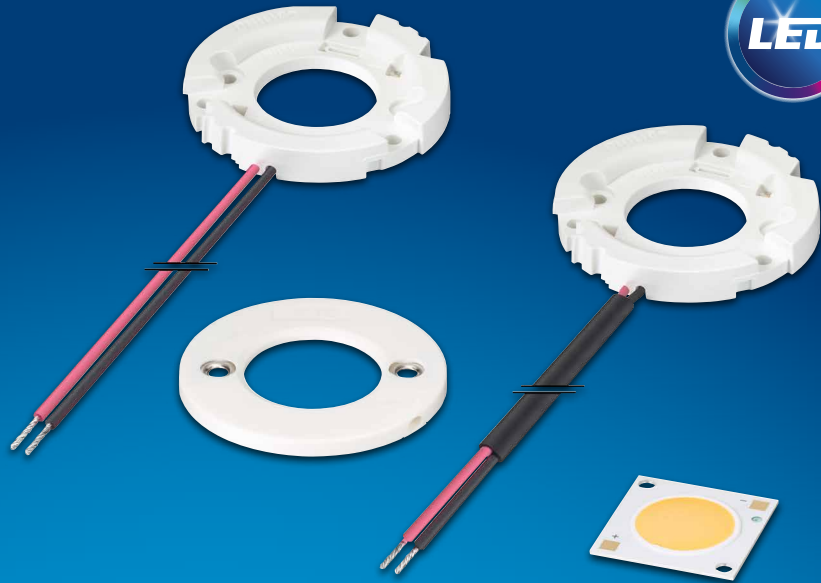


PHILIPS

Fortimo

LED system

SLM Food Gen5



Datasheet

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

Fortimo SLM Food G5

Fortimo LED SLM Gen5 continues to focus on the combination of Quality of Light and performance. By offering the CoB separate from the holder, even more flexibility in possible system combinations and specifications is achieved. This results in an extensive portfolio of lumen ranges, CCTs and spectras. Please also check the online Easy Design-in Tool for your perfect system combination (www.easydesignintool.com)

Key features and benefits

- High quality of white light
- Small LES for narrow beam angles and small reflector designs
- Flexibility to select a different lumen output between 700 and 6000 lm
- High energy efficacy of up to 147 lm/W or even higher
- System proposition (CoB + Holder + driver)
- Titanium window drivers with SimpleSet for maximum flexibility
- Mini drivers for smallest possible luminaire designs
- Five years system warranty
- Over 50,000 hours lifetime
- Three dedicated product lines:
 - SLM Gen5 Premium White
 - SLM Gen5 CrispWhite
 - SLM Gen5 Food

October 2015

This product is available in the following options. It is possible to combine these with any of the holders from the portfolio. The customer has full flexibility to tune the CoB to get the required lumen output and/or efficacy. More details can be found further on in the document.

Ordering data

Commercial product name	EOC	12NC
Fortimo SLM C 930 FWW 1211 L19 2828 G5	6947939 118458 00	9290 009 88380
Fortimo SLM C 930 FPR 1211 L19 2828 G5	6947939 118014 00	9290 009 88480

Drive currents and case temperatures

Parameter	CoB	Nominal*	Life**	Max***
I (current through the LED module)	FWW	1200	1200	1500
	FPR	1200	1200	1500
Tc (Case temperature at Tc point)	FWW	85	85	95
	FPR	85	85	95

* Nominal value at which typical performance is specified.

** Value at which lifetime is specified.

*** Maximum value for safe operation, do not operate above this value.

Electrical Characteristics

Parameter	Min	Typ	Max	Unit
Nominal Current		1200	1500	mA
Forward Voltage		35.4	37.9	V
Power consumption		42.4	45.4	W

Specifications stated at Tc-nom and I-nom.

Absolute Maximum Ratings

Parameter	Min	Typ	Max	Unit
Current through the LED module (I-max)			1500	mA
Case temperature (Tc-max)			95	°C
Power at rated Tc-max and I-max			53.9	W
ESD Human Body Model (HBM) Class 3A JESD22-A114-E 8 kV			8	kV
ESD Machine Model (MM) Class B JESD22-A115-B			400	kV
Ambient temperature	-20		40	°C
Storage temperature	-40		80	°C

Optical characteristics - table per color (CCT)

Fortimo SLM FWW 1211 L19 G5

Parameter	Min	Typ	Max	Unit
Correlated color temperature (CCT) range		Food Warm White		K
Color Coordinates (CIEx, CIEy)		(0.457, 0.385)		-
CRI		90		-
Energy Efficiency Label		A		-
Radiation Angle		115		deg

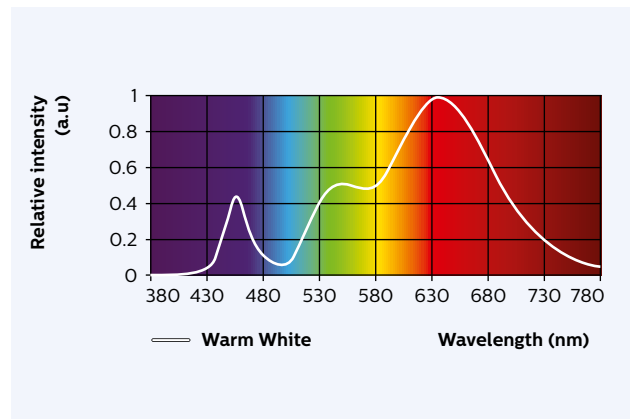
Color consistency of 5 SDCM, averaged over the module.
Tolerance of ± 0.005 on x, y coordinates.

Operation Point	FWW	lm	Lm/W
80% I-nom 960 mA	Tc 65 °C	2530	75
	Tc-nom 85 °C	2400	72
	Tc-max 95 °C	2320	70
I-nom = I - life 1200 mA	Tc 65 °C	3050	71
	Tc-nom 85 °C	2880	68
	Tc-max 95 °C	2790	66
I-max 1500 mA	Tc 65 °C	3640	67
	Tc-nom 85 °C	3440	64
	Tc-max 95 °C	3320	62

Tolerance for flux data is $\pm 10\%$.
Tolerance for Vf data is $\pm 10\%$.
Tolerance for efficacy data is dependent on the above mentioned tolerances.
Please refer to the warranty window to ensure that your operating conditions are covered.

Note: Performance above already considers 1-3% optical loss when holder is added to the COB.

Ri	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
95	97	98	85	94	98	94	95	97	98	88	91	79	97	88	94



Fortimo SLM FPR 1211 L19 G5

Parameter	Min	Typ	Max	Unit
Correlated color temperature (CCT) range		Food Premium Red		K
Color Coordinates (CIEx, CIEy)		(0.397, 0.33)		-
CRI		87		-
Energy Efficiency Label		A		-
Radiation Angle		115		deg

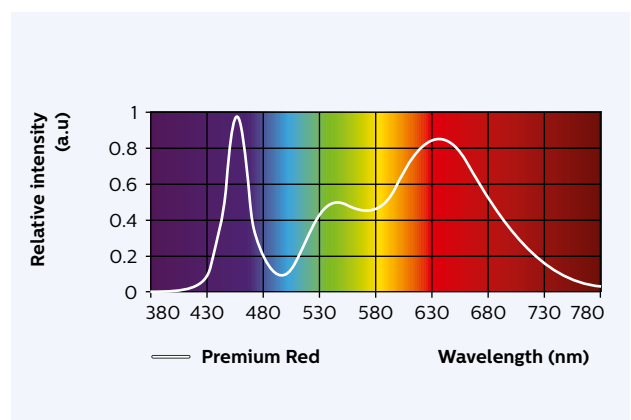
Color consistency of 5 SDCM, averaged over the module.
Tolerance of ± 0.005 on x, y coordinates.

Operation Point	FPR	lm	Lm/W
80% I-nom 960 mA	Tc 65 °C	2670	79
	Tc-nom 85 °C	2530	76
	Tc-max 95 °C	2450	74
I-nom = I - life 1200 mA	Tc 65 °C	3220	75
	Tc-nom 85 °C	3040	72
	Tc-max 95 °C	2940	70
I-max 1500 mA	Tc 65 °C	3840	70
	Tc-nom 85 °C	3630	67
	Tc-max 95 °C	3510	65

Tolerance for flux data is $\pm 10\%$.
Tolerance for Vf data is $\pm 10\%$.
Tolerance for efficacy data is dependent on the above mentioned tolerances.
Please refer to the warranty window to ensure that your operating conditions are covered.

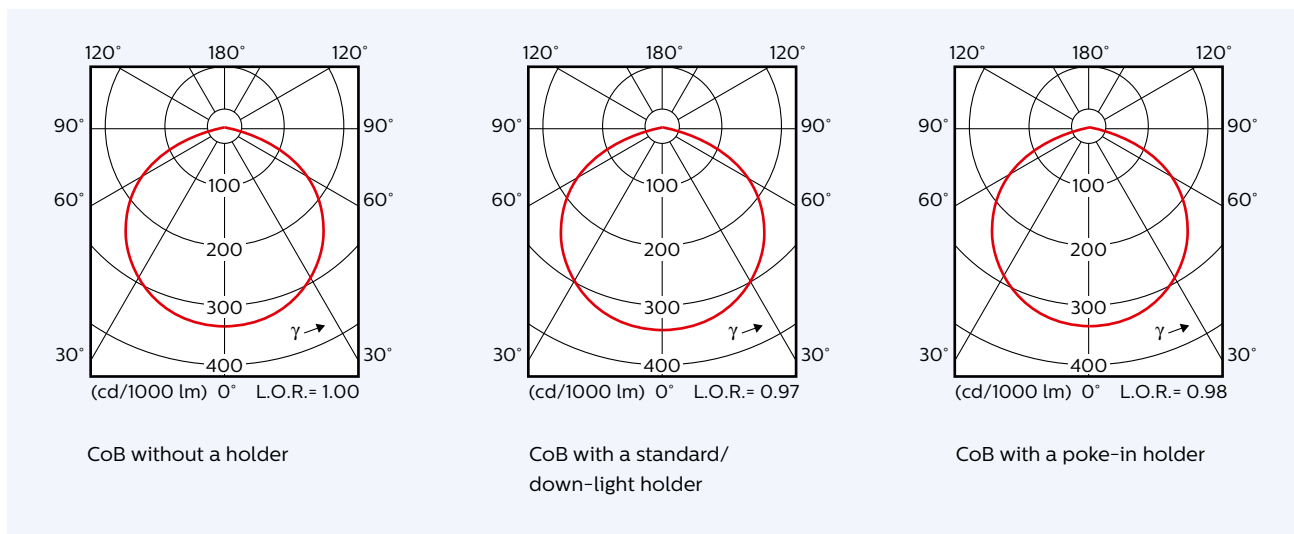
Note: Performance above already considers 1-3% optical loss when holder is added to the COB.

Ri	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
89	84	87	91	93	88	86	95	85	58	87	91	91	83	92	74



Beam shape

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



Lifetime

1211 FWW

Operation point	Lifetime x 1000 hours	L70			L80			L90		
		B50	B20	B10	B50	B20	B10	B50	B20	B10
80% I-nom 960 mA	Tc 65 °C	>50	>50	>50	>50	>50	>50	>50	>50	>50
	Tc-nom 85 °C	>50	>50	>50	>50	>50	>50	>50	37	30
	Tc-max 95 °C	>50	>50	>50	>50	40	32	29	19	15
I-nom = I - life 1200 mA	Tc 65 °C	>50	>50	>50	>50	>50	>50	>50	>50	>50
	Tc-nom 85 °C	>50	>50	>50	>50	>50	>50	46	30	24
	Tc-max 95 °C	>50	>50	42	49	32	26	23	15	12
I-max 1500 mA	Tc 65 °C	>50	>50	>50	>50	>50	>50	>50	>50	>50
	Tc-nom 85 °C	>50	>50	>50	>50	49	39	35	23	19
	Tc-max 95 °C	>50	40	32	39	25	20	18	12	10

Please refer to the warranty window to ensure that your operating conditions are covered.

1211 FPR

Operation point	Lifetime x 1000 hours	L70			L80			L90		
		B50	B20	B10	B50	B20	B10	B50	B20	B10
80% I-nom 960 mA	Tc 65 °C	>50	>50	>50	>50	>50	>50	>50	>50	>50
	Tc-nom 85 °C	>50	>50	>50	>50	>50	>50	>50	38	30
	Tc-max 95 °C	>50	>50	>50	>50	40	33	29	19	15
I-nom = I - life 1200 mA	Tc 65 °C	>50	>50	>50	>50	>50	>50	>50	>50	>50
	Tc-nom 85 °C	>50	>50	>50	>50	>50	>50	47	31	25
	Tc-max 95 °C	>50	>50	43	>50	33	27	24	16	13
I-max 1500 mA	Tc 65 °C	>50	>50	>50	>50	>50	>50	>50	>50	>50
	Tc-nom 85 °C	>50	>50	>50	>50	>50	40	36	24	19
	Tc-max 95 °C	>50	42	33	40	26	21	19	12	10

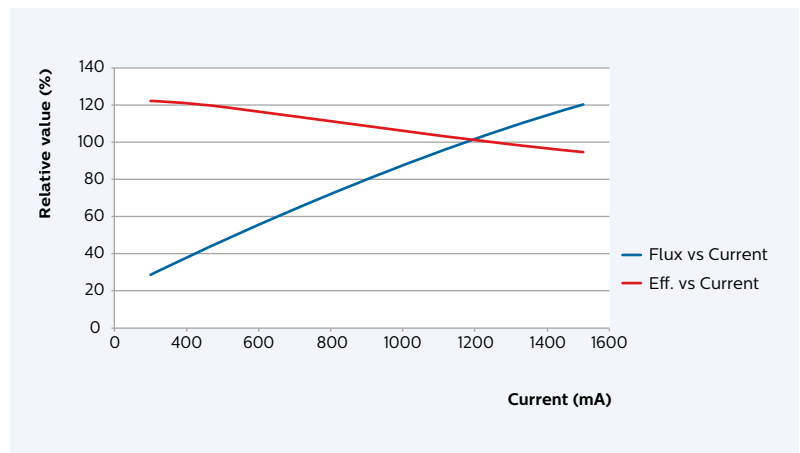
Please refer to the warranty window to ensure that your operating conditions are covered.

Tuning information

Flux and efficacy versus current (at $T_c = 85\text{ }^\circ\text{C}$)

I [mA]	Flux [%]	Efficacy [%]
300	27.4%	121.1%
500	46.0%	117.8%
600	54.7%	115.3%
750	67.0%	111.3%
950	82.4%	106.0%
1200	100.0%	100.0%
1320	107.9%	97.3%
1500	119.2%	93.6%

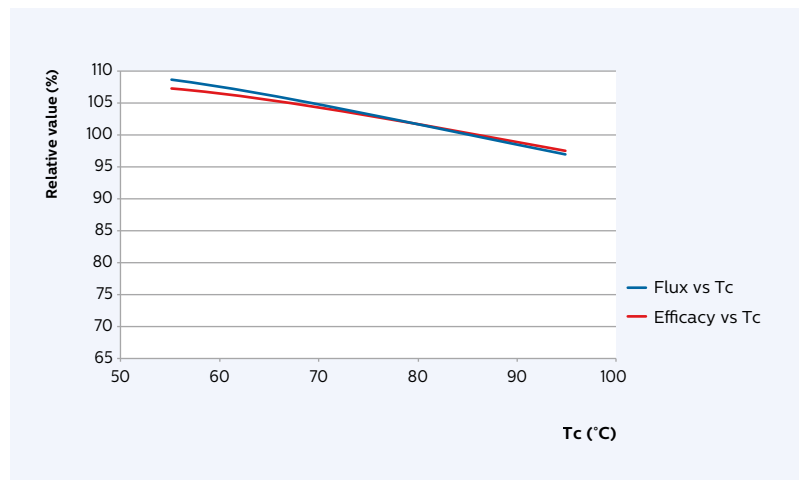
Note: Performance above already considers 1-3% optical loss when holder is added to the COB.



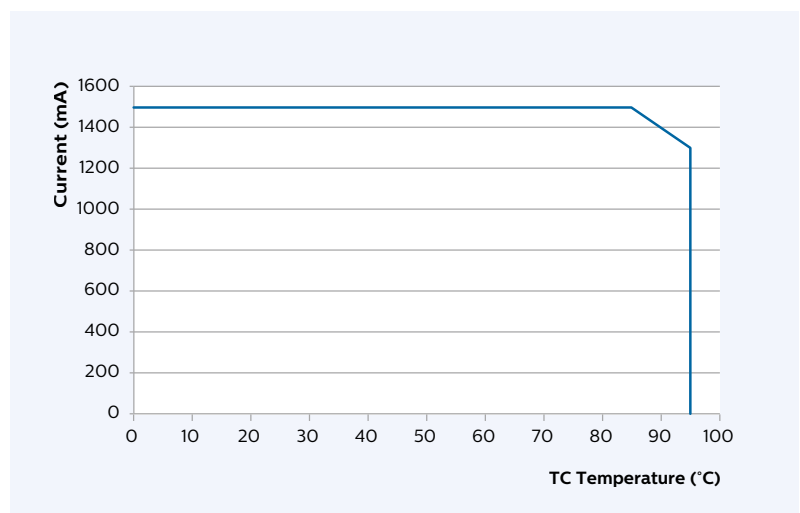
Flux and efficacy versus temperature (at I = 1200 mA)

Tc [°C]	Flux [%]	Efficacy [%]
95	96.7%	97.2%
85	100,0%	100,0%
75	103,0%	102,7%
65	105,8%	104,9%
55	108,3%	106,9%

Note: Performance above already considers 1-3% optical loss when holder is added to the COB.



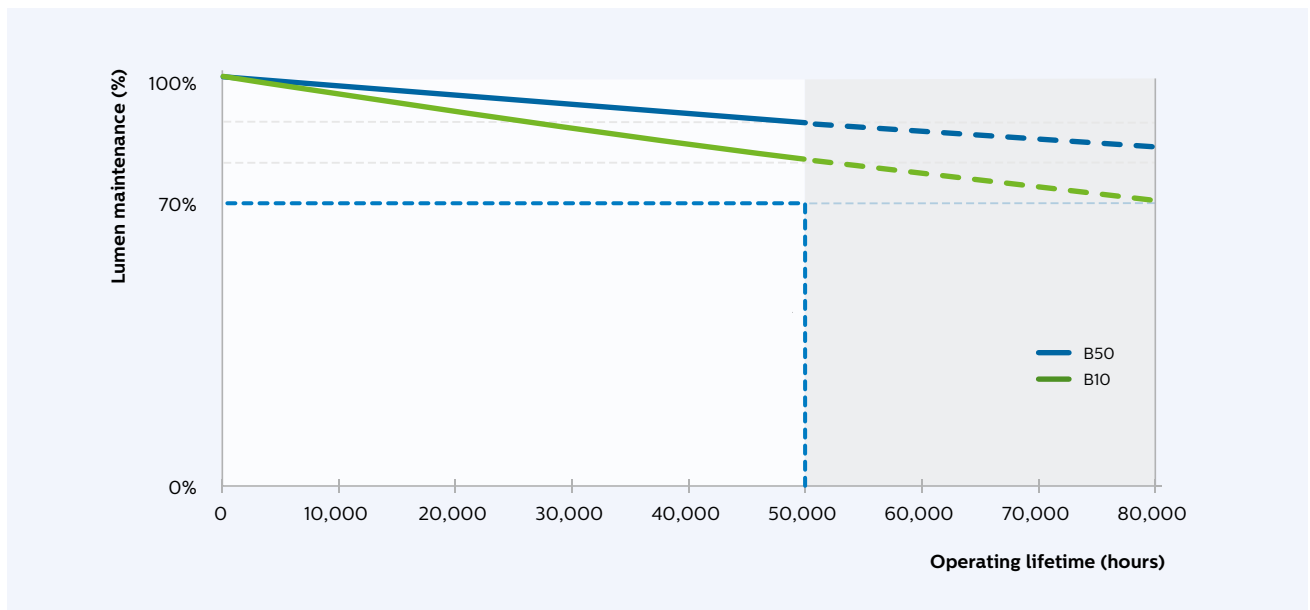
Warranty Window 1211 FWW and FPR



Lumen maintenance

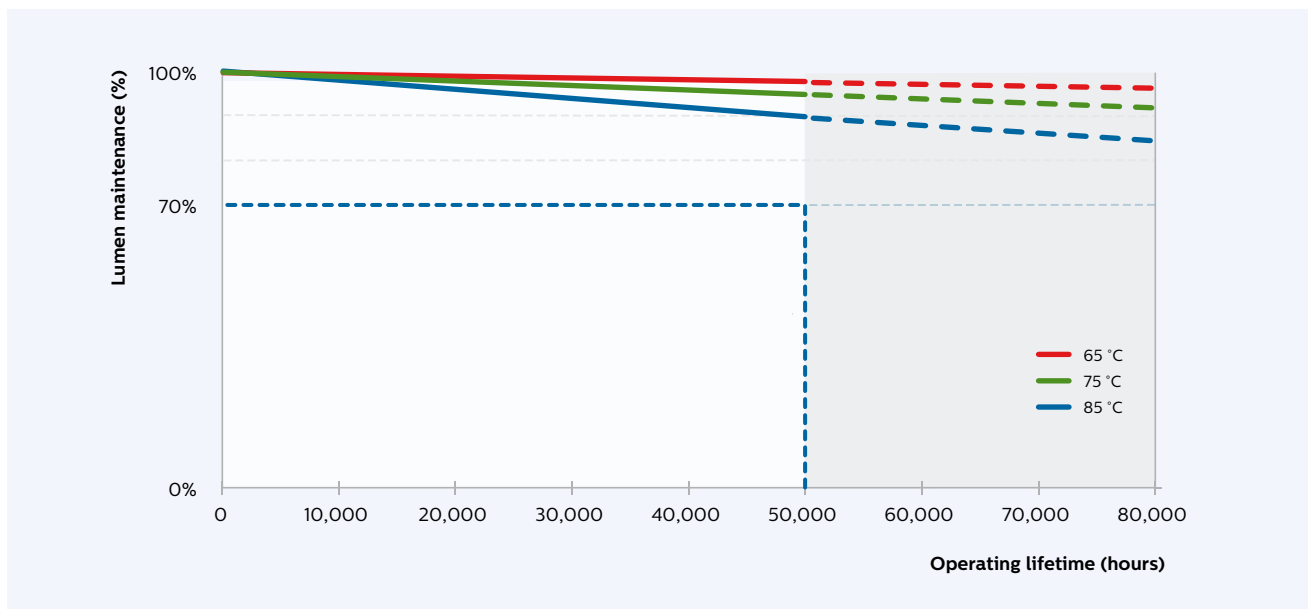
1211 FWW

Lumen maintenance at I-life and Tc-life conditions



>50 k hours claim is based on extrapolating raw LM80-data by using statistical techniques.

Lumen maintenance for B50 at current I-life conditions

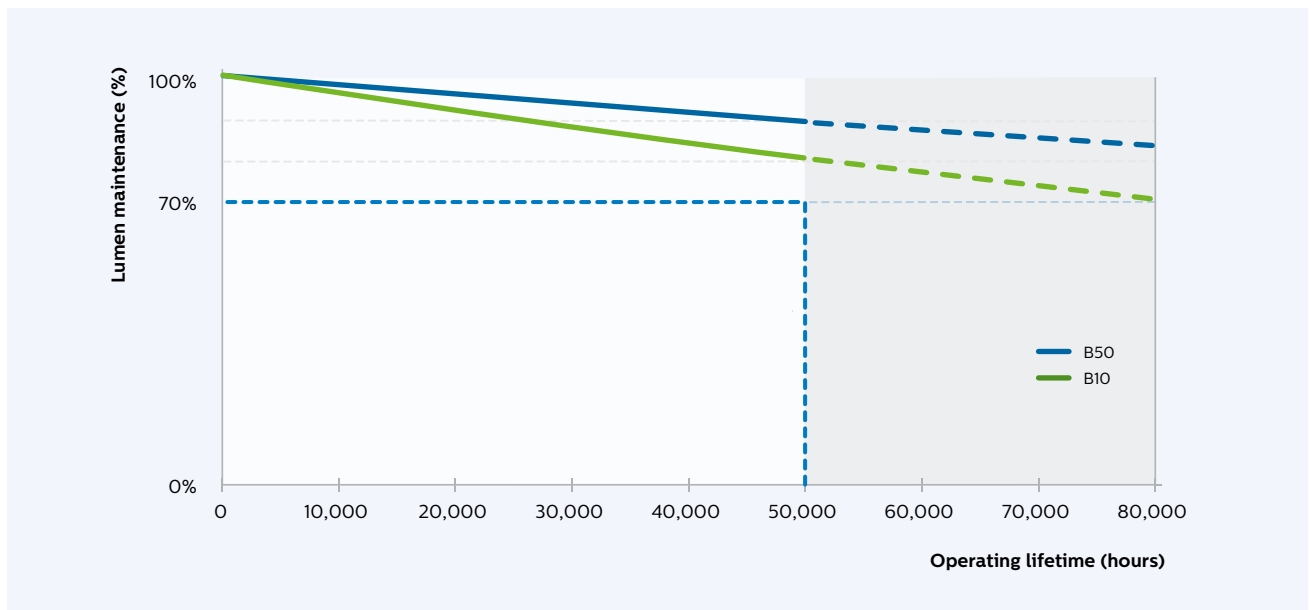


>50 k hours claim is based on extrapolating raw LM80-data by using statistical techniques.

Lumen maintenance

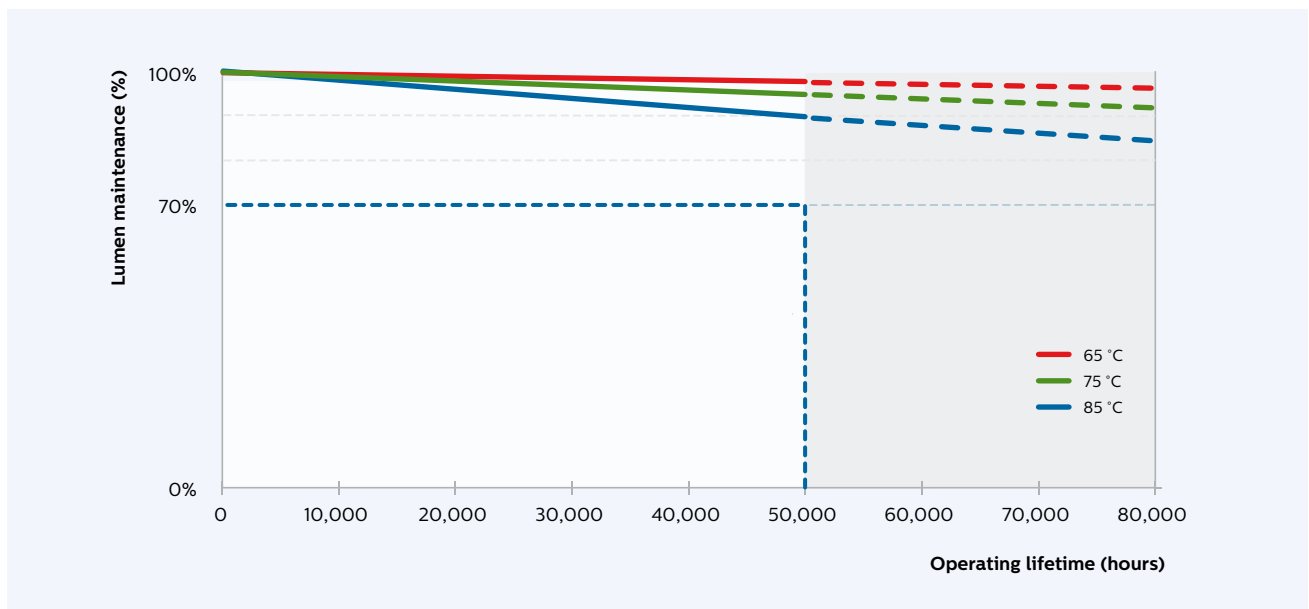
1211 FPR

Lumen maintenance at I-life and Tc-life conditions



>50 k hours claim is based on extrapolating raw LM80-data by using statistical techniques.

Lumen maintenance for B50 at current I-life conditions



>50 k hours claim is based on extrapolating raw LM80-data by using statistical techniques.



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10/2015
Data subject to change.