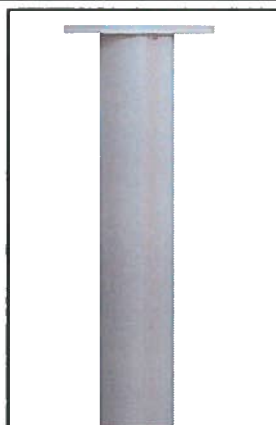


Light Measurement Report

Light Source ID	L31034	Measurement ID	M31164
Report ID	R303C8		
Client	Exventar		
Contact	Jette Lund Nielsen		
Dimensions	Description	Mikado Glow Downlight	
	Luminaire	Ø: 160 mm, H: 1000 mm	
	Luminous area	Ø: 160 mm	
	Device tested	22-08-2016	
	Test done by	Dennis Corell, Research Engineer	
	Approved by	Carsten Dam-Hansen, Senior Scientist	

Light Source Picture



About DTU Fotonik

DTU Fotonik is an institute on the Technical University of Denmark, with the research focus on photonics, from the UV, to the visible and the far into the infrared. About 190 researchers are employed at DTU Fotonik, including 55 PHD students.

About DOLL

DOLL is a national GreenLab, commissioned by the Danish Department of Energy and governed by the Technical University of Denmark (DTU). DOLL is dedicated to test and characterization of photonic components, light sources, lamps and luminaires. DOLL provides impartial documentation for test results in accordance with International and European Standards for conventional- and Solid State Lighting.

Test done by:

Dennis Corell

Research Engineer

Test approved by:

Carsten Dam-Hansen

Senior Scientist

Date:

26-8-2016

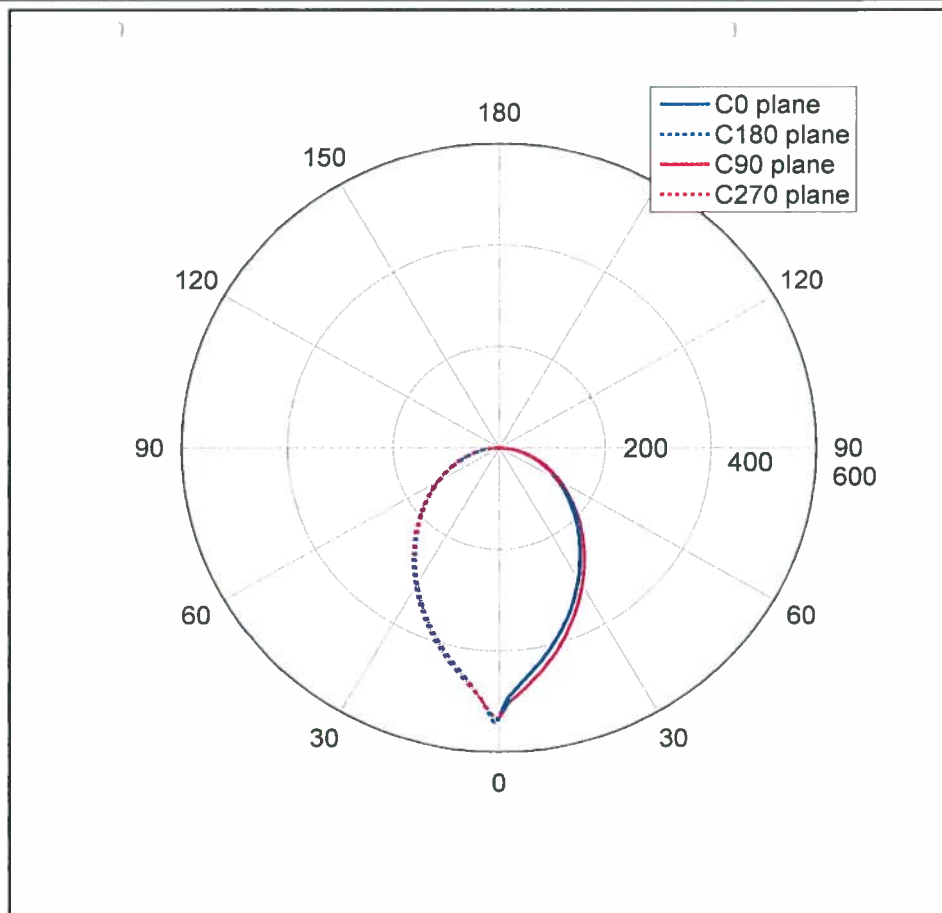
Measurement Results

Electrical Power [W]	16.1	Power Factor [-]	0.97
Luminous Flux [lm]	364	Beam Angle [deg]	**)
Luminous Efficiency [lm/W]	22.6		-
Minimum stabilization time [min]	15	*)	

*) see page 4 about stabilization

**) see page 4 about beam angle

LID diagram



Measurement Resolution

The measurements was done with the following φ and θ resolution:

Phi (φ) 0 - 180 degrees $\Delta\varphi$: 2.5 degrees

Theta (θ) -90 to 90 degrees $\Delta\theta$: 1.0 degrees

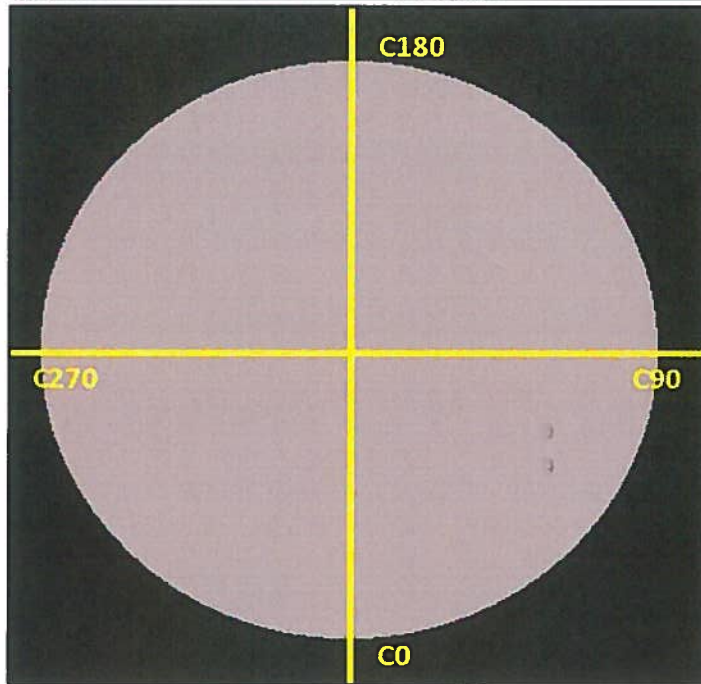
The Phi angles moves around the light source in the horizontal plane

The Theta angles moves around the lightsource in the vertical plane

LID Files:

Eulumdat file name L31034_M31164_201608221026_VL_ROT+180GR.LDT

IES file name -

Orientation of C-planes**Alignment of lamp:**

The lamp is aligned in such a way that the center of the illuminating area of the lamp is in the center of the goniophotometer. The first axis of the luminaire follows the polar axis of the goniophotometer. This axis goes through the photometric center of the luminaire and is perpendicular to the light emitting area of the lamp. For interior lighting the lamp is aligned in such a way that the third axis for the luminaire is the "longest" dimensions of the lamp.

Note: due to the physical dimensions of the luminaire and practical limitations in the mounting in the goniophotometer the luminaire have been positioned up side down. The light intensity distribution have been rotated 180 degrees after the measurements.

Due to this there is light in the zero direction, where the luminaire pole would block this in an installation.

Report ID: R303C8

Lightsource ID: L31034

Measurement ID: M31164

Operation condition

Operation	Voltage	230V AC, 50 Hz
	Ambient temp [°C]	24.9
	Seasoning	None
	Operation position	Upward in a fixed position in center of the goniophotometer

Equipment used

Equipment	Goniophotometer	RiGo-801 Near field goniophotometer, Type C
	Lens and Filter	VL filter on camera with 25 mm lens
		Total flux from photometer measurement ($\pm 5\%$)
	Power supply	Elgar CW1251P ($\pm 0.1\%$ on applied voltage)
	Power analyzer	Voltech PM1000+

Test Method

Test Method S 025/E:2015 Test Method for LED Lamps, LED Luminaires and LED Modules

About the test method

This CIE standard provides a method to fulfil the requirements needed in order to perform reproducible photometric and colorimetric measurements on LED Lamps, LED modules and LED luminaires.

*) About the stabilization

The light source is considered stable if it have been operated for at least 30 minutes and the relative difference between the minimum and maximum reading of the luminous flux and input power is less than 0.5% over a time window of 15 minutes.

The minimum stabilization time given in this report is from when the logging of data started i.e. the light source may have been pre-heating before the logging was started.

**) About beam angle

The beam angle is found taking the mean to all the half angles for every c-plane for the light source. The half angle of a c-plane is defined as where the intensity is 50% of the maximum for that c-plane. The maximum intensity of the light source is found using the mechanical axis of the light source.

Goniometer measurement equipment	Calibration date
TechnoTeam RiGO 801	02-10-2013
Reference light source: Riva B6000 E27 300° 24V 100W TT LN-051	08-03-2013
Voltech PM1000+	29-01-2010

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