector (CN1) and Ouput connector (CN2) are from Molex;
3) CO => PCB with one (1) side coating;
4) CO2 => PCB with two (2) sides coating;
5) L => Open frame (Cover removed);
6) blank => Input connector and output connector using terminal block TB1;

Terminal block TB1 can only be used with PWB type A; Input Connector CN1 can only be used with PWB type B.

The label is a draft of an artwork for marking plate pending approval by National Certification Bodies and it shall not be affixed to products prior to such an approval.

This CB Report is a re-issue and upgrade to 60950-1 2nd Edition of CB Test Report Reference No. E252373-A12-CB-1, CB Test Certificate Ref.No. US/DK-13791/UL. No testing was conducted under this investigation due to reissue. All required testing carried out under original investigation. Based on the previously conducted testing and the review of product technical documentation including photos, schematics, wiring diagrams and similar, it has been determined that the product continues to comply with the standard.

Technical Considerations

- The product was investigated to the following additional standards: EN 60950-1:2006+ A11:2009 (which includes all European national differences, including those specified in this test report).

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 40°C for model LS150-3.3, LS150-5, LS150-7; 50°C for model LS150-12, LS150-15, LS150-18, LS150-24, LS150-28, LS150-36, LS150-40, LS150-48, LS150-56. --

- The product is intended for use on the following power systems: TN --

- The following were investigated as part of the protective earthing/bonding: Printed wiring board trace (PWB type A) Point A to Point B(refer to Enclosure - Schematics + PWB for layouts) --

Engineering Conditions of Acceptability

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

- Power Supply Unit is only evaluated at flat (bottom) horizontal position for all test.
- The power supply terminals and/or connectors are: Suitable for factory wiring only
- The investigated Pollution Degree is: 2
- The following end-product enclosures are required: Fire , Mechanical , Electrical
- The following secondary output circuits are SELV: LS150-3.3: 3.3 V dc; LS150-5: 5 V dc; LS150-7: 7 V dc; LS150-12: 12 V dc; LS150-15: 15 V dc; LS150-18: 18 V dc; LS150-24: 24 V dc; LS150-28: 28 V dc; LS150-36: 36 V dc; LS150-40: 40 V dc; LS150-48: 48 V dc; LS150-56: 56 V dc. ,
- The following output terminals were referenced to earth during performance testing: T1 pin 9, 10, 11, 12 ,
- The following secondary output circuits are at non-hazardous energy levels: LS150-3.3: 3.3 V dc; LS150-5: 5 V dc; LS150-7: 7 V dc; LS150-12: 12 V dc; LS150-15: 15 V dc; LS150-18: 18 V dc; LS150-24: 24 V dc; LS150-28: 28 V dc; LS150-36: 36 V dc; LS150-40: 40 V dc; LS150-48: 48 V dc; LS150-56: 56 V dc. ,
- 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 F)
- The following Production-Line tests are conducted for this product: Electric Strength , Earthing Continuity
- The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-SELV: 301Vrms, 584Vpk , Primary-Earthed Dead Metal: 239 Vrms, 351 Vpk
- The maximum investigated branch circuit rating is: 20 A
- Proper bonding to the end-product main protective earthing termination is: Required
- An investigation of the protective bonding terminals has: Been conducted
- The following input terminals/connectors must be connected to the end-product supply neutral: For model LS150-X, where input is terminal block TB1 (pin 2); For model LS150-X, where input is connector CN1 (pin 2) ,

Factory Location(s):

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
LOT 107
WUXI SINGAPORE INDUSTRIAL PARK
XING CHUANG ERLU
WUXI,
JIANGSU 214028 CHINA

MCTRONIC INDUSTRIES SDN BHD
LOT 1907 JALAN IBRAHIM
SUNGAI PINGGAN
82200 BENUT, PONTIAN
JOHOR MALAYSIA

Attachments to Test Report

National Differences (26 pages)

Enclosures (150 pages)