



Ref. Certif. No.

DK-52280-P1-A3-UL

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE)  
CB SCHEME

## CB TEST CERTIFICATE

Product

Built-in LED Module

Name and address of the applicant

Philips Lighting B.V.  
High Tech Campus 45  
Eindhoven, 5656 AE The Netherlands

Name and address of the manufacturer

Philips Lighting B.V.  
High Tech Campus 45  
Eindhoven, 5656 AE The Netherlands

Name and address of the factory

Note: When more than one factory, please report on page 2

☐ Additional Information on page 2

Ratings and principal characteristics

Imax: 1,5 A   
See page 2

Trademark (if any)

**PHILIPS**

Type of Customer's Testing Facility (CTF) Stage used

Model / Type Ref.

Fortimo FastFlex t NxK / zcc XXXxYYY v Gg a  
See Page 2

Additional information (if necessary may also be reported on page 2)

☒ Additional Information on page 2

A sample of the product was tested and found to be in conformity with

IEC 62031(ed.1), IEC 62031(ed.1);am1, IEC 62031(ed.1);am2

As shown in the Test Report Ref. No. which forms part of this Certificate

4787875133-1 issued on 2017-10-23

This CB Test Certificate is issued by the National Certification Body



UL (US), 333 Pfingsten Rd IL 60062, Northbrook, USA

UL (Denko), Borupvang 5A DK-2750 Ballerup, DENMARK

UL (JP), Marunouchi Trust Tower Main Building 6F, 1-8-3 Marunouchi, Chiyoda-ku, Tokyo 100-0005, JAPAN

UL (CA), 7 Underwriters Road, Toronto, M1R 3B4 Ontario, CANADA

Date: 2017-10-27

Original Issue Date: 2017-03-01

Signature:

Jan-Erik Storgaard

For full legal entity names see [www.ul.com/ncbnames](http://www.ul.com/ncbnames)

## Model Details:

## Product Key:

Fortimo FastFlex t NxK l zcc XXXxYYY v Gg a

## Where:

- t = Product type (may be "LED" or "LED board" or blank);  
N = Number of LEDs in width (one digit, may be a value between 1 and 6);  
x = Fixed character;  
K = Number of LEDs in length (one digit, may be a value between 1 and 16);  
z = CRI of LED divided by 10 (one digit, may be "7" or "8");  
cc = Color temperature of LED divided by 100 (two digits, may be between 27 and 65);  
XXXx = Width of module in mm or blank;  
YYY = Length of module in mm or blank;  
v = Alphanumeric version indication of module (may be "DA" or "DAX" or "DS" or "DP" or "DPX" or "X" or "DC" or "DAS" or "DHE" or blank);  
G = Fixed character;  
g = Number of LED module's generation (one digit, may be "3" or "4");  
a = Commercial suffix for commercial purposes (optional)

## Maximum ratings:

Field v on the Product Key	DC Current [A]	Power [W]	t <sub>c</sub> [°C]	Maximum working voltage for basic insulation to mounting surface [V]	With Secondary Optics
<b>LED Module's Generation 3</b>					
Blank	1,05	55	85	680	Yes
DA	1,05	55	85	400 (*)	No (*)
DS	1,05	55	85	200	No
<b>LED Module's Generation 4</b>					
Blank or X	1,5	75	85	680	Yes
DA or DAX	1,5	75	105	330 (*)	No (*)
DP or DPX	1,5	75	105	670	No
DA (**)	1,05	163,8	85	330 (*)	No (*)
DC	1,5	72	85	340	No
DAS	1,05	52,5	85	400 (*)	No (*)
DHE	0,72	37,44	95	260 (*)	No (*)

(\*): See Additional information  
(\*\*): For modules having field a =  

## Factories:

Philips Lighting Electronics Mexico  
AV DEL AGUILA REAL NUM. 19451  
PARQUE INDUSTRIAL BAJAMAQ  
EL AGUILA  
TIJUANA, BC 22215 Mexico

## Additional information (if necessary)



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Additional Information:

- The customer is obligated to add an appropriated cooling system to the LED module in order to not exceed  $t_c$  value and the maximum temperatures of the module's components. Temperature test shall be performed on the final product to verify the effectiveness of this cooling system.
  - M3 fixing screws with diameter of their heads not exceeding 6 mm shall be used (if in metallic material).
  - The insulation between active parts of LED module and accessible conductive parts (metal mounting surface) is tested for basic insulation related to the working voltages listed in the table of maximum ratings.
  - Module having Field v on the Product Key = "DA" or "DAX" or "DAS" can be used with insulating washers (or insulating optic lens) made of suitable material, having 2 mm minimum thickness, with the internal hole suitable for only M3 screws and having the external diameter not less than 6 mm. In this case the module complies with insulation between active parts and accessible conductive parts for a working voltage of 680 V.
  - Module having Field v on the Product Key = "DHE" can be used with insulating washers (or insulating optic lens) made of suitable material, having 2 mm minimum thickness, with the internal hole suitable for only M3 screws and having the external diameter not less than 6 mm. In this case the module complies with insulation between active parts and accessible conductive parts for a working voltage of 570 V.
  - Module having Field v = "DA" or "DAX" and Field a = "AOI" on the Product Key is provided with insulating optic lens (secondary optic).
  - The module can be supplied only by electronic LED controlgears separately approved according to IEC/EN 61347-2-13 and protected against output short-circuit and overload. The maximum working voltage  $U_{out}$  (r.m.s.) of LED controlgear shall not exceed  $U_{out} = 350$  V (330 V for Generation 4 modules having Field v on the Product Key = "DA" or "DAX", 200 V for modules having Field v on the Product Key = "DS", 340 V for modules having Field v on the Product Key = "DC", 260 V for modules having Field v on the Product Key = "DHE").
  - The model Fortimo FastFlex LED 2x6 / 757 DA G4 Alu is identical to the model Fortimo FastFlex LED 2x6 / 757 DA G4, the difference between names is only for commercial purpose.
  - According to technical documentation NTC circuit is a temperature sensing circuit that the customer shall use only for lifetime warranty reasons; it has been considered not isolated to the LED's circuit.
  - The modules have been also evaluated according to IEC TR 62778: 2014 (Second Edition):
- LED Modules Generation 3** are classified RISK GROUP 2 (Eth<sub>r</sub> = 847 lx for modules with Lumileds Luxeon T LEDs, Eth<sub>r</sub> = 773 lx for modules with Cree XP-G2 LEDs). LED Modules Generation 3 provided with secondary optics having CCT equal to 4000 K or less and having rated current equal to 550 mA or less are classified RISK GROUP 1.
- LED Modules Generation 4** are classified RISK GROUP 1 UNLIMITED (For modules with Samsung LM301B LEDs) or RISK GROUP 2 (Eth<sub>r</sub> = 823,6 lx for modules with Cree XP-G2 LEDs, Eth<sub>r</sub> = 520 lx for modules with Cree XP-G3 LEDs, Eth<sub>r</sub> = 1359 lx for modules with OSRAM OSLO SQUARE LEDs, Eth<sub>r</sub> = 708,5 lx for modules with Cree XHP50.2 12V LEDs). LED Modules Generation 4 provided with secondary optics having CCT equal to 4000 K or less and having rated current equal to 530 mA or less are classified RISK GROUP 1.

Additionally evaluated to: EN 62031:2008/A1:2013/A2:2015  
National Differences specified in the CB Test Report

The original report was modified to include the following changes/additions:

- Addition of models "DAS" and "DHE" of LED module's family, one new PCB material and one new LED Chip

Additional information (if necessary)



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