Test Report issued under the responsibility of

VDE

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 ☐ RMT ☐ SMT ☐ WMT ☒ TMP ☐	
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 (2nd 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	

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

Test item particulars .....:	
Equipment mobility .....:	☐ movable ☐ hand-held ☐ stationary ☐ fixed ☐ transportable ☒ for building-in
Connection to the mains.....:	☐ pluggable equipment ☐ direct plug-in ☐ permanent connection ☒ for building-in
Operating condition .....:	☒ continuous ☐ short-time ☐ intermittent
Over voltage category .....:	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV
Mains supply tolerance (%) .....:	+ 10% and - 20 %
Tested for IT power systems .....:	☐ Yes ☒ No
IT testing, phase-phase voltage (V) .....:	--
Class of equipment .....:	☒ Class I ☐ Class II ☐ Class III ☐ Not classified
Mass of equipment (kg).....:	<18kg
Pollution degree .....:	☒ PD 2 ☐ 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 (2nd Edition) / EN 60950-1:2006 and those deviations taken into account of				
☒ CENELEC common modifications		☒ United Kingdom	☐	☐
☒ Finland	☒ Denmark	☒ Ireland	☐	☐
☒ Sweden	☒ Germany	☒ Spain	☐	☐
☒ Norway	☒ Switzerland	☐	☐	☐

☒ **CB Bull. NATIONAL DIFFERENCES IEC 60950-1(2nd Edition)**				
☒ Switzerland	☒ Spain	☒ Ireland	☒ Sweden	☒ USA
☒ Germany	☒ Finland	☒ Korea	☒ Group Differences	☐
☒ Denmark	☒ United Kingdom	☒ Norway	☒ Canada	☐

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

This test report includes the following Appendices:

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