



Test Report issued under the responsibility of:



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

Report Number..... : 15077086 001

Date of issue..... : 2015-03-16

Total number of pages ..... : 48

Applicant's name ..... : TDK-Lambda Corp. Nagaoka Technical Center

Address..... : 2704-1 Settaya-machi, Nagaoka-shi, Niigata, 940-1195, JAPAN

**Test specification:**

Standard..... : IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013

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

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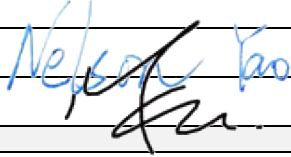

If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.

**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.

<b>Test item description</b> ..... : Switching Power Supply	
<b>Trade Mark</b> ..... : <b>TDK-Lambda</b>	
<b>Manufacturer</b> ..... : Same as applicant	
<b>Model/Type reference</b> ..... : CUT75-zzzxxxxxxxx (zzz = 522 or 5FF; xxxxxxx = T, B, L, A, F, Q, other alphanumeric character, symbol or blank) Refer to page 9 for definition of variables	
<b>Ratings</b> ..... : See the model list on page 8 for details	
<b>Testing procedure and testing location:</b>	
<input checked="" type="checkbox"/>	<b>CB Testing Laboratory:</b> TÜV Rheinland (Shanghai) Co., Ltd.
<b>Testing location/ address</b> ..... : B1-13/F, No.177, Lane 777, West Guangzhong Road, Zhabei District, Shanghai 200072, P. R. China	
<input type="checkbox"/>	<b>Associated CB Testing Laboratory:</b>
<b>Testing location/ address</b> ..... :	
<b>Tested by (name + signature)</b> ..... : Nelson Yao 	
<b>Approved by (name + signature)</b> ..... : Mark Chen 	
<input type="checkbox"/>	<b>Testing procedure:</b> TMP/CTF Stage 1:
<b>Testing location/ address</b> ..... :	
<b>Tested by (name + signature)</b> ..... :	
<b>Approved by (name + signature)</b> ..... :	
<input type="checkbox"/>	<b>Testing procedure:</b> WMT/CTF Stage 2:
<b>Testing location/ address</b> ..... :	
<b>Tested by (name + signature)</b> ..... :	
<b>Witnessed by (name + signature)</b> ..... :	
<b>Approved by (name + signature)</b> ..... :	
<input type="checkbox"/>	<b>Testing procedure:</b> SMT/CTF Stage 3 or 4:
<b>Testing location/ address</b> ..... :	
<b>Tested by (name + signature)</b> ..... :	
<b>Witnessed by (name + signature)</b> ..... :	
<b>Approved by (name + signature)</b> ..... :	
<b>Supervised by (name + signature)</b> ..... :	

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

- ATTACHMENT 1 - Measurement Section (55 pages)
- ATTACHMENT 2 - Technical documentation (3 pages)
- ATTACHMENT 3 - Photo documentation (11 pages)
- ATTACHMENT 4 - National Differences (28 pages)

**History of CB Test Report:**

- 1) Test report No. 15063053 001: The test report was issued for TDK-Lambda Corp. Nagaoka Technical Center and addressed model CUT75-**zzz/abcde** (**zzz** = 522 or 5FF; **abcde** = any alphanumeric character with "/" or blank) tested to IEC 60950-1:2005 (Second Edition), Am 1:2009.
- 2) Test report No. 15077086 001: This test report issued for TDK-Lambda Corp. Nagaoka Technical Center serves to combine and upgrade the above mentioned test reports. In this test report use new models CUT75-**zzzxxxxxxx** (**zzz** = 522 or 5FF; **xxxxxxx** = T, B, L, A, F, Q, other alphanumeric character, symbol or blank) which is identical to CUT75-**zzz/abcde** (**zzz** = 522 or 5FF; **abcde** = any alphanumeric character with "/" or blank), add additional rating 200-240V with alternate electrolytic Capacitor (C6) and updates Group and National Differences to IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013. However this is separate CB test report and it does not have to be used in conjunction with any of the previously issued, above mentioned CB test reports.

**Summary of testing:**

All applicable tests as described in Test Case and Measurement Sections were performed.

The maximum specified operation ambient temperature is 70°C. Specified ambient temperature for operation is according to manufacturer's specification.(see next page chart of convection cooling)

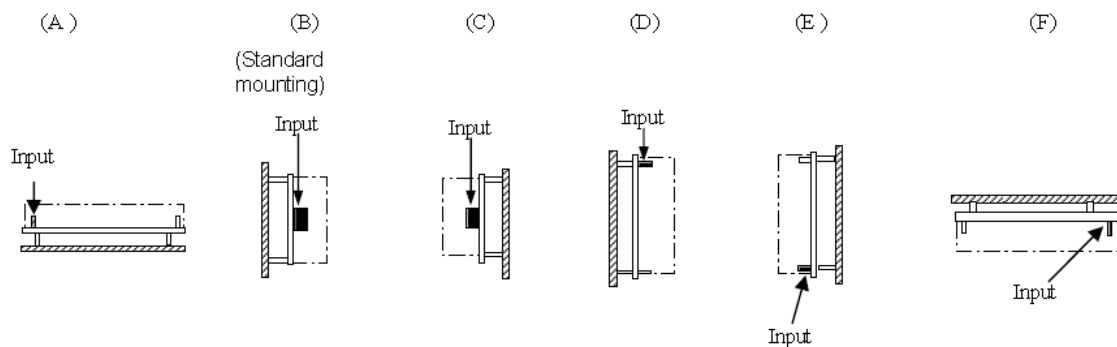
The load conditions used during testing: Maximum normal load according to sub-clause 1.2.2.1 for this equipment is the operation with the maximum specified DC-load with maximum power condition according to the manufacturer specified.

The equipment may operate up to 3000m above sea level as declared by manufacturer. Clearances have been evaluated according to IEC 60664-1 table A.2 with a multiplication factor of 1.14 throughout this report.

Tested model: If no specified, all tests are based on models CUT75-522/A and CUT75-5FF/A.

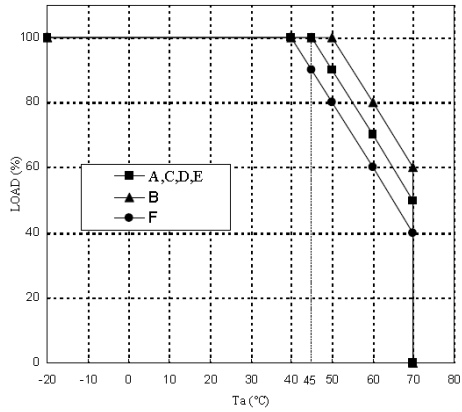
**Mouting position:**

Recommended standard mounting direction is (B). (A) (C) (D) (E) (F) are also possible.



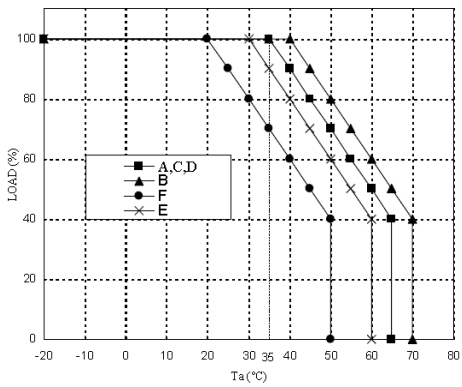
**Derating Curve:**

■ CONVECTION COOLING (WITHOUT CHASSIS COVER)



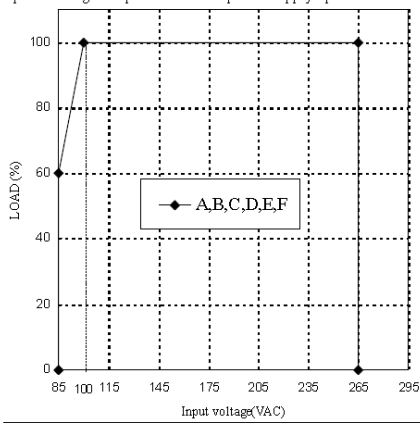
Ta (°C)	LOADING CONDITION(%)		
	Mounting A,C,D,E	Mounting B	Mounting F
-20~40	100	100	100
45	100	100	90
50	90	100	80
60	70	80	60
70	50	60	40

■ CONVECTION COOLING (WITH CHASSIS COVER)



Ta (°C)	LOADING CONDITION(%)			
	Mounting A,C,D	Mounting B	Mounting E	Mounting F
-20~20	100	100	100	100
30	100	100	100	80
35	100	100	90	70
40	90	100	80	60
50	70	80	60	40
60	50	60	40	-
65	40	50	-	-
70	-	40	-	-

Output derating is required when the power supply operate below 100VAC input. Refer to table below for details.



Input voltage	LOADING CONDITION(%)
	All Mounting (A,B,C,D,E,F)
85VAC	60
100VAC-265VAC	100

<b>Tests performed (name of test and test clause):</b>		<b>Testing location:</b>
<b>Clause</b>	<b>Test description</b>	The laboratory described on page 2.
1.6.2	Input Current	
1.7.11	Durability	
2.1.1.7	Discharge of Capacitors in equipment	
2.2	SELV	
2.4	LCC	
2.6.3.4	Resistance of Earthing Circuit	
2.9.2	Humidity Conditioning	
2.10.2	Working Voltage measurement	
2.10.3 & 2.10.4	Clearances, creepage distances	
4.5.2	Temperature Tests	
4.5.5	Resistance to abnormal heat	
5.1	Touch Current and PE current	
5.2	Electric Strength Test	
5.3	Abnormal Operating and Fault Condition Test	
Annex C	Transformer	
<b>Summary of compliance with National Differences</b>		
<b>List of countries addressed:</b>		
EU Group Differences, EU Special National Conditions, CA, US.		
Explanation of used codes:		
CA=Canada; US = United States of America.		
The product fulfils the requirements of EN 60950-1:2006+A11+A1+A12+A2, UL 60950-1:2007 R10.14 and CAN/CSA C22.2 No. 60950-1-07+A1:2011+A2:2014.		

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.

<Representative>

For rating 100-240V



<p><b>CUT75-522</b>  <b>INPUT: 100-240VAC ~ 2.0A</b>  <b>50-60Hz</b>  <b>OUTPUT: CH1: +5 V = 8.0 A</b>  <b>CH2: +12 V = 2.5 A</b>  <b>CH3: -12 V = 0.5 A</b></p>	<p>BAR CODE</p> <p><b>TDK-Lambda</b>                  MADE IN CHINA</p>
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<p><b>CUT75-5FF</b>  <b>INPUT: 100-240VAC ~ 2.0A</b>  <b>50-60Hz</b>  <b>OUTPUT: CH1: +5 V = 8.0 A</b>  <b>CH2: +15 V = 2.0 A</b>  <b>CH3: -15 V = 0.4 A</b></p>	<p>BAR CODE</p> <p><b>TDK-Lambda</b>                  MADE IN CHINA</p>
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<p><b>CUT75-522/A</b>  <b>INPUT: 100-240VAC ~ 2.0A</b>  <b>50-60Hz</b>  <b>OUTPUT: CH1: +5 V = 8.0 A</b>  <b>CH2: +12 V = 2.5 A</b>  <b>CH3: -12 V = 0.5 A</b></p>	<p>BAR CODE</p> <p><b>TDK-Lambda</b>                  MADE IN CHINA</p>
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<p><b>CUT75-5FF/A</b>  <b>INPUT: 100-240VAC ~ 2.0A</b>  <b>50-60Hz</b>  <b>OUTPUT: CH1: +5 V = 8.0 A</b>  <b>CH2: +15 V = 2.0 A</b>  <b>CH3: -15 V = 0.4 A</b></p>	<p>BAR CODE</p> <p><b>TDK-Lambda</b>                  MADE IN CHINA</p>
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For rating 200-240V

<p><b>CUT75-522/B1</b>  <b>INPUT: 200-240VAC ~ 1.0A</b>  <b>50-60Hz</b>  <b>OUTPUT: CH1: +5 V = 8.0 A</b>  <b>CH2: +12 V = 2.5 A</b>  <b>CH3: -12 V = 0.5 A</b></p>	<p>BAR CODE</p> <p><b>TDK-Lambda</b>                  MADE IN CHINA</p>	 
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<b>Test item particulars</b> .....	: See below
<b>Equipment mobility</b> .....	: <input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> stationary <input checked="" type="checkbox"/> for building-in <input type="checkbox"/> direct plug-in
<b>Connection to the mains</b> .....	: <input checked="" type="checkbox"/> pluggable equipment <input checked="" type="checkbox"/> type A <input checked="" type="checkbox"/> type B <input checked="" type="checkbox"/> permanent connection <input type="checkbox"/> detachable power supply cord <input type="checkbox"/> non-detachable power supply cord <input type="checkbox"/> not directly connected to the mains
<b>Operating condition</b> .....	: <input checked="" type="checkbox"/> continuous <input type="checkbox"/> rated operating / resting time:
<b>Access location</b> .....	: <input type="checkbox"/> operator accessible <input checked="" type="checkbox"/> restricted access location
<b>Over voltage category (OVC)</b> .....	: <input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other:
<b>Mains supply tolerance (%) or absolute mains supply values</b> .....	: ±10%
<b>Tested for IT power systems</b> .....	: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>IT testing, phase-phase voltage (V)</b> .....	: For Norway, 230V
<b>Class of equipment</b> .....	: <input checked="" type="checkbox"/> Class I <input type="checkbox"/> Class II <input type="checkbox"/> Class III <input type="checkbox"/> Not classified
<b>Considered current rating of protective device as part of the building installation (A)</b> .....	: 16 (20 for US/CSA)
<b>Pollution degree (PD)</b> .....	: <input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
<b>IP protection class</b> .....	: IPX0
<b>Altitude during operation (m)</b> .....	: Up to 3000
<b>Altitude of test laboratory (m)</b> .....	: Approx 50
<b>Mass of equipment (kg)</b> .....	: ≅0.4kg Max. (with chassis and cover)
<b>Possible test case verdicts:</b>	
- 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)
<b>Testing</b> .....	
<b>Date of receipt of test item</b> .....	: 2014-12-18
<b>Date(s) of performance of tests</b> .....	: 2015-03-13
<b>General remarks:</b>	
<p>"(See Enclosure #)" refers to additional information appended to the report.  "(See ATTACHMENT #)" refers to additional information appended to the report.  "(See appended table)" refers to a table appended to the report.</p> <p>Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.</p>	

**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) .....** : 1. Wuxi TDK-Lambda Electronics Co., Ltd.  
 No. 6 Xing Chuang Er Lu, Wuxi, Jiangsu 214028, P. R. China  
 2. Zhangjiagang Hua Yang Electronics Co., Ltd.  
 Zhao Feng Industrial Zone, Leyu Town, Zhangjiagang, Jiangsu 215622, P. R. China

**General product information:**

The EUTs are component type switching mode power supplies intended for the class I construction of information technology equipment.

The equipment employs PCB: CCB163 (primary, PB and secondary circuits)

See Model List below for details.

Model	Rated Input rating			Rated Output V1			Rated Output V2			Rated Output V3		
	Input (V.a.c.)	Freq (Hz)	Input (A)	Min. output	typical output	Max. output	Min. output	typical output	Max. output	Min. output	typical output	Max. output
CUT75-522xxxxxxx	100-240	50-60	2.0	5.0 Vd.c.	5.0 Vd.c.	5.25 Vd.c.	+12 Vd.c.	+12 Vd.c.	+12 Vd.c.	-12 Vd.c.	-12 Vd.c.	-12 Vd.c.
	Or 200-240		Or 1.0	8.0A	8.0A	7.62A	2.5A	2.5A	3.0A	0.5A	0.5A	1.0A
Total output power is 76VA max.												
CUT75-5FFxxxxxxx	100-240	50-60	2.0	5.0 Vd.c.	5.0 Vd.c.	5.25 Vd.c.	+15 Vd.c.	+15 Vd.c.	+15 Vd.c.	-15 Vd.c.	-15 Vd.c.	-15 Vd.c.
	Or 200-240		Or 1.0	8.0A	8.0A	7.62A	2.0A	2.0A	2.5A	0.4A	0.4A	1.0A
Total output power is 77.5VA max.												

Operating temp.: up to +70°C (operating temperature depending on equipment's load, mounting position, for details refer to instruction manual).

**Additional Information**

- The product is component type power supply. The overall compliance shall be investigated in the complete information technology equipment, in particular as Fire enclosure, Mechanical enclosure and Electrical enclosure.
- Some components are **pre-certified**, which have been evaluated according to the relevant requirements of IEC 60950-1, are employed in this product. Their suitability of use has been checked according to subclauses 1.5.1 and 1.5.2.
- The label is draft of artwork for marking plates pending approval by National Certification Bodies and it shall not be affixed to products prior to such an approval.
- Tests were repeated with each alternative source of components with identical results unless otherwise specified.



**MARKINGS AND INSTRUCTIONS**

- The installation instruction contains instructions for connection to an IT power distribution system. (See subclause 1.7.2.4):
- Fuse Identification (See subclause 1.7.6):  
F1/F2: T2.5AH AC 250V

The product also marked with:

**CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE AND RATING OF FUSE.**

Definition of variable(s):

**CUT75-zzzxxxxxxx**

(**zzz** = 522 or 5FF; **xxxxxxx** = T, B, L, A, F, Q, other alphanumeric character, symbol or blank)

Variable:	Range of variable:	Content:
<b>zzz</b>	522 or 5FF	Denotes for different models
<b>xxxxxxx</b>	T	Denotes power supply with terminal block
	B	Denotes power supply with base plate under PWB
	L	Denotes power supply with chassis under PWB
	A	Denotes power supply with cover & chassis
	F	Denotes fixed output voltage without adjustable component
	Q	For CQC approval
	other alphanumeric character, symbol or blank	For market purposes, no construction differences and no safety impact.

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
-Short-circuited	s-c	-No component damage	NCD
-Open-circuited	o-c	-Component damage	CD
-Overloaded	o-l	-Test repeated, similar result	RT
-Internal protection operated	IP	-No indication of dielectric breakdown	NB
-Input	i/p	-Cheesecloth remained intact	NC
-Output	o/p	-Tissue paper remained intact	NT
-Constant temperatures were obtained	CT	-The unit can recover auto when removing the abnormal condition	RA

Indicate used abbreviations (if any)