Test Report issued under the responsibility of:

TEST REPORT
IEC 60950-1
Information technology equipment - Safety - Part 1: General requirements

Report Reference No ..... :	4786910621-3
Date of issue ..... :	2015-06-25
Total number of pages ..... :	150
CB Testing Laboratory ..... :	UL Japan, Inc.
Address ..... :	4383-326 Asama-cho, Ise-shi, Mie, 516-0021, Japan
Applicant's name ..... :	TDK-LAMBDA CORP
Address ..... :	NAGAOKA TECHNICAL CENTER R&D DIV 2704-1 SETTAYA-MACHI NAGAOKA-SHI NIIGATA 940-1195 JAPAN
Test specification:	
Standard ..... :	IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013
Test procedure ..... :	CB Scheme
Non-standard test method ..... :	N/A
Test Report Form No. ..... :	IEC60950_1F
Test Report Form originator ..... :	SGS Fimko Ltd
Master TRF ..... :	Dated 2014-02

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.

General disclaimer

Test item description ..... :	Built-In Power Supply
Trade Mark ..... :	TDK·Lambda
Manufacturer ..... :	TDK-LAMBDA CORP NAGAOKA TECHNICAL CENTER R&D DIV 2704-1 SETTAYA-MACHI NAGAOKA-SHI NIIGATA 940-1195 JAPAN
Model/Type reference ..... :	ZWS150BP-abcde (a = 24, 36, 48, b = "/" or blank, c = R or blank, d = A, L or blank, e = CO2, FG or blank)
Ratings ..... :	Input: 100-240VAC, 50-60Hz, 2.0A or 2.6A (depending on the output current) Output: (See Enclosure ID 7-09.)

Testing procedure and testing location:			
[ ]	**CB Testing Laboratory**		
	Testing location / address	:	
[ ]	**Associated CB Test Laboratory**		
	Testing location / address	:	
	Tested by (name + signature)	:	
	Approved by (name + signature)....	:	
[x]	**Testing Procedure: TMP/CTF Stage 1**		
	Testing location / address	:	TDK-LAMBDA CORPORATION, NAGAOKA TECHNICAL CENTER 2704-1 SETTAYA-MACHI, NAGAOKA-SHI, NIIGATA-KEN, 940-1195 JAPAN
	Tested by (name + signature)	:	Masatomo Takiyama
	Approved by (name + signature)....	:	Tetsuo Iwasaki
[ ]	**Testing Procedure: WMT/CTF Stage 2**		
	Testing location / address	:	
	Tested by (name + signature)	:	
	Witnessed by (name + signature) ..	:	
	Approved by (name + signature)....	:	
[ ]	**Testing Procedure: SMT/CTF Stage 3 or 4**		
	Testing location / address	:	
	Tested by (name + signature)	:	
	Approved by (name + signature)....	:	
	Supervised by (name + signature) .	:	
[ ]	**Testing Procedure: RMT**		
	Testing location / address	:	
	Tested by (name + signature)	:	
	Approved by (name + signature)....	:	
	Supervised by (name + signature) .	:	

List of Attachments

National Differences (30 pages)
Enclosures (38 pages)

Summary Of Testing

Unless otherwise indicated, all tests were conducted at TDK-LAMBDA CORPORATION, NAGAOKA TECHNICAL CENTER, 2704-1 SETTAYA-MACHI, NAGAOKA-SHI, NIIGATA-KEN, 940-1195 JAPAN	
Tests performed (name of test and test clause)	**Testing location / Comments**
Input: Single-Phase (1.6.2)	
Energy Hazard Measurements (2.1.1.5, 2.1.2, 1.2.8.10)	
Capacitance Discharge (2.1.1.7)	
SELV Reliability Test Including Hazardous Voltage Measurements (2.2.2, 2.2.3, 2.2.4)	
Protective Bonding I (2.6.3.4, 2.6.1)	
Humidity (2.9.1, 2.9.2, 5.2.2)	
Determination of Working Voltage; Working Voltage Measurement (2.10.2)	
Transformer and Wire /Insulation Electric Strength (2.10.5.13)	
Heating (4.5.1, 1.4.12, 1.4.13)	
Touch Current (Single-Phase; TN/TT System) (5.1, Annex D)	
Electric Strength (5.2.2)	
Component Failure (5.3.1, 5.3.4, 5.3.7)	
Abnormal Operation (5.3.1 - 5.3.9)	
Transformer Abnormal Operation (5.3.3, 5.3.7b, Annex C.1)	
Power Supply Output Short-Circuit/Overload (5.3.7)	
Summary of Compliance with National Differences:	
Countries outside the CB Scheme membership may also accept this report.	
List of countries addressed: CA, DE, DK, EU, FI, GB, KR, SE, SI, US	
The product fulfills the requirements of: EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011 + A2:2013	

Copy of Marking Plate - Refer to Enclosure titled Marking Plate for copy.

Test item particulars :	
Equipment mobility ..... :	for building-in
Connection to the mains ..... :	not directly connected to the mains
Operating condition ..... :	continuous
Access location ..... :	N/A
Over voltage category (OVC) ..... :	OVC II
Mains supply tolerance (%) or absolute mains supply values ..... :	+10%, -10%
Tested for IT power systems ..... :	No
IT testing, phase-phase voltage (V) ..... :	N/A
Class of equipment ..... :	Class I (earthed)
Considered current rating of protective device as part of the building installation (A) ..... :	20 A
Pollution degree (PD) ..... :	PD 2
IP protection class ..... :	IP X0
Altitude of operation (m) ..... :	up to 3000 m
Altitude of test laboratory (m) ..... :	less than 2000 meters
Mass of equipment (kg) ..... :	approximately 0.36 kg
Possible test case verdicts:	
- test case does not apply to the test object ..... :	N / A
- test object does meet the requirement ..... :	P(Pass)
- test object does not meet the requirement ..... :	F(Fail)
Testing:	
Date(s) of receipt of test item ..... :	N/A
Date(s) of Performance of tests ..... :	2012-02-01 to 2012-03-01, 2012-05-28, 2012-11-06 to 2012-11-12
General remarks:	
"(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 point is used as the decimal separator.	
Manufacturer's Declaration per Sub Clause 4.2.5 of IECEE 02:	
The application for obtaining a CB Test Certificate includes more than one factory and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided	Yes

When differences exist, they shall be identified in the General Product Information section.

Name and address of Factory(ies):	TDK-LAMBDA CORP NAGAOKA TECHNICAL CENTER 2704-1 SETTAYA-MACHI NAGAOKA-SHI NIIGATA 940-1195 JAPAN TDK-LAMBDA MALAYSIA SDN BHD PLO33 KAWASAN PERINDUSTRIAN SENAI 81400 SENAI MALAYSIA TDK-LAMBDA MALAYSIA SDN BHD LOT 2 & 3, BATU 9 3/4 KAWASAN PERINDUSTRIAN BANDAR BARU JAYA GADING 26070 KUANTAN MALAYSIA WUXI TDK-LAMBDA ELECTRONICS CO LTD NO 6 XING CHUANG ER LU WUXI JIANGSU 214028 CHINA ZHANGJIAGANG HUA YANG ELECTRONICS CO LTD TONGXIN RD ZHAOFENG ECONOMIC DEVELOPMENT ZONE LEYU TOWN ZHANGJIAGANG JIANGSU 215622 CHINA ALPS LOGISTICS FACILITIES CO LTD 593-1 NISHIOOHASHI TSUKUBA-SHI IBARAKI-KEN 305-0831 JAPAN

GENERAL PRODUCT INFORMATION:

Report Summary

All applicable tests according to the referenced standard(s) have been carried out.

Product Description

The product is a switching power supply intended for building in to an end product.

Model Differences

Nomenclature; ZWS150BP-abcde
(a = 24, 36, 48. b = "/" or blank. c = R or blank. d = A, L or blank. e = CO2, FG or blank)
a; output voltage as above
b; (separator)
c; remote control
d; A = with covers on both component side and solder side,
L = with cover on solder side
e; CO2 = coating of both sides of PWB for functional purpose,
FG = low leakage current
Suffixes b, c and e are not safety relevant.

Refer to Enclosure id 7-09 for detail.

Additional Information

This report is a reissue of CBTR Ref. No.: 12026095 001, 12026095 002 and 12026095 003, CB Test Certificate Ref. No.JPTUV-042859, JPTUV-042859-M1 and JPTUV-042859-M2. Based on the previously conducted testing and the review of product technical documentation including photos, schematics, wiring diagrams and similar, has been determined that the product continues to comply with the standard.

Sample Received date is 2013-01-18.
Construction review was conducted on 2013-01-24.

Abbreviations used in the report.
- built-in application: B/I

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: See Enclosure Ids. 7-01 (Output Derating Curve) and 7-08 (Output Derating Curve for Additional Forced Air Condition) for details.

- The product is intended for use on the following power systems: TN

- The product was investigated to the following additional standards: EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013 (which includes all European national differences, including those specified in this test report).

Engineering Conditions of Acceptability

When installed in an end-product, consideration must be given to the following:

- The following Production-Line tests are conducted for this product: Electric Strength

- The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-Earthed Dead Metal: 250Vrms, 420Vpk, Primary-SELV: 261Vrms, 605Vpk

- The following secondary output circuits are SELV: CN51
- The following secondary output circuits are at hazardous energy levels: CN51
- The power supply terminals and/or connectors are: Suitable for factory wiring only
- The maximum investigated branch circuit rating is: 20 A
- The investigated Pollution Degree is: 2
- Proper bonding to the end-product main protective earthing termination is: Required
- The following input terminals/connectors must be connected to the end-product supply neutral: pin 3 of CN1
- The following magnetic devices (e.g. transformers or inductor) are provided with an OBJY2 insulation system with the indicated rating greater than Class A (105°C): T2 (Class F)
- The following end-product enclosures are required: Fire, Electrical

Abbreviations used in the report:

- normal condition	N.C.	- single fault condition	S.F.C
- operational insulation	OP	- basic insulation	BI
- basic insulation between parts of opposite polarity:	BOP	- supplementary insulation	SI
- double insulation	DI	- reinforced insulation	RI

Indicate used abbreviations (if any)