

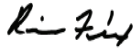



Test Report issued under the responsibility of:



IEC 60601-1	
Medical electrical equipment	
Part 1: General requirements for basic safety and essential performance	
Report Reference No.	30992615.004
Date of issue	March 13, 2011
Total number of pages	31
CB Testing Laboratory	TUV Rheinland of North America, Inc.
Address	12 Commerce Road Newtown, CT 06470 USA
Applicant's name	TDK-Lambda Americas Inc.
Address	3055 Del Sol Boulevard San Diego, CA 92154 USA
Test specification:	
Standard	IEC 60601-1: 2005
Test procedure	CB
Non-standard test method	N/A
Test Report Form No.	IEC60601_1D
Test Report Form Originator	Underwriters Laboratories Inc.
Master TRF	Dated 2006-07
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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	Switch mode power supply
Trade Mark	TDK-Lambda
Manufacturer	TDK-Lambda Americas Inc. 3055 Del Sol Boulevard San Diego, CA 92154 USA
Model/Type reference	CSS150-12, CSS150-15, CSS150-24, 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
	CSS150-36: 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:	
<input checked="" type="checkbox"/>	<p>CB Testing Laboratory: Testing location/ address : TUV Rheinland of North America, Inc. 1279 Quarry Lane, Ste. A, Pleasanton, CA 94566</p> <p><input type="checkbox"/> Associated CB Test Laboratory: Testing location/ address :</p> <p>Tested by (name + signature)..... : Approved by (+ signature)..... :</p>
<input type="checkbox"/>	<p>Testing procedure: TMP Tested by (name + signature)..... : Ricardo Felix  Approved by (+ signature)..... : Zhang Zhang  Testing location/ address : TDK-Lambda Americas Inc. 3055 Del Sol Boulevard San Diego, CA 92154 USA</p>
<input type="checkbox"/>	<p>Testing procedure: WMT Tested by (name + signature)..... : Witnessed by (+ signature) : Approved by (+ signature)..... : Testing location/ address :</p>
<input type="checkbox"/>	<p>Testing procedure: SMT Tested by (name + signature)..... : Approved by (+ signature)..... : Supervised by (+ signature) : Testing location/ address :</p>
<input type="checkbox"/>	<p>Testing procedure: RMT Tested by (name + signature)..... : Approved by (+ signature)..... : Supervised by (+ signature) : Testing location/ address :</p>

Summary of testing

Tests performed (name of test and test clause):

DIELECTRIC VOLTAGE WITHSTAND: (IEC 60601-1, Sub-
Clause 8.8.3 A)
ABNORMAL OPERATION AND FAULT CONDITIONS:
(IEC 60601-1, Clause 13.2)

Testing location:

TDK-Lambda Americas Inc.
3055 Del Sol Boulevard
San Diego, CA 92154 USA




Summary of compliance with National Differences: CA, CH, SL, US

Copy of marking plate:

CSS150-12

INPUT : 100-240 V~, 2.5A, 50-60Hz
120-180 V===, 2.5A

OUTPUT(===) :
12V / 8.3A, 100W max convection
12V / 12.5A, 150W max with 15CFM forced air








TDK-Lambda
XX MADE IN TAIWAN

CSS150-15

INPUT : 100-240 V~, 2.5A, 50-60Hz
120-180 V===, 2.5A

OUTPUT(===) :
15V / 6.7A, 100W max convection
15V / 10.0A, 150W max with 15CFM forced air








TDK-Lambda
XX MADE IN TAIWAN

CSS150-24

INPUT : 100-240 V~, 2.5A, 50-60Hz
120-180 V===, 2.5A

OUTPUT(===) :
24V / 4.2A, 100W max convection
24V / 6.3A, 150W max with 15CFM forced air








TDK-Lambda
XX MADE IN TAIWAN

CSS150-36

INPUT : 100-240 V~, 2.5A, 50-60Hz
120-180 V===, 2.5A

OUTPUT(===) :
36V / 2.8A, 100W max convection
36V / 4.2A, 150W max with 15CFM forced air








TDK-Lambda
XX MADE IN TAIWAN

CSS150-48

INPUT : 100-240 V~, 2.5A, 50-60Hz
120-180 V===, 2.5A

OUTPUT(===) :
48V / 2.1A, 100W max convection
48V / 3.1A, 150W max with 15CFM forced air

TDK-Lambda
XX MADE IN TAIWAN

GENERAL INFORMATION	
Test item particulars (see also Clause 5):	
Classification of installation and use	: For building-in
Device type	: Power supply
Clinical application	: Internal component
Mode of operation	: continuous
Surface temperature of APPLIED PART	: No applied parts
Supply connection	: For building-in
Accessories and detachable parts included	: None
Other options include	: None
Testing	
Date of receipt of test item(s).....	: September 14, 2009 [30992615.001] March 9, 2012 [30992615.004]
Dates tests performed.....	: September 14-16, 2009 [30992615.001] March 9-10, 2012 [30992615.004]
Possible test case verdicts:	
- test case does not apply to the test object	: N / A
- test object does meet the requirement	: Pass (P)
- test object does not meet the requirement	: Fail (F)
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
General remarks:	
<p>"(see Attachment #)" 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. The tests 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 testing laboratory. List of test equipment must be kept on file and available for review. Additional test data and/or information provided in the attachments to this report.</p>	

General product information:

The 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. Compliance with the requirements of IEC/EN 60601-1-2 (EMC) shall be evaluated for the final system assembly.

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:

30992615.004: Second amendment to report 30992615.001.

This report covers the addition of components to the Critical Component List. This test report is limited to the clauses affected. Changes to the report are in bold.

30992615.003: First amendment to report 30992615.001.

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.

30992615.001: 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 be 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.
8. Power supply insulation is investigated for isolation of HV to ground-stud chassis connections and SIP/SOP/SELV outputs only.
9. The power supply has not been evaluated for patient isolation.
10. The power supply must be bonded to protective earth in the end product at the point referenced by the functional ground symbol.