Test Report issued under the responsibility of:

Underwriters Laboratories

UL International Italia S.r.l.

TEST REPORT

IEC 62384
DC or AC supplied electronic control gear for LED modules Performance requirements

Report Reference No.....:	10CA54481-2
Date of issue.....:	March 14, 2011
Total number of pages	14
CB Testing Laboratory.....:	UL International Italia S.r.l.
Address .....:	Via Delle Industrie, 6 – 20061 – Carugate (MI) – Italy
Applicant's name.....:	TDK-Lambda Singapore Ltd
Address .....:	1008 Toa Payoh North #06-01/08 – Singapore 318996
Test specification:	
Standard.....:	☒ IEC 62384:2006 (1 Edition) + A1:2009
Test procedure .....:	CB
Non-standard test method……..:	N/A
Test Report Form No.....:	IEC62384A
Test Report Form(s) Originator .....:	IMQ S.p.A.
Master TRF .....:	Dated 2008-01

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 .....:	electronic control gear for Light Emitting Diodes
Trade Mark .....:	TDK-Lambda
Manufacturer .....:	VIETTRONICS BINH HOA JOINT STOCK COMPANY. 204 No Trang Long St., Ward 12, Binh Thanh Dist., Ho Chi Minh city, VIETNAM
Model/Type reference.....:	Series : ALC model ALC100-22-4R0
Ratings .....:	Input: 100-240 Vac, 50/60 Hz, 1,2 A, λ=0,95 108 W Output: 4 A; Vo max= 28 V; tc 90 ℃; ta -30..+50 ℃; IP20, Class II See page 7 for the ratings of all the models.

Testing procedure and testing location:		
☒ **CB Testing Laboratory**:		
Testing location/ address.....:	UL International Italia s.r.l.	
☐ **Associated CB Laboratory:**	Vie delle Industrie 6, 20061 Carugate (MI) Italy	
Testing location/ address.....:		
Tested by (name + signature).....:	Davide Porta	
Approved by (+ signature).....:	Walter Parmiani	
☐ **Testing procedure: TMP**		
Tested by (name + signature).....:		
Approved by (+ signature)..... :		
Testing location/ address.....:		
☐ **Testing procedure: WMT**		
Tested by (name + signature).....:		
Witnessed by (+ signature)..... :		
Approved by (+ signature).....:		
Testing location/ address.....:		
☐ **Testing procedure: SMT**		
Tested by (name + signature).....:		
Approved by (+ signature).....:		
Supervised by (+ signature).....:		
Testing location/ address..... :		
☐ **Testing procedure: RMT**		
Tested by (name + signature).....:		
Approved by (+ signature).....:		
Supervised by (+ signature).....:		
Testing location/ address.....:		

Summary of testing:

Tests performed (name of test and test clause):				**Testing location:**
6	Marking	Applicable	Pass	**1)**
7	Output voltage and current	Applicable	Pass	**1)**
8	Total circuit power	Applicable	Pass	**1)**
9	Circuit power factor	Applicable	Pass	**1)**
10	Supply current	Applicable	Pass	**1)**
11	Impedance at audio frequencies	Not applicable	N/A	**—**
12	Operational test for abnormal conditions	Applicable	Pass	**1)**
13	Endurance	Applicable	Pass	**1)**
14	Table audio frequencies	Not applicable	N/A	**—**

1) Testing location:
UL International Italia s.r.l.
Via delle Industrie 6, 20061 Carugate (MI) Italy

TEST RESULTS WERE FAVOURABLE

Summary of compliance with National Differences:

This test report covers testing according to both IEC 62384: 2006 +A1: 2009 and EN 62384: 2006 +A1: 2009

No National Differences, Common Differences, Group differences are declared on current CB bulletin.

This report consists of:

Test results: **14 pages**

Copy of marking plate

The marking plates are
Yupo 80 MIC synthetic paper, white (purchased printing)
PET 50 MIC synthetic paper, white (inhouse printing)
PA-T1 or equivalent no peeling -30℃÷ 100℃
Lettering black with whit ebackground

Speaking codes

Model ALXYYY-ZZ-DDDD/EE
(X= V or C; YYY= 60, 80 or 100, ZZ= 12, 22, 24, 36, 42 or 48,
DDDD=1R05, 1R4,1R7, 2R5, 3R0, 3R3, 3R8, 4R0, 5R0 or 6R5,
E options can be any combination of /W, /N or blank)

Definition of variables in the model:

Variable:	Range of variable:	Content:
X	V or C	V = Constant Voltage C = Constant Current
YYY	60, 80 or 100	Rated Output Power
ZZ	12, 22, 24, 36, 42 or 48	Rated Output Voltage
DDDD	1R05, 1R4,1R7, 2R5, 3R0, 3R3, 3R8, 4R0, 5R0 or 6R5	Rated Output Current

Options:
/W Outdoor
/N Nexus specified output wires

Note: in through this test report are laid down test results of models of the series ALC. Test results of the models of the series ALV are laid down in test report n. 10CA54481-3


AC_L (BROWN)
AC_N (BLUE)
Model (모 델 명) : ALC60-48-1R05
Constant Current (정전류)
Input (정격입력) :
AC (교류) 100-240V (100-277V FOR USA)
0.7A 62W 50/60Hz
BAR CODE
Power factor (역률) : λ=0.95
Output (정격출력) :
DC (직류) 6-48V ⎓ 1.05A
Tc : 80°C
Ta : -30,,+ 50°C
Max DC Voltage (최대 출력 전압) : 60V
Production Date (제조년월) : 2011.04
Tc
제 품 명 : 드라이버를 이끌고
Product Name : LED DRIVER
A/S 연락처(A/S Center) : +82-31-717-7051
Country of Origin (제조국) : VIETNAM (베트남)
TDK-Lambda
TDK-Lambda Corporation
SELV
EU
UL-US
V+ (RED)
V- (BLACK)


AC_L (BROWN)
AC_N (BLUE)
Model (모 델 명) : ALC80-24-3R0
Constant Current (정전류)
Input (정격입력) :
AC (교류) 100-240V (100-277V FOR USA)
1.0A 90W 50/60Hz
BAR CODE
Power factor (역률) : λ=0.95
Output (정격출력) :
DC (직류) 6-24V ⎓ 3.0A
Tc : 85°C
Ta : -30,,+ 50°C
Max DC Voltage (최대 출력 전압) : 32V
Production Date (제조년월) : 2011.04
Tc
제 품 명 : 드라이버를 이끌고
Product Name : LED DRIVER
A/S 연락처(A/S Center) : +82-31-717-7051
Country of Origin (제조국) : VIETNAM (베트남)
TDK-Lambda
TDK-Lambda Corporation
SELV
EU
UL-US
V+ (RED)
V- (BLACK)


AC_L (BROWN)
AC_N (BLUE)
Model (모 델 명) : ALC80-24-3R3
Constant Current (정전류)
Input (정격입력) :
AC (교류) 100-240V (100-277V FOR USA)
1.1A 99W 50/60Hz
BAR CODE
Power factor (역률) : λ=0.95
Output (정격출력) :
DC (직류) 6-24V ⎓ 3.3A
Tc : 85°C
Ta : -30,,+ 50°C
Max DC Voltage (최대 출력 전압) : 32V
Production Date (제조년월) : 2011.04
Tc
제 품 명 : 드라이버를 이끌고
Product Name : LED DRIVER
A/S 연락처(A/S Center) : +82-31-717-7051
Country of Origin (제조국) : VIETNAM (베트남)
TDK-Lambda
TDK-Lambda Corporation
SELV
EU
UL-US
V+ (RED)
V- (BLACK)


AC_L (BROWN)
AC_N (BLUE)
Model (모 델 명) : ALC80-48-1R7
Constant Current (정전류)
Input (정격입력) :
AC (교류) 100-240V (100-277V FOR USA)
1.1A 99W 50/60Hz
BAR CODE
Power factor (역률) : λ=0.95
Output (정격출력) :
DC (직류) 6-48V ⎓ 1.7A
Tc : 85°C
Ta : -30,,+ 50°C
Max DC Voltage (최대 출력 전압) : 60V
Production Date (제조년월) : 2011.04
Tc
제 품 명 : 드라이버를 이끌고
Product Name : LED DRIVER
A/S 연락처(A/S Center) : +82-31-717-7051
Country of Origin (제조국) : VIETNAM (베트남)
TDK-Lambda
TDK-Lambda Corporation
SELV
EU
UL-US
V+ (RED)
V- (BLACK)


AC_L (BROWN)
AC_N (BLUE)
Model (모 델 명) : ALC100-22-4R0
Constant Current (정전류)
Input (정격입력) :
AC (교류) 100-240V (100-277V FOR USA)
1.2A 108W 50/60Hz
BAR CODE
Power factor (역률) : λ=0.95
Output (정격출력) :
DC (직류) 6-22V ⎓ 4.0A
Tc : 90°C
Ta : -30,,+ 50°C
Max DC Voltage (최대 출력 전압) : 28V
Production Date (제조년월) : 2011.04
Tc
제 품 명 : 드라이버를 이끌고
Product Name : LED DRIVER
A/S 연락처(A/S Center) : +82-31-717-7051
Country of Origin (제조국) : VIETNAM (베트남)
TDK-Lambda
TDK-Lambda Corporation
SELV
EU
UL-US
V+ (RED)
V- (BLACK)

Test item particulars ..... :	Electronic control gears for LED modules
..... :	For building-in, isolation class II
..... :	
..... :	
..... :	
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 of receipt of test item ..... :	November 2011
Date (s) of performance of tests ..... :	December 2010 – January 2011

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 is used as the decimal separator.

The control gears have been also evaluated in accordance with the following standards:
EN 62384: 2006 + A1: 2009

Factory:

VIETTRONICS BINH HOA JOINT STOCK COMPANY. 204 No Trang Long St., Ward 12, Binh Thanh Dist., Ho Chi Minh city, VIETNAM

General product information:

The devices are built-in electronic SELV step-down control gears, intended to supply Light Emitting Diodes working at constant current. Control gears are built in isolation class II
The enclosure is made of polymeric material.
The control gears are sealed in potting compound for thermal conduction .
Supply and output wiring are provided with double insulation.

Series / Models	Classification	V in V ~	Iin A (at 100 V ac)	P in W	Hz	PF λ	IPXX
ALC60-42-1R4	built-in	100-240	0,8	72	50/60	0,95	20
ALC60-48-1R05	built-in	100-240	0,7	62	50/60	0,95	20
ALC80-48-1R7	built-in	100-240	1,1	99	50/60	0,95	20
ALC80-24-3R0	built-in	100-240	1,0	90	50/60	0,95	20
ALC80-24-3R3	built-in	100-240	1,1	99	50/60	0,95	20
ALC100-22-4R0	built-in	100-240	1,2	108	50/60	0,95	20

Series / Models	I output Current A	Vout range Vdc	Vout max Vdc	P out W	Insulation class	ta (℃)	Tc (℃)
ALC60-42-1R4	1,4	6 - 42	52	60	II	-30..+50	80
ALC60-48-1R05	1,05	6 - 48	60	55	II	-30..+50	80
ALC80-48-1R7	1,7	6 - 48	60	84	II	-30..+50	85
ALC80-24-3R0	3,0	6 - 24	32	85	II	-30..+50	85
ALC80-24-3R3	3,3	6 - 24	32	91	II	-30..+50	85
ALC100-22-4R0	4,0	6 - 22	28	89	II	-30..+50	90

Additional information common to all the models:

Transformer insulation class: 155

Pollution degree: normal pollution

Overheating protection: 110

Note: information about operating ambient temperatures are provided on the technical documentation.