Test Report issued under the responsibility of

VDE

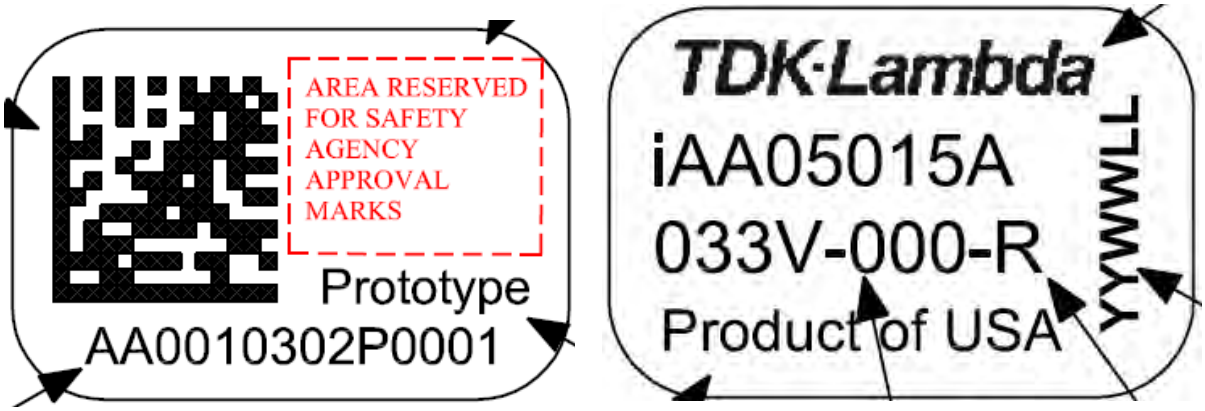
TEST REPORT
IEC 60950-1: 2005 (2nd Edition) and/or EN 60950-1:2006 + A11:2009-03
Information technology equipment – Safety –
Part 1: General requirements

Report Reference No.....:	2520400-3336-0008/132549	CB/DE1- DE1-46618
Tested by (name + signature) .....:	Ulrich Schafranka	
Approved by (name + signature).....:	Frank Richter	
Date of issue.....:	2010-06-03	
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 .....:	DIN EN 60950-1:2006 + A11 (VDE 0805-1 +A11): 2009-11 EN 60950-1:2006 +A11:2009-03 and/or IEC 60950-1:2005 (2nd Ed.)	
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.
Manufacturer .....:		TDK Innoveta Inc.
Model/Type reference.....:		iAA - Series
Serial Number……..:		(see model matrix appendix 1)
Ratings.....:		
	Input:	DC 3.0 – 5.5 V (SELV) (0% Tolerance), max. 16A (see model matrix appendix 1)
	Output:	(SELV), max. 50W, refer to model matrix
	Ambient:	Max. 125°C at Q1

Copy of marking plate, (details see appendix no. 2)



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 (%) ..... :	Unit is rated 0% tolerance
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 not applicable
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..... :	2003-07-08 and 2010-06-02
Date(s) of performance of tests..... :	2003-07-08 until 2003-08-11 and 2010-06-02

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.

Factories (for information only) :

Name .....: TDK Innoveta Inc.

Address.....: 3320 Matrix Drive, Suite 100, Richardson, Texas 75082, USA

Name .....: Nemic-Lambda Malaysia

Address.....: PL033 Kawasan perindustrian Senai , Locked Bag No. 110, 81400 Senai, Johor, Malaysia

General product information:

Complete details of construction and testing as well as supporting documentation such as photographs and schematics are included in the attachment.

The label includes: Optional "-R" appended to product code to indicate ROHS compliance.
eg. iAAXXXXXXXXXX-### -R Series

Product Overview:

The Metamere iAA product family consists of high density non-isolated 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 one input voltage range; a wide range 3.0 – 5.5 V input.

The output voltage will be between 0.75V and 3.63V depending upon the model number.

The rated output current will be up to 15A.

The rated output power will be maximum 50W. (See Appendix no. 1 for details).

The maximum temperature is specified with 125°C at reference point (Q1)

The product is available in one mechanical configuration – the iAA.

The design intention is that the modules within a platform consist of a family of units with similar output voltage and current with the exception of the feature option. The major differences between the modules will be as follows:

The semiconductors such as main switches Q1 & Q2 will be the same physical package but may be different devices depending upon the specific voltage and current stresses in the various power module designs.

The core on board output filter inductors and the input and output capacitors will be in the same physical packages but may be different values depending upon the specific voltage and current stresses in various module designs.

Control circuits will have value changes to scale the typical circuit parameters such as output voltage and output current limit set point as required for different designs.

Other control circuits such as the feedback compensation may have value changes as required for each specific design.

Information/comments:

Tests were performed on model iAA05015A033V-0##, output DC 3.3 V /15A /50 W , for reference, since all models uses the same electrical circuits. The unit was tested with a maximum continuous output

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

The power supply series provides functional insulation, between input and output.

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

The power models are not internally fused. An external input line normal blow fuse with a max. value

of 30 A is required.

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 documents:

	Description	Page(s)
Test report		69
Appendix No. 1	Model Matrix	1
Appendix No. 2	Rating Label	1
Appendix No. 3	Photo(s)	1
Appendix No. 4	Schematics, Layouts	5
Appendix No. 5	Test Instruments Reference List	1
Total pages:		**78**

Project history:

Rev.	CB-No	Description	TR-date
1	DE1-29765	Main Test report, VDE-file 2520400-3336-0008/34593, issuing of VDE license 40007457	2003-08-11
2	DE1-29765/M1	VDE-file 2520400-3336-0013/75844, addition of alternate factories and standard upgrade to IEC/EN 60950-1 (1st Ed.)	2006-03-15
3	DE1-46618	This report. Upgrade to IEC 60950-1:2005 (2nd Edition) and /or EN 60950-1:2006 by this Test Report, VDE-file 2520400-3336-0008/132548.	2010-06-03