



Test Report issued under
the responsibility of:



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

Report Reference No: E122103-A192-CB-1

Date of issue: 2015-09-14

Total number of pages: 11

CB Testing Laboratory: UL Japan, Inc.

Address: 4383-326 Asama-cho, Ise-shi, Mie, 516-0021, Japan

Applicant's name: TDK-LAMBDA CORP
NAGAOKA TECHNICAL CENTER

Address: 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

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Test item description	AC-DC Power Supply
Trade Mark	
Manufacturer	TDK-LAMBDA CORP NAGAOKA TECHNICAL CENTER R&D DIV 2704-1 SETTAYA-MACHI NAGAOKA-SHI NIIGATA 940-1195 JAPAN
Model/Type reference	KWS15A-5, KWS15A-12, KWS15A-15, KWS15A-24.
Ratings	Input: 100-240 V, AC 50-60 Hz, 0.33 A Output: See Additional Information.

Testing procedure and testing location:	
<input checked="" type="checkbox"/> CB Testing Laboratory	
Testing location / address	UL Japan, Inc. 4383-326 Asama-cho, Ise-shi, Mie, 516-0021, Japan
<input type="checkbox"/> Associated CB Test Laboratory	
Testing location / address	
Tested by (name + signature)	Tetsuo Iwasaki
Approved by (name + signature).....	Masatomo Takiyama
	 
<input type="checkbox"/> Testing Procedure: TMP/CTF Stage 1	
Testing location / address	
Tested by (name + signature)	
Approved by (name + signature).....	
<input type="checkbox"/> Testing Procedure: WMT/CTF Stage 2	
Testing location / address	
Tested by (name + signature)	
Witnessed by (name + signature) ...	
Approved by (name + signature).....	
<input type="checkbox"/> Testing Procedure: SMT/CTF Stage 3 or 4	
Testing location / address	
Tested by (name + signature)	
Approved by (name + signature).....	
Supervised by (name + signature) ..	
<input type="checkbox"/> Testing Procedure: RMT	
Testing location / address	
Tested by (name + signature)	
Approved by (name + signature).....	
Supervised by (name + signature) ..	

List of Attachments
National Differences (0 pages)
Enclosures (4 pages)
Summary of Testing:
No tests were conducted
Summary of Compliance with National Differences:
Countries outside the CB Scheme membership may also accept this report.

Issue Date: 2015-09-14

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Report Reference #

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Amendment 1 2016-03-15

List of countries addressed: CA, 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

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

This is uncontrolled copy when without Authorized Mark on the printed drawing. Verification of the latest version shall be conducted by PLM system.

RoHS COMPLIANCE

1. MATERIAL YUPO BOMIC SYNTHETIC PAPER, WHITE (PURCHASED PRINTING)
 PET 50MIC SYNTHETIC PAPER, WHITE (FOR INHOUSE PRINTING SEAL)

2. INK BLACK

3. SAFETY UL, C-UL APPROVAL TEMPERATURE -40°C TO 100°C

4. LETTERING :

KWS15A-5	FONT	HEIGHT (mm)
INPUT : ~, OUTPUT : ~	ARIAL(BOLD)	1.5
MADE IN JAPAN	ARIAL	1.3
TDK-Lambda LOGO	ORIGINAL	2.0
LOT No., SERIAL No.	ARIAL(BOLD)	1.0
DATE CODE	ARIAL(BOLD)	1.0
EHPF	ARIAL(BO,3)	0.8

5. THICKNESS OF LINE : 0.5mm

6. OTHERS

MODEL	A	B	C	D	MODEL CODE
KWS15A-5 EHPF+	5	0.33	5	3	HNH
KWS15A-12 EHPF+	12	0.33	12	1.3	HNI
KWS15A-15 EHPF+	15	0.33	15	1	HNK
KWS15A-24 EHPF+	24	0.33	24	0.7	HNL

E: COUNTRY OF MANUFACTURE WILL BE SHOWN, JAPAN, MALAYSIA OR CHINA.
 F: LOT No.
 G: SERIAL No.
 H: DATE CODE (FACTORY, WEEK AND YEAR CODE)

BAR CODE (DATA MATRIX)
 MODEL CODE | LOT No. | SERIAL No. | DATE CODE | FACTORY ARB TRARY CODE

7. BRACKETS IN DOTTED LINES SHOULD NOT APPEAR ON THE FINAL NAME PLATE.

8. RoHS Compliance :
 Refer to T-L Group Green Procurement Guideline : DL-EMS-010_

REV	NEW RELEASE	DATE	ENGR	CHK	APPD
1					

REV	CONTENTS	SCALE	UNITS	ANGLE	PROJECTION	TITLE	DRAWING No.
1		2/1	mm	3RD ANGLE	PROJECTION	KWS15A NAME PLATE	FC004-33-01-1-1

TDK-Lambda

Test item particulars :

Equipment mobility	for building-in
Connection to the mains	N/A
Operating condition	continuous
Access location	for building-in
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	Not classified
Considered current rating of protective device as part of the building installation (A)	20 A
Pollution degree (PD)	2
IP protection class	IPX0
Altitude of operation (m)	Up to 3000 m
Altitude of test laboratory (m)	less than 2000 meters
Mass of equipment (kg)	60 g

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	N/A

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 IEC 60950-1:

Yes

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

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

Name and address of Factory(ies):	ALPS LOGISTICS FACILITIES CO LTD 593-1 NISHIOHASHI TSUKUBA-SHI IBARAKI-KEN 305-0831 JAPAN ZHANGJIAGANG HUA YANG ELECTRONICS CO LTD
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TONGXIN RD
ZHAOFENG ECONOMIC DEVELOPMENT ZONE
LEYU TOWN
ZHANGJIAGANG
JIANGSU 215622 CHINA

TDK-LAMBDA CORP
2704-1 SETTAYA-MACHI
NAGAOKA-SHI
NIIGATA-KEN 940-1195 JAPAN

SENDAN ELECTRONICS MFG CO LTD
1010 HABUSHIN
NANTO-SHI
TOYAMA-KEN 939-1756 JAPAN

TDK-LAMBDA MALAYSIA SDN BHD
LOT 2 & 3, BATU 9 3/4
KAWASAN PERINDUSTRIAN
BANDAR BARU JAYA GADING
26070 KUANTAN MALAYSIA

TDK-LAMBDA MALAYSIA SDN BHD
PLO33 KAWASAN PERINDUSTRIAN SENAI
81400 SENAI MALAYSIA

WUXI TDK-LAMBDA ELECTRONICS CO LTD
NO 6
XING CHUANG ER LU
WUXI
JIANGSU 214028 CHINA

GENERAL PRODUCT INFORMATION:

Report Summary

The original report was modified on 2016-03-15 to include the following changes/additions:
This report is only valid in conjunction with CB Test Report Ref. No. E122103-A192-CB-1.

Amendment 1 report covers following modifications:

- (1) - Addition of components R108, R109 and D104.
- (2) - Typo correction of material information for potting compound.

[From] Canada Silicone Inc., Type ES8082AH/BH.

[To] MOMENTIVE PERFORMANCE MATERIALS JAPAN L L C., Type TSE3331.

No tests were performed on modification (1) because it was considered minor and does not have negative impact to previous test results. Due to this modification, revisions were made on Enclosure id. 5-01, 5-02, and 5-03.

Product Description

The unit is building-in component, module type switching power supply filled with insulating compound.

Output ratings, see Additional Information.

Model Differences

All models are identical except output ratings, Transformer (T1), and rating of some minor components.

Additional Information

Rated Output:

- KWS15A-5: DC 5V, 3A
- KWS15A-12: DC 12V, 1.3A
- KWS15A-15: DC 15V, 1A
- KWS15A-24: DC 24V, 0.7A

See Enclosure id. 7-01 for Output Derating Specification.

The Clearances and Creepage Distances have additionally been assessed for suitability up to 3000 m elevation.

In this Test Report, CENELEC mark license indicating compliance to EN standard was used to verify component compliance to IEC standard because the standards are technically equivalent.

It was considered that UL Standard has requirements that meet or exceed the relevant IEC requirements.

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 85°C (Depends on load factor. Refer to Enclosed Id 7-01.)
- The product is intended for use on the following power systems: TN

Engineering Conditions of Acceptability

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

- The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-SELV: 248Vrms, 532Vpk
- The following secondary output circuits are SELV: Output of all models
- The following secondary output circuits are at non-hazardous energy levels: Output of all models
- 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
- 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): T1 (Class B)
- The following end-product enclosures are required: Fire, Electrical
- The Case and Base have been evaluated to Reinforced insulation as solid insulation. --

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)