



GROWKING[®]
LED LIGHTING TECHNOLOGY

Rail 40+

Test Report Rail 40+

OSRAM GmbH Central Laboratory for Light Measurements

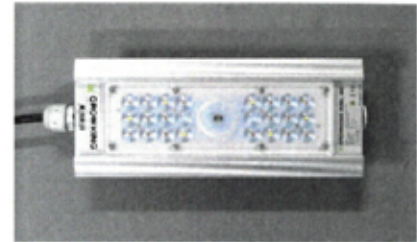


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USt.-IdNr. DE154717066 WEEE Reg. Nr. DE 66415516



Subject Photometric Evaluation
Object Luminaire
Manufacturer Growking
Type Rail 40
Serial number g195
Applicant Growking
 Stadionstraße 58
 D-70771 Leinfelden-Echterdingen

Represented by OSRAM Opto Semiconductors GmbH
Customer Order No. PASS 34712
Date of measurement 23.01.2019
Number of pages 3



Dimensions [mm]:
210 x 90 x 43

• Type of measurement

Determination of the electrical data, luminous intensity distribution, the luminous flux and the spectral power distribution by adjusting the nominal system voltage.

• Results of measurement

Measurand	value	uncertainty (k=2)
System voltage U_S [V] (given quantity)	230.0	2.3
System current I_S [A]	0.1806	0.0019
System power P_S [W]	40.17	0.41
Power factor λ	0.97	0.02
Luminous flux ϕ [lm]	2650	70
Luminous efficacy η_V [lm/W]	65.9	1.9

• Attached ascii data

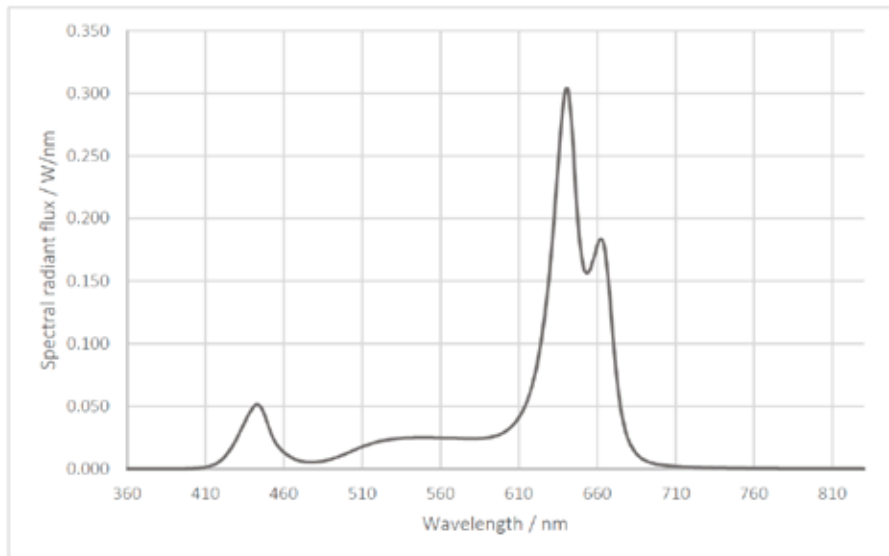
Spectral power distribution* [W/nm]: 013-19-1-g195_Rail 40.prn
 Eulumdat (*.ldt/*.ies): 013-19-g195 Rail 40 - raw.ldt (*.ies)
 013-19-g195 Rail 40 - sym.ldt (*.ies)

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Date	Acting head of the laboratory	Person in charge
13.02.2019	 N. Wagner	 N. Leise



• Spectral power distribution*



• Colorimetric values

Measurand	value	uncertainty (k=2)
Color coordinate x	0.4955	0.0035
Color coordinate y	0.3145	0.0035
Correlated color temperature CCT [K]	-	-
Color distance DC	-	-

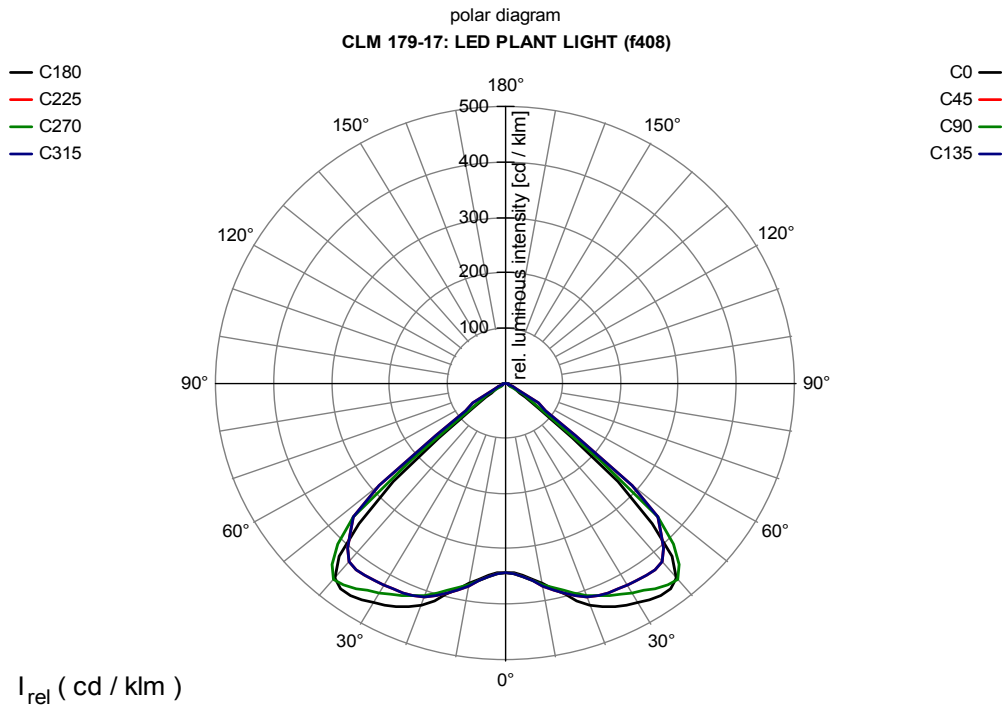
• Photosynthesis values

Measurand	value	uncertainty (k=2)
Radiant power $\Phi_{e,380...780 \text{ nm}}$ [W]	14.62	0.37
Photosynthetic photon flux PPF _{400...700 nm} [$\mu\text{mol/s}$]	74.1	1.9
Photosynthetic photon flux PPF _{600...750 nm} [$\mu\text{mol/s}$]	58.2	1.5
Photosynthesis sy1 [W] according to DIN 5031-10 (2018)	12.2	0.4
Photosynthesis sy2 [W] according to DIN 5031-10 (2018)	12.6	0.4

*Values lower than detection limit were set to zero



• **Luminous intensity distribution**



• **Measurement conditions**

Orientation of the object:	Horizontal, radiation downwards, power cord in C-90 plane
Power supply:	Alternating current at 50 Hz, voltage as adjusted quantity
System voltage:	Measurement at the end of the power cord
Time course:	Burning in up to photometric stability > 60 minutes at measurement conditions
Ambient temperature:	(25 ± 1) °C

• **Equipment used**

LMT GO-DS 2000
Integrating Sphere

• **Measurement methods**

CIE 84 – Technical Report: The measurement of luminous flux
 CIE 15.2004 – Technical Report: Colorimetry
 IES LM-79-08: Electrical and Photometric Measurements of Solid-State Lighting Product
 DIN EN 13032-1:2004 (D): Licht und Beleuchtung – Messung und Darstellung photometrischer Daten von Lampen und Leuchten – Teil 1: Messung und Datenformat
 DIN – Leitfaden zur Angabe der Unsicherheit beim Messen
 (Deutsche Übersetzung des „Guide to the Expression of Uncertainty in Measurement“)
 1. Auflage 1995 Beuth Verlag GmbH Berlin, Wien, Zürich