

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

SYSTEME CEI D'ACCEPTATION MUTUELLE DE
CERTIFICATS D'ESSAIS DES EQUIPEMENTS
ELECTRIQUES (IECEE) METHODE OC

CB TEST CERTIFICATE

Product
Produit

Name and address of the applicant
Nom et adresse du demandeur

Name and address of the manufacturer
Nom et adresse du fabricant

Name and address of the factory
Nom et adresse de l'usine

Note: When more than one factory, please report on page 2
Note: Lorsque il y a plus d'une usine, veuillez utiliser la 2^{ème} page

Ratings and principal characteristics
Valeurs nominales et caractéristiques principales

Trademark (if any)
Marque de fabrique (si elle existe)

Type of Manufacturer's Testing Laboratories used
Type de programme du laboratoire d'essais
constructeur

Model / Type Ref.
Ref. De type

Additional information (if necessary may also be
reported on page 2)
Les informations complémentaires (si nécessaire,,
peuvent être indiqués sur la 2^{ème} page

A sample of the product was tested and found
to be in conformity with
Un échantillon de ce produit a été essayé et a été
considéré conforme à la

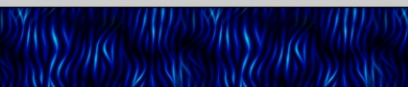
As shown in the Test Report Ref. No. which forms part
of this Certificate
Comme indiqué dans le Rapport d'essais numéro de
référence qui constitue partie de ce Certificat

CERTIFICAT D'ESSAI OC

Built-in LED Module

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

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



☒ Additional Information on page 5

I_{max} 2750 mA — V_{max} 42 V —
See Page 2-4

PHILIPS

Fortimo SLM C zcc dd m Lee s Gi a
See Page 2-4

☒ Additional Information on page 2

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

4786970309-2 issued on 2016-06-27

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme **National de Certification**



- ☐ 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: 2016-06-27
Original Issue Date: 2015-07-29

Signature:

Jan Erik Storgaard

Jan-Erik Storgaard

For full legal entity names see www.ul.com/ncbnames

Model Details:

Product Key:

Main series: **Fortimo SLM C zcc dd m Lee s Gi a**

Where:

- z = CRI of LED divided by 10 (one digit, may be "7" or "8" or "9");
cc = Color temperature of LED divided by 100 (two digits, may be a value between 25 and 57);
dd = Color of light (two or three characters or none, may be "CW" or "FP" or "FPR" or "FW" or "FWW" or "PW" or blank)
m = Die matrix (4 digits, may be "1202" or "1203" or "1204" or "1205" or "1208" or "1211")
ee = Diameter of Light Emitting Surface (LES) in mm (one or two digits, may be a value between 9 and 19);
s = CoB size in mm (four digits, example 2828: CoB dimensions = 28 mm x 28 mm));
i = Number of generation of CoB (one digit, may be "4" or "5");
a = Alphanumeric commercial suffix for commercial purposes (optional)

Maximum ratings of the series:

CoB Type (Die matrix)	Diameter of LES of CoB [mm]	CCT [K]	DC Current [mA]	Power [W]	Power Density of CoB [W/mm ²]	t _c [°C]
1211	19	≤ 4000	2400 (V _{f tot} 37,5 V)	90	0,32	105
		> 4000	1500 (V _{f tot} 36 V) *	54	0,19	
1208	15	≤ 4000	1690 (V _{f tot} 36 V)	60,8	0,34	105
		> 4000	935 (V _{f tot} 36 V) *	33,7	0,19	
1205	13	≤ 4000	1200 (V _{f tot} 36 V)	43,2	0,33	105
		> 4000	700 (V _{f tot} 36 V) *	25,2	0,19	
1204	13	≤ 4000	960 (V _{f tot} 36 V)	34,6	0,26	105
		> 4000	700 (V _{f tot} 36 V) *	25,2	0,19	
1203	9	≤ 4000	600 (V _{f tot} 36 V)	21,6	0,34	105
		> 4000	340 (V _{f tot} 36 V) *	12,2	0,19	
1202	9	≤ 4000	480 (V _{f tot} 36 V)	17,3	0,27	105
		> 4000	340 (V _{f tot} 36 V) *	12,2	0,19	

*: See additional information

Additional information (if necessary)

Information complémentaire (si nécessaire)



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



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Date: 2016-06-27

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Signature:

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Product Key:Variant series 1: **Fortimo SLM zcc Lee hh s Gij a**

Where:

- z = CRI of LED divided by 10 (one digit, may be "7" or "8" or "9");
cc = Color temperature of LED divided by 100 (two digits, may be a value between 25 and 57);
ee = Diameter of Light Emitting Surface (LES) in mm (one or two digits, may be a value between 9 and 19);
hh = Holder type (two characters or none, may be "DL" or "PI" or "ZP" or blank);
s = CoB size in mm (four digits, example 2828: CoB dimensions = 28 mm x 28 mm);
i = Number of generation of CoB (one digit, may be "4" or "5");
j = Number of generation of Holder (one digit, may be "1" or "2");
a = Alphanumeric commercial suffix for commercial purposes (optional)

The variant series 1 differs from the main series for different product key and for the presence of LED CoB + LED Holder.

Maximum ratings of the series:

CoB Type	Diameter of LES of CoB [mm]	CCT [K]	DC Current [mA]	Power [W]	Power Density of CoB [W/mm ²]	t _c [°C]	T Holder [°C]
1211	19	≤ 4000	2400 (V _{ftot} 37,5 V)	90	0,32	105	100
		> 4000	1500 (V _{ftot} 36 V) *	54	0,19		
1208	15	≤ 4000	1690 (V _{ftot} 36 V)	60,8	0,34	105	100
		> 4000	935 (V _{ftot} 36 V) *	33,7	0,19		
1205	13	≤ 4000	1200 (V _{ftot} 36 V)	43,2	0,33	105	100
		> 4000	700 (V _{ftot} 36 V) *	25,2	0,19		
1204	13	≤ 4000	960 (V _{ftot} 36 V)	34,6	0,26	105	100
		> 4000	700 (V _{ftot} 36 V) *	25,2	0,19		
1203	9	≤ 4000	600 (V _{ftot} 36 V)	21,6	0,34	105	100
		> 4000	340 (V _{ftot} 36 V) *	12,2	0,19		
1202	9	≤ 4000	480 (V _{ftot} 36 V)	17,3	0,27	105	100
		> 4000	340 (V _{ftot} 36 V) *	12,2	0,19		

*: See additional information

Additional information (if necessary)**Information complémentaire (si nécessaire)**

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UL (Demko), 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

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Date: 2016-06-27

Original Issue Date: 2015-07-29

Signature:

Jan-Erik Storgaard

Product Key:

Variant series 2: **Fortimo SLM C zcc dd m Lee s G6 a**

Where:

- z = CRI of LED divided by 10 (one digit, may be "7" or "8" or "9");
cc = Color temperature of LED divided by 100 (two digits, may be a value between 25 and 57);
dd = Color of light (two or three characters or none, may be "CW" or "FP" or "FPR" or "FW" or "FWW" or "PW" or blank)
m = Die matrix (4 digits, may be "1202s" or "1203" or "1204" or "1204s" or "1205" or "1208" or "1211" or "1216")
ee = Diameter of Light Emitting Surface (LES) in mm (one or two digits, may be a value between 6.5 and 23);
s = CoB size in mm (four digits, example 2828: CoB dimensions = 28 mm x 28 mm);
a = Alphanumeric commercial suffix for commercial purposes (optional)

Maximum ratings of the series:

CoB Type (Die matrix)	Diameter of LES of CoB [mm]	DC Current [mA]	Power [W]	Power Density of CoB [W/mm ²]	t _c [°C]
1216	23	2750 (V _{f tot} 41 V)	113	0,27	105
1211	19	2400 (V _{f tot} 41 V)	98	0,35	105
1208	15	1710 (V _{f tot} 41 V)	70	0,40	105
1205	13	1050 (V _{f tot} 41 V)	43	0,32	105
1204	13	850 (V _{f tot} 41 V)	35	0,26	105
1204s	9	740 (V _{f tot} 41 V)	30,3	0,47	105
1203	9	570 (V _{f tot} 41 V)	23	0,36	105
1202s	6,5	380 (V _{f tot} 41 V)	15,5	0,47	105

Product Key:

Variant series 3: **Fortimo SLM zcc Lee hh s G6j a**

Where:

- z = CRI of LED divided by 10 (one digit, may be "7" or "8" or "9");
cc = Color temperature of LED divided by 100 (two digits, may be a value between 25 and 57);
ee = Diameter of Light Emitting Surface (LES) in mm (one or two digits, may be a value between 6.5 and 23);
hh = Holder type (two characters or none, may be "DL" or "PI" or "ZP" or blank);
s = CoB size in mm (four digits, example 2828: CoB dimensions = 28 mm x 28 mm);
j = Number of generation of Holder (one digit, may be "1" or "2");
a = Alphanumeric commercial suffix for commercial purposes (optional)

The variant series 3 differs from the variant series 2 for different product key, for the presence of LED CoB + LED Holder and for different maximum ratings for CoB Type 1216.

Maximum ratings of the series:

CoB Type	Diameter of LES of CoB [mm]	DC Current [mA]	Power [W]	Power Density of CoB [W/mm ²]	t _c [°C]	T Holder [°C]
1216	23	2400 (V _{f tot} 41 V)	98	0,24	105	100
1211	19	2400 (V _{f tot} 41 V)	98	0,35	105	100
1208	15	1710 (V _{f tot} 41 V)	70	0,40	105	100
1205	13	1050 (V _{f tot} 41 V)	43	0,32	105	100
1204	13	850 (V _{f tot} 41 V)	35	0,26	105	100
1204s	9	740 (V _{f tot} 41 V)	30,3	0,47	105	100
1203	9	570 (V _{f tot} 41 V)	23	0,36	105	100
1202s	6,5	380 (V _{f tot} 41 V)	15,5	0,47	105	100

Additional information (if necessary)
Information complémentaire (si nécessaire)

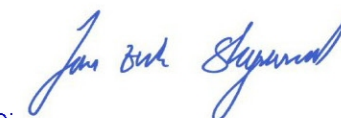

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Additional information:

- The modules have been evaluated according to IEC/TR 62778 and the Lamp classification Group for Blue Light Hazard is Risk Group 1 Unlimited for modules having generation of CoB "4" or "5", Risk Group 2 for modules having generation of CoB "6" when are used at maximum rated currents. These Generation 6 modules are classified as Risk Group 1 if they are used according to the maximum currents listed below.

	CoB Type							
	1216	1211	1208	1205	1204	1204s	1203	1202s
Maximum Currents for RG1 Classification [mA]	1824	1254	912	570	456	456	342	228

- For modules having generation of CoB "4" or "5" with CCT > 4000 K the customer can increase the rated currents (for example 1500 mA for Type 1211) up to the rated currents of modules having CCT ≤ 4000 K (2400 mA for Type 1211), however in this case the photobiological hazard shall be additionally evaluated in the final product.

- The insulation between active parts of LED CoB and accessible conductive parts (metal mounting surface) is tested for basic insulation related to 50 Vdc for CoB Types 1202, 1202s, 1203, 1204s and all CoBs provided with holders having Field *hh* in the product key of variant series = "PI", and 200 Vdc for CoB Types 1204, 1205, 1208, 1211, 1216 provided with holders having Field *hh* in the product key of variant series = "DL" or "ZP" or blank.

- Creepage and clearance distances on the overall LED module (LED CoB + LED Holder) shall be evaluated on the final product.

- LED Holders have been evaluated as integral component according to IEC/EN 60838-1:2004 + A1:2008 + A2:2011 and IEC/EN 60838-2-2:2006 + A1:2012

- M3 fixing screws for LED Holders shall be used. The fasters used to secure the module to the mounting surface must be tightened with a torque between 0,4 and 0,6 Nm.

- The modules 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.

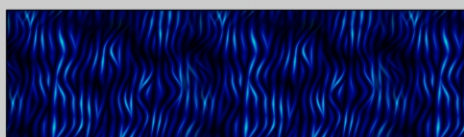
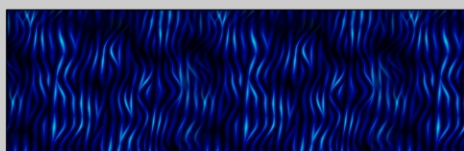
- The customer is obligated to add an appropriated cooling system to the LED module in order to not exceed t_c value. Temperature test shall be performed on the final product to verify the effectiveness of this cooling system.

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

-Addition of Variant Series 2 and 3 having improved Generation of CoBs (Generation 6) and having new CoB Types 1202s, 1204s and 1216;

-Addition of new PI holder with dimensions suitable for CoB Type 1202s.

Production Sites:



Additional information (if necessary)

Information complémentaire (si nécessaire)



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