Test Report issued under the responsibility of

VDE

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

Report Reference No.....:	2520400-3336-0025 (137227) CB/DE1- 41442/M1
Tested by (name + signature).....:	Günter Straube
Approved by (name + signature).....:	Ulrich Schafranka
Date of issue.....:	2010-07-16
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 .....:	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 Edition)
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 ..... :		iCF- Series, iCG - Series iBF – Series and iAF Series
Serial Number……..:		(see model matrix appendix 1)
Ratings ..... :		
	Input:	max. DC 14 V, max. 22 A (SELV) (refer to model matrix)
	Output:	max. DC 5.5 V max. 20 A, 110 W (SELV) (SELV) refer to model matrix
	Ambient:	Max. 25°C

Copy of marking plate:

see Appendix 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---
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..... :	2010-06-16
Date(s) of performance of tests ..... :	2010-06-16 to 2010-07-16

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.....:	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. iCGXXXXXXXXXX-### -R Series

Product Overview:

All POL products products share the same basic power train which consists of two Mosfets, a power inductor and input and output filter capacitors. The size and ratings of the power components are scaled based upon the power level and input voltage range. There are two different construction types for the modules – the iCF and iAF modules utilize a single FR-4 PWB.

The rated output data's will be up to DC 14V max. 20 A, 110 W (SELV). (See Appendix 1 for details)

Product Similarities

The iCG and iBF utilize two FR-4 PWBs that are joined together by interconnect pins. There are two different control circuits employed in the 2nd generation POL series. The 2.4V-5.5V input modules all share a common control circuit. The 4.5V-14V input modules share a second control circuit.

The manufacturer specified max. Ambient Temperature: 25°C

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

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

Operating Conditions:

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

Unit is Class I and designed for Pollution Degree 2 and Overvoltage Category 1.

The power models are not internally fused. An external input line normal blow fuse with a max. value for iCF, iCG 10A, iAF 20A, iBF 15 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 Appendices:

Appendix No.	Description	Page(s)
1	Model Matrix	2
2	Rating Label	3
3	Photos	1
4	Schematics, Layouts and Assembly Drawings	9
5	Test Instruments Reference List	1