
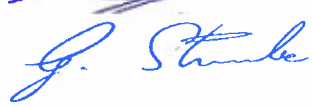




Test Report issued under the responsibility of



TEST REPORT	
IEC 60950-1: 2005 (2nd Edition) and/or EN 60950-1:2006 +A11:2009-03	
Information technology equipment – Safety –	
Part 1: General requirements	
Report Reference No	2520400-3336-0019 (132554) CB/DE1- 47177
Tested by (name + signature)	Frank Richter 
Approved by (name + signature)	Günter Straube 
Date of issue	2010-09-16
CB Testing Laboratory	VDE Testing and Certification Institute
Address	Merianstrasse 28, D-63069 Offenbach, Germany
Testing location / procedure	CBTL <input type="checkbox"/> RMT <input type="checkbox"/> SMT <input type="checkbox"/> WMT <input checked="" type="checkbox"/> TMP <input type="checkbox"/>
Testing location / address	TDK Innoveta Inc. 3320 Matrix Drive, Suite 100, Richardson, Texas 75082, USA WMT (TDAP File no. 2520400-9501-0001)
Applicant's name	TDK Innoveta Inc.
Address	3320 Matrix Drive, Suite 100, Richardson, Texas 75082, USA
Test specification:	
Standard	IEC 60950-1:2005 (2 nd Edition) ;EN 60950-1:2006+A11:2009-03 DIN EN 60950-1:2006 + A11 (VDE 0805 Teil 1 + A11): 2009-11
Test procedure	CB – Scheme, VDE
Non-standard test method	N/A
Test Report Form No	IECEN60950_1C
Test Report Form(s) Originator	SGS Fimko Ltd
Master TRF	2006-06
Copyright © 2006 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.	
This publication may be reproduced in whole or in part for non-commercial purposes as long as the IECEE is acknowledged as copyright owner and source of the material. IECEE takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.	
If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo 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.	

Test item description : DC - DC Converter for building in

Trade Mark : **TDK-Lambda**

Manufacturer : TDK Innoveta Inc.

Model/Type reference..... : IHG - Series (see model matrix – Appendix 1)

Serial Number..... :

Ratings..... :

:	Input:	DC 36 - 60 V (SELV) or 36 – 75 V (TNV-2) max. 3.5 A or DC 18 – 36 V (SELV), max. 3.5 A (see model matrix – Appendix 1)
	Output:	(see model matrix)
	Ambient:	max. 125°C temperature on T2 (see installation instructions for details)

Copy of marking plate:

See appendices

Summary of testing:			
Clause 1.5	Components	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> N/A
Clause 1.6	Power interface	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> N/A
Clause 1.7	Markings and instructions	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> N/A
Clause 2.1	Protection from electric shock and energy hazards	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> N/A
Clause 2.2	SELV circuits	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> N/A
Clause 2.3	TNV circuits.....	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> N/A
Clause 2.4	Limited current circuits.....	<input type="checkbox"/> Pass	<input checked="" type="checkbox"/> N/A
Clause 2.5	Limited power sources.....	<input type="checkbox"/> Pass	<input checked="" type="checkbox"/> N/A
Clause 2.6	Provisions for earthing and bonding.....	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> N/A
Clause 2.7	Overcurrent and earth fault protection in primary circuits.....	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> N/A
Clause 2.8	Safety interlocks	<input type="checkbox"/> Pass	<input checked="" type="checkbox"/> N/A
Clause 2.9	Electrical insulation	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> N/A
Clause 2.10	Clearances, creepage distances and distances through insulation :	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> N/A
Clause 3.1	Wirings.....	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> N/A
Clause 3.2	Connection to an a.c. mains supply or a d.c. mains supply	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> N/A
Clause 3.3	Wiring terminals for connection of external conductors.....	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> N/A
Clause 3.4	Disconnection from the mains supply.....	<input type="checkbox"/> Pass	<input checked="" type="checkbox"/> N/A
Clause 3.5	Interconnection of equipment	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> N/A
Clause 4.1	Stability	<input type="checkbox"/> Pass	<input checked="" type="checkbox"/> N/A
Clause 4.2	Mechanical strength.....	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> N/A
Clause 4.3	Design and construction	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> N/A
Clause 4.4	Protection against hazardous moving parts	<input type="checkbox"/> Pass	<input checked="" type="checkbox"/> N/A
Clause 4.5	Thermal requirements.....	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> N/A
Clause 4.6	Openings in enclosures	<input type="checkbox"/> Pass	<input checked="" type="checkbox"/> N/A
Clause 4.7	Resistance to fire	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> N/A
Clause 5.1	Touch current and protective conductor current.....	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> N/A
Clause 5.2	Electric strength	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> N/A
Clause 5.3	Abnormal operating and fault conditions	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> N/A
Clause 6	Connection to telecommunication networks.....	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> N/A
Clause 7	Connection to cable distribution systems	<input type="checkbox"/> Pass	<input checked="" type="checkbox"/> N/A
Annex B	Motor Tests under abnormal conditions	<input type="checkbox"/> Pass	<input checked="" type="checkbox"/> N/A
Annex C	Transformers	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> N/A
Annex G	Alternative Method for determining minimum clearances	<input type="checkbox"/> Pass	<input checked="" type="checkbox"/> N/A
Annex M	Criteria for telephone ringing signals.....	<input type="checkbox"/> Pass	<input checked="" type="checkbox"/> N/A
Annex U	Insulated winding wires for use without interleaved insulation.....	<input type="checkbox"/> Pass	<input checked="" type="checkbox"/> N/A

Test item particulars	
Equipment mobility	<input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> stationary <input type="checkbox"/> fixed <input type="checkbox"/> transportable <input checked="" type="checkbox"/> for building-in
Connection to the mains	<input type="checkbox"/> pluggable equipment <input type="checkbox"/> direct plug-in <input type="checkbox"/> permanent connection <input checked="" type="checkbox"/> for building-in
Operating condition	<input checked="" type="checkbox"/> continuous <input type="checkbox"/> short-time <input type="checkbox"/> intermittent
Over voltage category	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV
Mains supply tolerance (%)	+ 10% and - 20 %
Tested for IT power systems	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
IT testing, phase-phase voltage (V)	--
Class of equipment	<input checked="" type="checkbox"/> Class I <input type="checkbox"/> Class II <input type="checkbox"/> Class III <input type="checkbox"/> Not classified
Mass of equipment (kg)	<18kg
Pollution degree	<input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
IP protection class	IP---

Possible test case verdicts	
- test case does not apply to the test object	N/A (Not Applicable)
- test object does meet the requirement	P (Pass)
- test object does not meet the requirement	F (Fail)

Testing	
Date of receipt of test item	2010-07-16
Date(s) of performance of tests	2010-07-16 to 2010-09-16

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 comma / point is used as the decimal separator.

Factory (for information only)	
Name	TDK Innoveta Inc.
Address	3320 Matrix Drive, Suite 100, Richardson, Texas 75082, USA
Name	Memic-Lambda (M) SDN.BHD.
Address	PL033 Kawasan Perindustrian Senai, Locked Bag No.110, 81400 SENAI, JOHOR, Malaysia

General product information:

The product is a component type DC/DC power module, intended to be used as a component in an end-user's power system. These device is a DC-DC power supply with open frame for building-in.

Conditions of Installation:

The equipment shall be installed in compliance with the enclosure, mounting, spacing, casualty and segregation requirements of the end-use application.

Summary of test results (information/comments):

The Converter family consists of high density DC-DC power modules intended to be purchased and used as a component in an end-user's power system. The modules currently come in two input voltage ranges; a wide range DC 36 – 75V input. The output voltage will be between 1.2V and 12V depending upon the model number. Output current see model matrix.

The unit was tested with a maximum continuous output.

The Electrical and Fire Enclosures are to be provided by the end product.

Operating Conditions:

Units are components within customers end-use system. Input to converters is DC 36 – 60 V (SELV) or DC 36 - 75 V (TNV)

The units were tested with a maximum continuous output.

The manufacturer specified max. 125 °C near T2.

The Electrical and Fire Enclosures are to be provided by the end product.

The DC-DC power supply input is protected by fuses, provided by the end product.

The power supply series provides Basic insulation based on DC 75 V, between input and output.

A. If the input meets all requirements for ELV, then the output may be considered ELV

B. If the input meets all requirements for SELV, then the output may be considered SELV

C. If the input meets all requirements for TNV-2, then the output may be considered TNV-2
uirements for TNV-2, then the output may be considered TNV-2 or SELV

The label includes: iHG48***A%%V-xxx where *** represents rated output current between 10A – 80A, %%% represents rated output voltage between 1.2V – 12V and xxx represents a number or alphanumeric character which affects non safety related features.

Unit is Class I and designed for Pollution Degree 2 and Overvoltage Category 2.

The product has been tested according to standard IEC 60950-1:2005 (2 nd Edition) / EN 60950-1:2006 and those deviations taken into account of				
<input checked="" type="checkbox"/> CENELEC common modifications	<input checked="" type="checkbox"/> United Kingdom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Finland	<input checked="" type="checkbox"/> Denmark	<input checked="" type="checkbox"/> Ireland	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Sweden	<input checked="" type="checkbox"/> Germany	<input checked="" type="checkbox"/> Spain	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Norway	<input checked="" type="checkbox"/> Switzerland	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<input checked="" type="checkbox"/> CB Bull. NATIONAL DIFFERENCES IEC 60950-1(2nd Edition)				
<input checked="" type="checkbox"/> Switzerland	<input checked="" type="checkbox"/> Spain	<input checked="" type="checkbox"/> Ireland	<input checked="" type="checkbox"/> Sweden	<input checked="" type="checkbox"/> USA
<input checked="" type="checkbox"/> Germany	<input checked="" type="checkbox"/> Finland	<input checked="" type="checkbox"/> Korea	<input checked="" type="checkbox"/> Group Differences	<input type="checkbox"/>
<input checked="" type="checkbox"/> Denmark	<input checked="" type="checkbox"/> United Kingdom	<input checked="" type="checkbox"/> Norway	<input checked="" type="checkbox"/> Canada	<input type="checkbox"/>

These tests fulfil the requirements of standard EN ISO/IEC 17025.

This test report includes the following Appendices:		
Appendix No.	Description	Page(s)
1	Model Matrix	2
2	Photos	1
3	Schematics, Layouts	18
4	Working Voltage	2
5	Test Instruments Reference List	1
6	Transformer information	36
7	Label	1