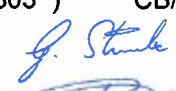






Test Report issued under the responsibility of



<b>TEST REPORT</b> <b>IEC 60950-1: 2005 (2nd Edition) and/or EN 60950-1:2006 +A11:2009-03</b> <b>Information technology equipment – Safety –</b> <b>Part 1: General requirements</b>	
<b>Report Reference No</b> .....	2520400-3336-0015 ( 128803 ) CB/DE1- 42642
<b>Tested by (name + signature)</b> .....	Günter Straube 
<b>Approved by (name + signature)</b> .....	Frank Richter 
<b>Date of issue</b> .....	2010-01-18
<b>CB Testing Laboratory</b> .....	VDE Testing and Certification Institute
<b>Address</b> .....	Merianstrasse 28, D-63069 Offenbach, Germany
<b>Testing location / procedure</b> .....	CBTL <input type="checkbox"/> RMT <input type="checkbox"/> SMT <input type="checkbox"/> WMT <input checked="" type="checkbox"/> TMP <input type="checkbox"/>
<b>Testing location / address</b> .....	TDK Innoveta Inc. 3320 Matrix Drive, Suite 100, Richardson, Texas 75082, USA WMT (TDAP File no. 2520400-9501-0001)
<b>Applicant's name</b> .....	TDK Innoveta Inc.
<b>Address</b> .....	3320 Matrix Drive, Suite 100, Richardson, Texas 75082, USA
<b>Test specification:</b>	
<b>Standard</b> .....	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 (2 <sup>nd</sup> Edition)
<b>Test procedure</b> .....	CB – Scheme, VDE
<b>Non-standard test method</b> .....	N/A
<b>Test Report Form No</b> .....	IECEN60950_1C
<b>Test Report Form(s) Originator</b> .....	SGS Fimko Ltd
<b>Master TRF</b> .....	2006-06
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**Test item description** ..... : DC - DC Converter for building in

Trade Mark ..... : 

Manufacturer ..... : TDK Innoveta Inc.

Model/Type reference..... : iQE24, iQE48 and iQE4W – Series

Serial Number..... : (see model matrix – Appendix 1)

Ratings..... :

Input:	DC 18 – 36 V or DC 19 – 30 V (SELV) (iQE24 Series) max. 15 A
Input:	DC 42 – 60 V or DC 36 - 60 V (SELV) or 36 – 75 V (TNV-2) max. 10 A (iQE48 Series)
Input:	DC 18 – 60 V (SELV) or DC 18 - 75 V (TNV-2) (iQE4W Series) max. 15 A (see model matrix – Appendix 1)
Output:	SELV (see model matrix – Appendix 1)
Ambient:	25°C ambient Temperature (iQE24, iQE48 – Series) and max. 125 °C at Q303 (iQE4W – Series)

**Copy of marking plate:**

## TEST SAMPLE IDENTIFICATION

Sample Number	Sample Card Number	Date Received	Manufacturer, Product Identification and Ratings
1	QE2200848M0444	0848M 1	TDK Innoveta Inc. , DC-DC Converter iQE24*A%V-#(R) is represented by model iQE24024A050V-0## Ratings: Input:18Vdc-36Vdc, Output: 5Vdc 24Adc, 120W
Sampling Procedure (if used) :			



**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

<b>Test item particulars</b> .....	
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 checked="" type="checkbox"/> OVC I <input 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---

<b>Possible test case verdicts</b>	
- 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)

<b>Testing</b> .....	
Date of receipt of test item .....	2010-01-13
Date(s) of performance of tests .....	2010-01-13 to 2010-01-18

<b>General remarks:</b>	
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 <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.	

<b>Factory (for information only)</b>	
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:**

The product is a component type DC/DC power module, intended to be used as a component in an end-user's power system.

**Conditions of Installation:**

Units are components within customer's end-use system. Input to converters is DC 18 – 30 V (SELV) iQE24 - Series, or DC 36 – 60 V (SELV) iQE48 – Series, and DC 36 – 75 V (TNV-2) iQE48 and iQE4W – Series (see Appendix 1),

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

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

DC-DC Power Supply for building-in, ratings see page 2.

The units were tested with a maximum continuous output.

The manufacturer specified max. 25°C ambient Temperature (iQE24, iQE48 – Series) and specified temperature max. 125 °C on PWB near T1 (iQE4W – Series)

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:** Optional "-R" appended to product code to indicate ROHS compliance.  
eg. iQEXXXXX-0### -R Series and IQE4WXXXXX-0### -R Series.

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

The product has been tested according to standard IEC 60950-1:2005 (2 <sup>nd</sup> 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"/> <b>CB Bull. NATIONAL DIFFERENCES IEC 60950-1(2<sup>nd</sup> Edition)</b>				
<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.

<b>This test report includes the following Appendices:</b>		
Appendix No.	Description	Page(s)
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2	Rating Label	2
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4	Schematics, Layouts, Transformer informations and Assembly Drawings iQE24 and iQE48 - Series	43
5	Schematics and Layouts iQE4W –Series	20
6	Photos iQE4W –Series	1
7	Test Instruments Reference List	1
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10		