Test Report issued under the responsibility of:

TÜVRheinland®

TEST REPORT

IEC 60950-1

Information technology equipment – Safety – Part 1: General requirements

Report Number.....:	30982609.011
Date of issue.....:	13 July 2015
Total number of pages.....	82 +Attachments
Applicant's name.....:	TDK-Lambda Americas, Inc.
Address.....:	401 Mile of Cars Way, Suite 325, National City, CA, 91950 USA
Test specification:	
Standard.....:	IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013 and EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013
Test procedure.....:	CB Scheme
Non-standard test method.....:	N/A
Test Report Form No.....:	IEC60950_1F
Test Report Form(s) Originator....:	SGS Fimko Ltd
Master TRF.....:	Dated 2014-02

If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.

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.

General disclaimer:

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.

Test item description ..... :	Switch mode power supply
Trade Mark..... :	TDK·Lambda
Manufacturer ..... :	Same as applicant
Model/Type reference ..... :	CSS150-12, CSS150-15, CSS150-24, CSS150-28, CSS150-36, CSS150-48
Ratings ..... :	CSS150-12: Input:100-240V, 2.5A, 50-60Hz / 120-180Vdc, 2.5A Output: 12Vdc, 8.3A, 100W max convection 12Vdc, 12.5A, 150W max w/ 15CFM forced air CSS150-15: Input:100-240V, 2.5A, 50-60Hz / 120-180Vdc, 2.5A Output: 15Vdc, 6.7A, 100W max convection 15Vdc, 10.0A, 150W max w/ 15CFM forced air CSS150-24: Input:100-240V, 2.5A, 50-60Hz / 120-180Vdc, 2.5A Output: 24Vdc, 4.2A, 100W max convection 24Vdc, 6.3A, 150W max w/ 15CFM forced air CSS150-28: Input: 100-240 V, 2.5 A, 50-60 Hz/120-180 V dc, 2.5 A Output: 28 V dc, 3.6 A, 100 W max convection 28 V dc, 5.4 A, 150 W max w/ 15 CFM forced air CSS150-36: Input:100-240V, 2.5A, 50-60Hz / 120-180Vdc, 2.5A Output: 36Vdc, 2.8A, 100W max convection 36Vdc, 4.2A, 150W max w/ 15CFM forced air CSS150-48: Input:100-240V, 2.5A, 50-60Hz / 120-180Vdc, 2.5A Output: 48Vdc, 2.1A, 100W max convection 48Vdc, 3.1A, 150W max w/ 15CFM forced air

Testing procedure and testing location:			
☒	**CB Testing Laboratory:**	TÜV Rheinland of North America, Inc.	
Testing location/ address.....:		1279 Quarry Lane, Suite A, Pleasanton, CA 94566	
☐	**Associated CB Testing Laboratory:**	N/A	
Testing location/ address.....:			
Tested by (name + signature).....:		Duy Nguyen	Digitally signed by Duy Nguyen DN: cn=Duy Nguyen, o=TÜV Rheinland, ou=TÜV Rheinland of North America, Inc., email=dnguyen@us.tuv.com, c=US Date: 2015.07.13 14:09:12 -07'00'
Approved by (name + signature).....:		Hai Nguyen	
☐	**Testing procedure: TMP/CTF Stage 1:**	N/A	
Testing location/ address.....:			
Tested by (name + signature).....:			
Approved by (name + signature).....:			
☐	**Testing procedure: WMT/CTF Stage 2:**	N/A	
Testing location/ address.....:			
Tested by (name + signature).....:			
Witnessed by (name + signature).....:			
Approved by (name + signature).....:			
☐	**Testing procedure: SMT/CTF Stage 3 or 4:**	N/A	
Testing location/ address.....:			
Tested by (name + signature).....:			
Witnessed by (name + signature).....:			
Approved by (name + signature).....:			
Supervised by (name + signature).....:			

List of Attachments (including a total number of pages in each attachment):

1. National Differences (31 pages)
2. Photos (2 pages)
3. Schematics (1 page)
4. PCB layout (4 pages)
5. Transformer Drawings (30 pages)
6. Capacitor Discharge (1 page)

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
Clause 1.6.2 Power Input Measurements Clause 2.1.1.7 Capacitance Discharge Test Clause 2.2 SELV circuits – voltage measurements (normal and fault conditions) Clause 2.4 Measurements on limited current circuits Clause 2.9.2 Humidity conditioning treatment Clause 2.10 Measurement of creepage- and clearance distances, solid insulation Clause 4.5 Temperature rise measurements Clause 5.1 Touch current and protective conductor current Clause 5.2 Electric strength measurements Clause 5.3 Abnormal operating and fault conditions September 14-16, 2009 [30982609.001] Clause 5.2 Electric strength Test Clause 5.3 Abnormals March 9-10, 2012 [30982609.005]	TDK-Lambda Americas Inc. 3055 Del Sol Boulevard San Diego, CA 92154 USA
Clause 1.6.2 Power Input Measurements Clause 2.1.1.5 c) 1) Maximum Voltage, Current and VA Measurements Clause 4.5 Temperature Rise Measurements Clause 5.2 Electric Strength Measurements Clause 5.3 Abnormal Operating and Fault Conditions May 02-03, 2013 [30982609.007] N/A [30982609.009] N/A [30982609.011]	TDK-Lambda Americas Inc. 3055 Del Sol Boulevard San Diego, CA 92154 USA

Summary of compliance with National Differences:

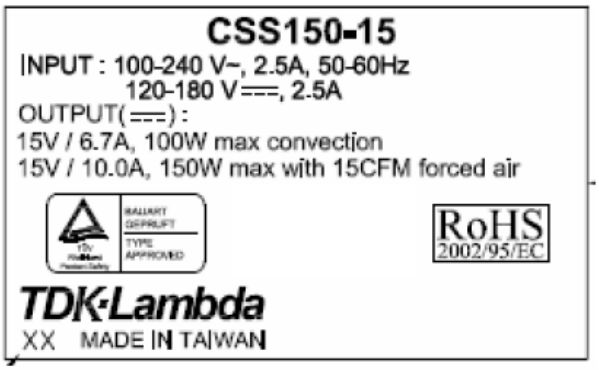
List of countries addressed

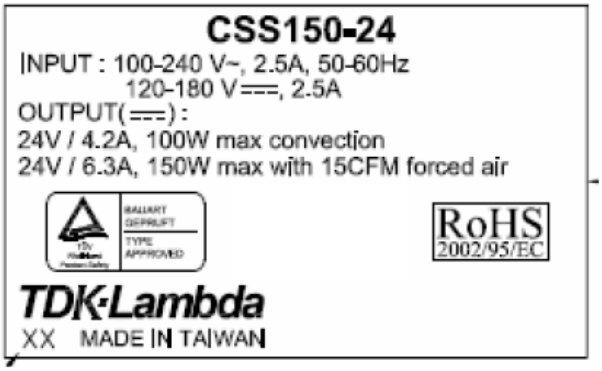
EU Group Differences, EU Special National Conditions, Denmark, Italy, Sweden, United States, Canada

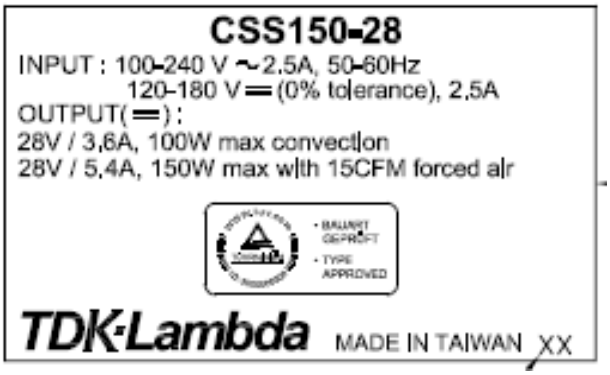
☒ The product fulfils the requirements of IEC 60950-1:2005 + Am 1:2009 + Am 2:2013; EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013

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.







Test item particulars.....:	
Equipment mobility.....:	[] movable [] hand-held [] transportable [] stationary [X] for building-in [] direct plug-in
Connection to the mains.....:	[] pluggable equipment [] type A [] type B [] permanent connection [] detachable power supply cord [] non-detachable power supply cord [] not directly connected to the mains [X]Unit is for building-in. end use to consider
Operating condition.....:	[X] continuous [] rated operating / resting time:
Access location .....:	[] operator accessible [] restricted access location [X]Unit is for building-in. end use to consider
Over voltage category (OVC) .....:	[] OVC I [X] OVC II [] OVC III [] OVC IV [] other:
Mains supply tolerance (%) or absolute mains supply values .....:	AC: +/–10%, DC: 0%
Tested for IT power systems .....:	[] Yes [X] No
IT testing, phase-phase voltage (V) .....:	N/A
Class of equipment .....:	[X] Class I [] Class II [] Class III [] Not classified
Considered current rating of protective device as part of the building installation (A) .....:	16 (Europe), 20 (US/CAN)
Pollution degree (PD) .....:	[] PD 1 [X] PD 2 [] PD 3
IP protection class .....:	IP0
Altitude during operation (m) .....:	2000
Altitude of test laboratory (m) .....:	Sea level
Mass of equipment (kg) .....:	0.5

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 of receipt of test item.....:	September 14, 2009 [30982609.001] March 9, 2012 [30982609.005] May 02, 2013 [30982609.007] N/A [30982609.009] N/A [30982609.011]
Date (s) of performance of tests.....:	September 14-16, 2009 [30982609.001] March 9-10, 2012 [30982609.005] May 02-03, 2013 [30982609.007] N/A [30982609.009] N/A [30982609.011]

General remarks:

The test results presented in this report relate only to the object tested.

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"(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 ☐ comma / ☒ point is used as the decimal separator.

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location 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 ☒ Not applicable

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies) .....: Power Win Technology Corp.
B1F-2, No. 75, 1 Hsin-Tai 5th Rd.
Shi-Chi, New Taipei City
Taiwan, R. O. C.

General product information:

he equipment, model series as on the cover page, is a Class I switching type power supply intended for permanent installation into medical electrical apparatus.
The equipment shall be connected to the protective earth terminal of the final system.
All models have similar design and differ in construction (wiring turns and gauge) of separation transformer T1.
The dimensions of the double-layer PCB are 127mm by 76mm.

Report History:

30982609.011: New CB report covers standard upgrade to IEC 60950-1:2005 + Am 1:2009 + Am 2:2013. No testing is performed.

30982609.009: Report amendment 2 to report 30982609.005 to change the applicant address from"3055 Del Sol Boulevard, San Diego, CA 92154 USA" to "401 Mile of Cars Way, Suite 325, National City, CA, 91950 USA"

30982609.007: First amendment to report 30982609.005.
This report covers the addition of model CSS150-28 and addition of components to the Critical Component List.

30982609.005: New report.
This report covers the upgrade of standard to IEC 60950-1:2005 + A1 and the addition of components to the Critical Component List.

30982609.004: First amendment to report 30982609.001.
This report covers the correction of the factory address, addition of components to the Critical Component List and minor editorial corrections of the report. This test report is limited to the clauses affected. Changes to the report are in bold.

30982609.001: original report

Note: Gaps in the report numbering were reserved for TUV internal use, not related to the CB report.

Conditions of Acceptability:

1. The units are considered to operate under the conditions of:
   – Pollution Degree 2 environment
   – Equipment mobility: Component for building-in.
   – Class of equipment: Class I
2. Rated ambient is 50°C
3. Fire enclosure requirements must be addressed in the end-use product.
4. Re-evaluation of the heating, dielectric, and bonding tests need to conducted in the end-use product.
5. Short-circuit back-up protection in accordance with clause 2.7.3 shall be evaluated in end-use product.
6. Suitability of enclosure shall be provided in end product.
7. Power supply outputs are not investigated for limited power circuits.

Abbreviations used in the report:

- normal conditions	**N.C.**	- single fault conditions	**S.F.C**
- functional insulation	**OP**	- basic insulation	**BI**
- double insulation	**DI**	- supplementary insulation	**SI**
- between parts of opposite polarity	**BOP**	- reinforced insulation	**RI**

Indicate used abbreviations (if any)