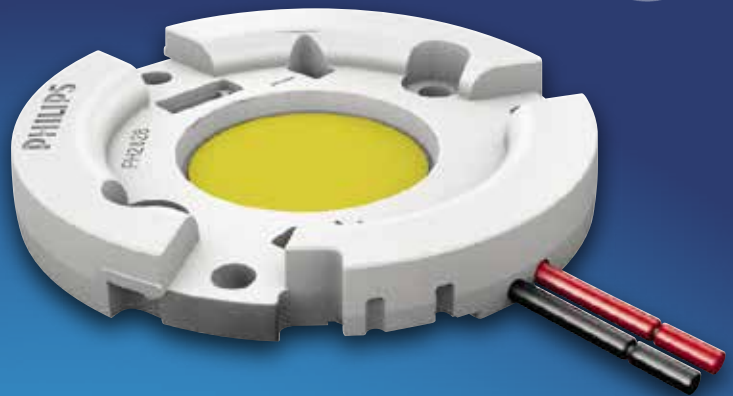


**PHILIPS**

Fortimo

LED system

SLM Gen4 4500 lm L19



## Datasheet

# Experience **bright** **and vivid** colors

### **Fortimo LED SLM 4500 lm L19**

The Fortimo LED SLM Gen4 is a next generation solution for spotlight and mini-down-light applications. It is a product in line with the Fortimo brand promise of light quality and a smart system. We provide you with a system proposition ranging from 1100 lm to 4500 lm in preset outputs, with the flexibility to tune as per your needs.



\*Measurements showing compliancy to Zhaga book 3 version 1.2 have been done on the 3000 lm L15 module with the standard holder.

February 2015

This module is available in the following options. It is possible to combine these with any of the drivers as described in the design-in guide available at [www.Philips.com/Technology](http://www.Philips.com/Technology). The nominal operating current for this module has been selected as 1200 mA. Apart from this value, the module can be operated at different currents. A list of possible Rsets is provided below. More information about such tuning can be found further on in the document.

Commercial product name	EOC	12NC
<b>Standard with pre-tinned cables (60 cm)</b>		
Fortimo LED SLM 4500lm 830 L19 G4	8718291 78345900	9290 009 02806
Fortimo LED SLM 4500lm 840 L19 G4	8718291 78347300	9290 009 02906
Fortimo LED SLM 4500lm 927 L19 G4	8718291 78349700	9290 009 03006
Fortimo LED SLM 4500lm 930 L19 G4	8718291 78351000	9290 009 03106
<b>Down light versions with tin-dipped sleeved cable (60 cm)</b>		
Fortimo LED SLM 4500lm 830 DL L19 G4	8718696 41732400	9290 009 28806
Fortimo LED SLM 4500lm 840 DL L19 G4	8718696 41734800	9290 009 28906
Fortimo LED SLM 4500lm 927 DL L19 G4	8718696 41730000	9290 009 28706
Fortimo LED SLM 4500lm 930 DL L19 G4	8718696 41770600	9290 009 30506
Fortimo LED SLM 4500lm 830 DL PW L19 G4	8718696 41746100	9290 009 29506
Fortimo LED SLM 4500lm 930 DL PW L19 G4	8718696 41756000	9290 009 29806
<b>Poke-in (PI) version with no pre-connected wires</b>		
Fortimo LED SLM 4500lm 830 PI L19 G4	8718696 43210500	9290 009 36506
Fortimo LED SLM 4500lm 840 PI L19 G4	8718696 43212900	9290 009 36606
Fortimo LED SLM 4500lm 927 PI L19 G4	8718696 43214300	9290 009 36706
Fortimo LED SLM 4500lm 930 PI L19 G4	8718696 43216700	9290 009 36806
<b>Premium White (below BBL) with pre-tinned cable (60 cm)</b>		
Fortimo LED SLM 4500lm 830 PW L19 G4	8718291 79939900	9290 009 11706
Fortimo LED SLM 4500lm 930 PW L19 G4	8718696 41740900	9290 009 29206
Fortimo LED SLM 4500lm 830 PI PW L19 G4	8718696 43222800	9290 009 37106
Fortimo LED SLM 4500lm 930 PI PW L19 G4	8718696 43232700	9290 009 37406

## Associated Rsets

Commercial product name	EOC	12NC	Value (Ω)	Type
Fortimo LED Rset 300mA	8718696 40193400	9290 009 12506	560	Poke-in
Fortimo LED Rset 300mAConnector	8718696 40195800	9290 009 12606	560	JST
Fortimo LED Rset 500mA	8718696 40199600	9290 009 12706	1200	Poke-in
Fortimo LED Rset 500mAConnector	8718696 40201600	9290 009 12806	1200	JST
Fortimo LED Rset 750mA	8718696 40203000	9290 009 12906	2050	Poke-in
Fortimo LED Rset 750mAConnector	8718696 40205400	9290 009 13006	2050	JST
Fortimo LED Rset 950mA	8718696 40207800	9290 009 13106	3090	Poke-in
Fortimo LED Rset 950mAConnector	8718696 40209200	9290 009 13206	3090	JST
Fortimo LED Rset 1200mA	8718696 40211500	9290 009 13306	4870	Poke-in
Fortimo LED Rset 1200mAConnector	8718696 40213900	9290 009 13406	4870	JST

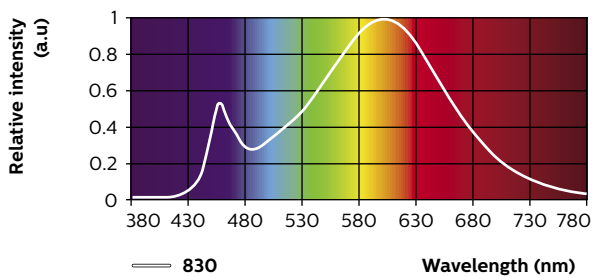
## Optical characteristics - table per CCT

### Fortimo LED SLM 4500 lm L19 830

Parameter	Min	Typ	Max	Unit
Luminous Flux	4370	4860	5350	lm
Module Efficiency		115		lm/W
Correlated Colour Temperature		3000		K
Colour Coordinates		(0.434, 0.403)		-
Colour Coordinates Premium White		(0.430, 0.395)		-
Colour Consistency		3		SDCM
CRI		>80		-
Radiation Angle		115		deg
Thermal Power			29.4	W
Energy efficiency label		A+		-

Note: Specifications stated at Tc nom = 85 °C and I nom = 1200 mA

Ri	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
82	80	92	95	76	79	89	83	60	12	81	72	68	83	98	74

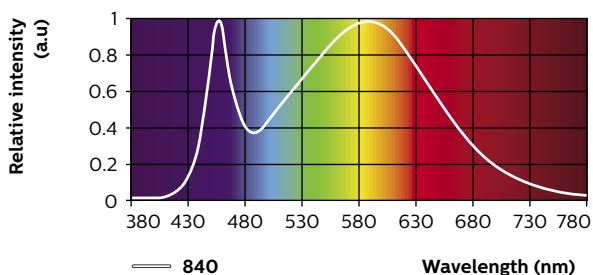


### Fortimo LED SLM 4500 lm L19 840

Parameter	Min	Typ	Max	Unit
Luminous Flux	4640	5160	5680	lm
Module Efficiency		122		lm/W
Correlated Colour Temperature		4000		K
Colour Coordinates		(0.382, 0.380)		-
Colour Consistency		3		SDCM
CRI		>80		-
Radiation Angle		115		deg
Thermal Power			28.7	W
Energy efficiency label		A+		-

Note: Specifications stated at Tc nom = 85 °C and I nom = 1200 mA

Ri	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
81	79	90	96	76	78	84	85	63	7	74	72	58	82	98	73



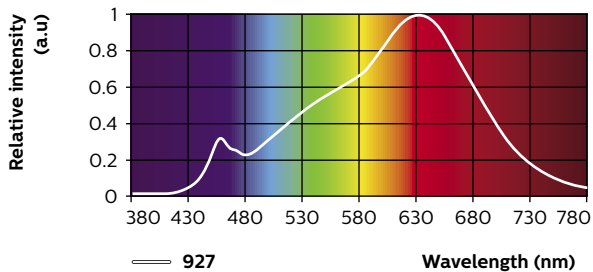
## Optical characteristics - table per CCT

### Fortimo LED SLM 4500 lm L19 927

Parameter	Min	Typ	Max	Unit
Luminous Flux	3380	3760	4140	lm
Module Efficiency		89		lm/W
Correlated Colour Temperature		2700		K
Colour Coordinates		(0.458, 0.410)		-
Colour Consistency		3		SDCM
CRI		>90		-
Radiation Angle		115		deg
Thermal Power			32.9	W
Energy efficiency label		A+		-

Note: Specifications stated at Tc nom = 85 °C and I nom = 1200 mA

Ri	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
97	99	100	98	98	98	98	95	91	81	97	100	88	99	98	96

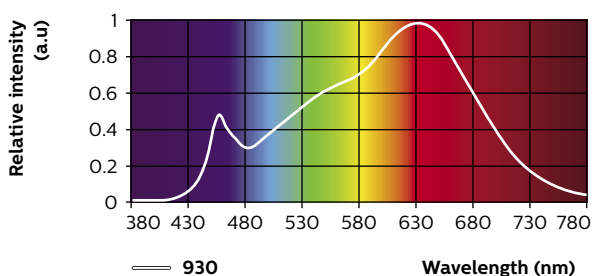


### Fortimo LED SLM 4500 lm L19 930

Parameter	Min	Typ	Max	Unit
Luminous Flux	3530	3930	4330	lm
Module Efficiency		93		lm/W
Correlated Colour Temperature		3000		K
Colour Coordinates		(0.434, 0.403)		-
Colour Coordinates Premium White		(0.430, 0.395)		-
Colour Consistency		3		SDCM
CRI		>90		-
Radiation Angle		115		deg
Thermal Power			32.7	W
Energy efficiency label		A+		-

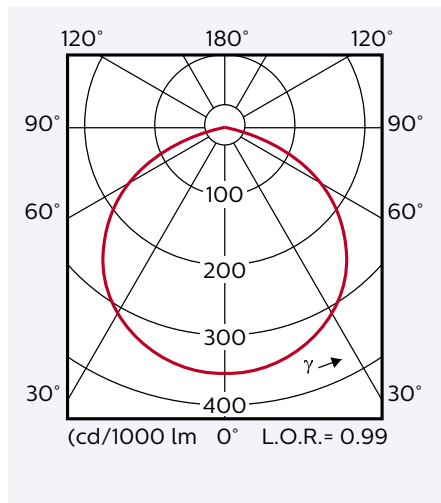
Note: Specifications stated at Tc nom = 85 °C and I nom = 1200 mA

Ri	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
97	99	100	99	97	98	97	95	93	85	99	98	84	100	98	97



## Beam shape

The Philips Fortimo LED SLM generates a Lambertian beam shape, which is a pragmatic starting point for OEMs wishing to design secondary optics.



## Electrical characteristics

Parameter	Typ	Unit
Nominal current	1200	mA
Forward voltage	35.3	V
Power consumption	42	W

Note: Specifications stated at  $T_c \text{ nom} = 85^\circ\text{C}$  and  $I \text{ nom} = 1200 \text{ mA}$

## Lifetime

Parameter	Min	Typ	Max	Unit
Lumen maintenance B50L70	50,000			hrs
$\Delta u'v'$ at 6,000 hours			0.00013	-
Critical failures (10%)	50,000			hrs

Note: Specifications stated at  $T_c \text{ nom} = 85^\circ\text{C}$  and  $I \text{ nom} = 1200 \text{ mA}$

Parameter	Nominal *	Max**
$T_c$ [ $^\circ\text{C}$ ]	85	95
Current [mA]	1200	1500

\* Nominal value at which performance is specified.

\*\* Maximum value for safety (warranty may not hold in this case)

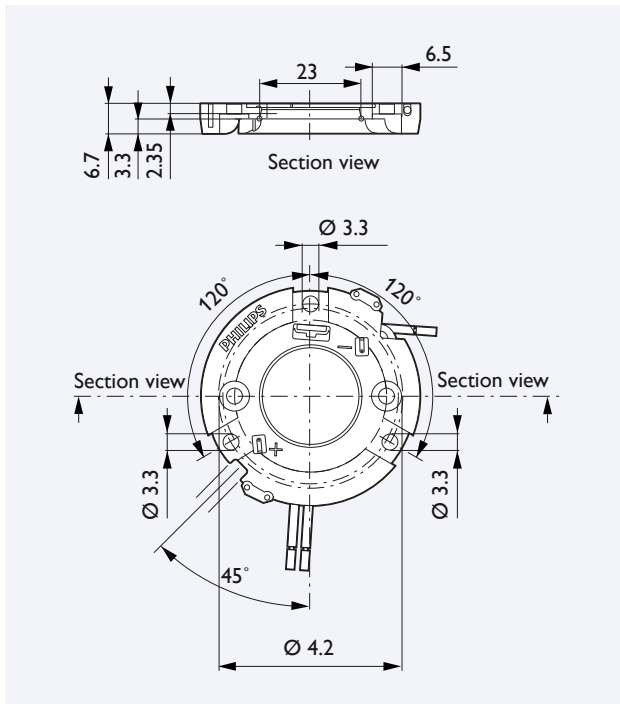
Note:  $T_c \text{ life} \leq 85^\circ\text{C}$  (measured at  $25^\circ\text{C}$  ambient temperature)

## Abs max ratings

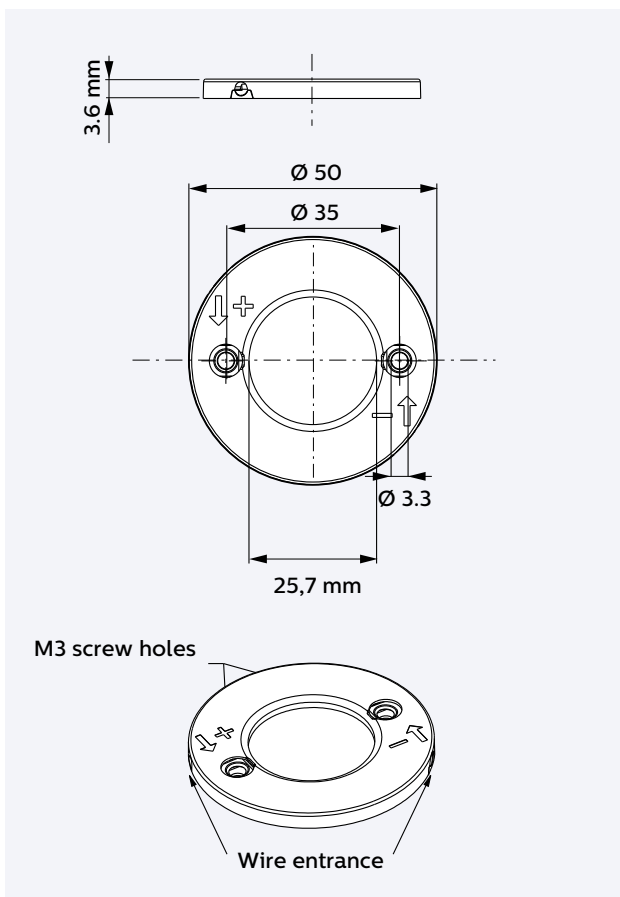
Parameter	Min	Typ	Max	Unit
Current $I_{\text{max}}$			1500	mA
Case temperature $T_c \text{ max}$			95	$^\circ\text{C}$
ESD Human Body Model (HBM) Class 3A JESD22-A114-E			8	kV
ESD Machine Model (MM) Class B JESD22-A115-B			400	kV
Operating ambient temperature	-20		40	$^\circ\text{C}$
Storage temperature	-40		80	$^\circ\text{C}$

## Mechanical characteristics

### Standard version



### Poke-in version



## Application information

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### Compliance and approval

IEC / EN 62031, IEC / EN 62471

### Environmental

RoHS / REACH

### Application information

Zhaga	4500 lm L19 830	4500 lm L19 840	4500 lm L19 830	4500 lm L19 830
Luminous Flux Category	C040	C040	C040	C040
LES diameter [mm]	19	19	19	19
LES category	LES19	LES19	LES19	LES19
Rotational Symmetry S	0.9	0.9	0.9	0.9
Uniformity Parameter U	100%	100%	100%	100%
Correlated Color temperature [K]	3000	4000	2700	3000
Color rendering index	>80	>80	>90	>90

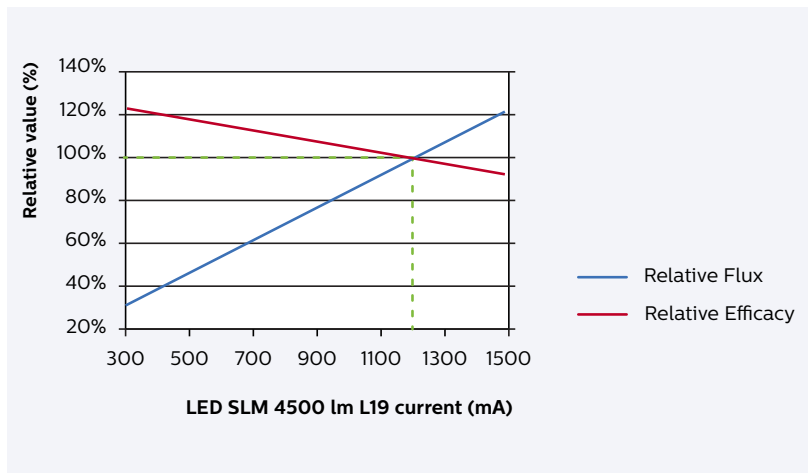
Note: Measurements showing compliancy to Zhaga book 3 version 1.2 have been done on the 3000 lm L15 module with the standard holder.

IP rating	No IP rating
Overheating protection	No protection

## Tuning information

### Flux and efficacy versus current (at nominal temperature)

#### 4500 lm L19



I [A]	Flux (lm)	Efficacy (lm/W)
300	27.8%	124.3%
500	45.9%	118.3%
669	59.7%	113.0%
750	66.1%	111.3%
853	74.2%	108.7%
916	79.2%	107.0%
950	79.5%	106.1%
968	82.4%	105.2%
1009	86.0%	104.3%
1200	100.0%	100.0%
1231	102.1%	99.1%
1335	109.5%	96.5%
1403	114.3%	95.7%
1500	120.8%	93.0%

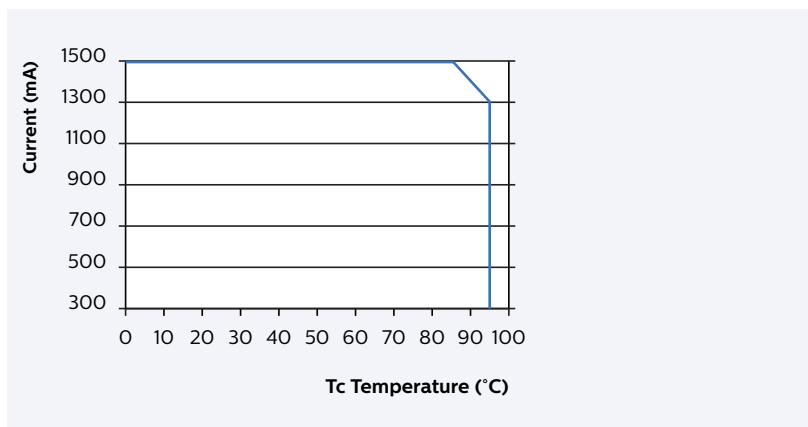
The highlighted current values are available as Rsets as a part of the system.

### Flux and efficacy versus temperature at Tc (at nominal current)

Tc (°C)	Flux (lm)	Efficacy (lm/W)
65	104.1%	102.5%
75	102.1%	101.6%
85	100.0%	100.0%

Please ensure if after tuning, your operating point is still covered by warranty or not.

### Warranty Window 4500 lm L19

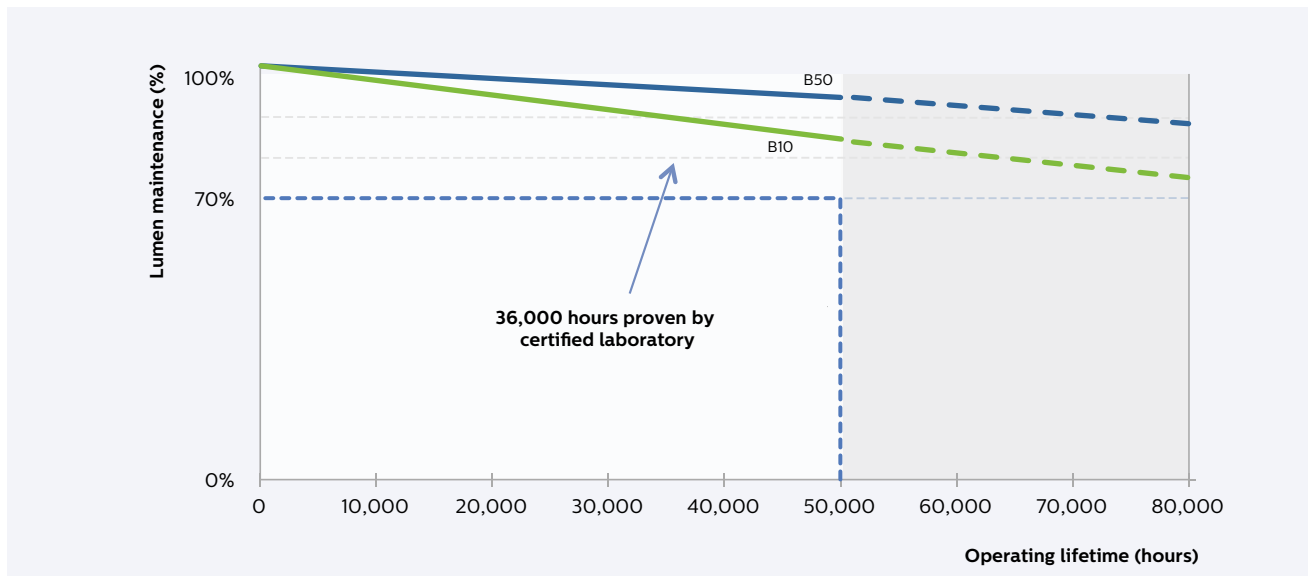




## Lumen maintenance

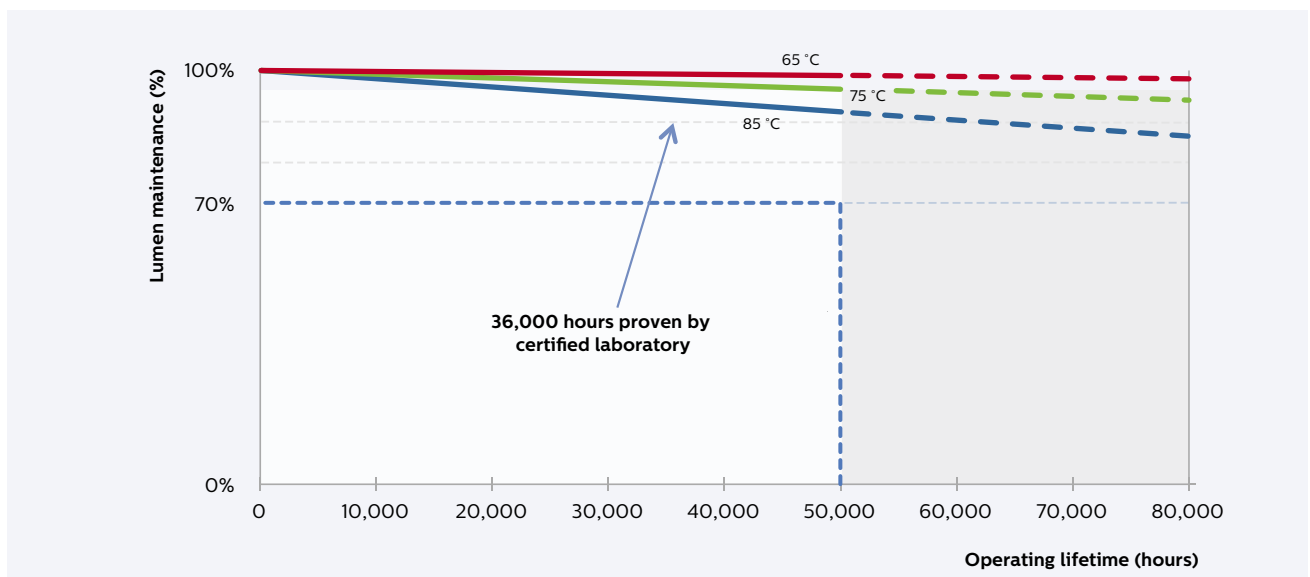
### Lumen maintenance: at nominal conditions

#### Fortimo LED SLM 4500 lm L19



### Lumen maintenance (B50): at nominal current

#### Fortimo LED SLM 4500 lm L19





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