



Test Report issued under
the responsibility of:



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

Report Reference No: E132035-A59-CB-1

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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: 2704-1 SETTAYA-MACHI
NAGAOKA-SHI
NIIGATA-KEN 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	DC-DC Converter
Trade Mark	TDK-Lambda
Manufacturer	TDK-LAMBDA CORP NAGAOKA TECHNICAL CENTER 2704-1 SETTAYA-MACHI NAGAOKA-SHI NIIGATA-KEN 940-1195 JAPAN
Model/Type reference	CCG30-ww-xxS (ww: 24, xx: 03, 05, 12 or 15) or (ww: 48, xx: 03, 05, 12, 15 or 48), Maybe followed by suffix /P.
Ratings	9 - 36 Vdc (for Model ww: 24, xx: 03, 05, 12 or 15) 3.2 A (for Model ww: 24, xx: 03) 4.0 A (for Model ww: 24, xx: 05 or 12) 3.9 A (for Model ww: 24, xx: 15) 18 - 76 Vdc (for Model ww: 48, , xx: 03, 05, 12, 15 or 48) 1.6 A (for Model ww: 48, xx: 03) 2.0 A (for Model ww: 48, xx: 05, 12, 15 or 48)

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): Hirokatsu Kubota <i>H. Kubota</i>
	Approved by (name + signature).....: Tetsuo Iwasaki <i>T. Iwasaki</i>
<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 (57 pages)	
Enclosures (25 pages)	
Summary Of Testing	
Unless otherwise indicated, all tests were conducted at UL Japan, Inc. 4383-326 Asama-cho, Ise-shi, Mie, 516-0021, 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)

SELV Reliability Test Including Hazardous Voltage Measurements (2.2.2, 2.2.3, 2.2.4, Part 22 6.1)

Determination of Working Voltage; Working Voltage Measurement (2.10.2)

Heating (4.5.1, 1.4.12, 1.4.13)

Ball Pressure (4.5.5, 4.5)

Electric Strength (5.2.2)

Component Failure (5.3.1, 5.3.4, 5.3.7)

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: AR, AT, AU, BE, BG, BY, CA, CH, CN, CS, CZ, DE, DK, ES, EU, FI, FR, GB, GR, HU, IE, IL, IN, IT, JP, KR, MY, NL, NO, NZ, PL, PT, RO, SA, SE, SG, SI, SK, UA, US, ZA

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	N/A
Operating condition	continuous
Access location	for building-in (component type)
Over voltage category (OVC)	OVC II
Mains supply tolerance (%) or absolute mains supply values	N/A
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)	N/A
Pollution degree (PD)	PD 2
IP protection class	IP X0
Altitude of operation (m)	less than 5000
Altitude of test laboratory (m)	approximately 10 to 20 m
Mass of equipment (kg)	20 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	2015-03-10, 2015-03-24, 2015-03-26, 2015-03-30, 2015-03-31, 2015-04-20
Date(s) of Performance of tests	2015-03-26 to 2015-04-22

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:

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

Not
Applicable

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

Name and address of Factory(ies): TDK YURI-HONJO CORP
 HONJYO MAIN FACTORY
 16-57 AZA-YAMANOKAMI
 ISHIWAKI
 YURI-HONJO-SHI

AKITA-KEN 015-0014 JAPAN

GENERAL PRODUCT INFORMATION:**Report Summary**

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

Product Description

These units are components "DC/DC Converter" with only one DC output, providing functional insulation.

Output Ratings:

3.3 V, 7 A for CCG30-24-03S and CCG30-48-03S

5 V, 6 A for CCG30-24-05S and CCG30-48-05S

12 V, 2.5 A for CCG30-24-12S and CCG30-48-12S

15 V, 2 A for CCG30-24-15S and CCG30-48-15S

48 V, 0.63 A for CCG30-48-48S

Model Differences

The differences between Models CCG30-ww-xxS maybe followed by suffix /P are as follows.

Each model is identical, except for model designation, input/output rating, Transformer (T2), and secondary components.

ww: input voltage (See Ratings for detail)

xx: output voltage (See Production Description for detail)

Suffix /P: Positive logic on/off control.

Additional Information

Unless otherwise stated, CCG30-48-48S was used for test purposes and is considered representative of the entire series.

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 (T_{ma}) permitted by the manufacturer's specification of: Case (Center of top surface) 110°C
- 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 secondary output circuits are SELV: Output of each model.
- The following secondary output circuits are at non-hazardous energy levels: Output of each model.
- The investigated Pollution Degree is: 2
- The following end-product enclosures are required: Fire, Electrical

- Unit intended for building-in and supplied by secondary dc power source which isolated from primary by double or reinforced insulation. --
- Only functional insulation provided between input/output circuits. --
- During the test following external fuse was provided. For model CCG30-24-xxS: SOC Corp., Type 11CT, 72Vdc, 10A (UL certified component). For model CCG30-48-xxS: SOC Corp., Type DC86V11CT, 86Vdc, 6.3A (UL certified component). --
- A Heating Test shall be considered in end product. --
- Metal case is floating. --

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)