

Photometric Laboratory

Measurement report 201034G014

Name and address of customer

LumiTar Array Lighting Technology Ltd
Tiilitehtaankatu 31
65100 VAASA, Finland

Description of device under test („DUT“)

LumiTar Array Lighting Technology Ltd
LES street light luminaire NAVIGATOR 56SE
V2.9
Sample X-0014

Type of lamp

Array LES

Electronic gear

integrated in luminaire

Date of receipt of DUT

04.02.2015

Date of measurement

17.02.2015

Details of order

Measurement of light distribution and luminous flux according to EN 13032-1:2012-06

Measurement procedure

Measurement in an eccentric goniometer with rotating mirror according to EN 13032-1:2012-06

Instructions for measurement

QMMA01 Test instruction for the measurement of light distribution and colorimetric values in the goniometer with rotating mirror

Comments

Certification

The results apply solely to the above-mentioned measuring configuration. The implementation of other luminaires, operation equipment and lamps will lead to different results. If these measurements are to be repeated, then the devices under test are marked with the label "DUT" and the report number which should be retained by the customer.

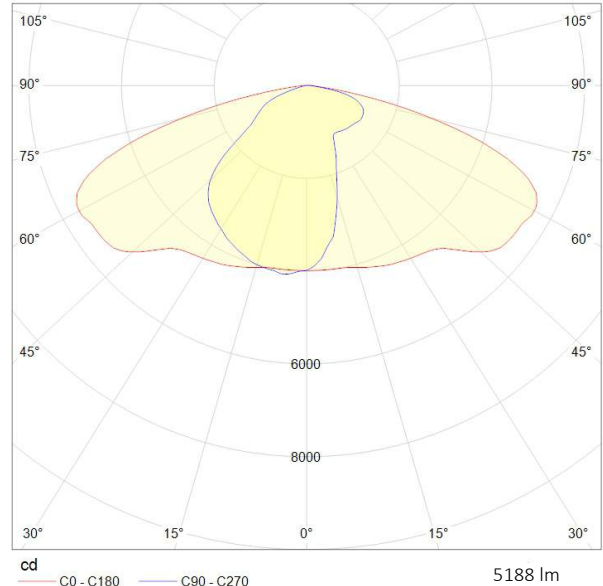
Measurement uncertainty

The expanded measurement uncertainty is indicated in this report. It is the result of the standard measurement uncertainty multiplied by the factor $k = 2$. The measurement uncertainty consists of the measurement uncertainties in the measurement process and the measurement object during measurement.

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DIAL GmbH
Bahnhofsallee 18
D · 58507 Lüdenscheid
Phone +49 (0) 2351-5674-400
Fax +49 (0) 2351-5674-410
internet: www.dial.de
e-mail: dialog@dial.de



Result: Measured values

Luminaire luminous flux	5,188.2 lm
Upper hemisphere	Lower hemisphere
122.2 lm	5,066.0 lm
2.4 %	97.6 %
Efficacy of luminaire	125.01 lm/W

*Measuring uncertainty at $k=2$ 5.0 %

Lüdenscheid, 17.02.2015

Thomas Pittner M.Sc., Lighting team

Felix Schirmer, Lighting team

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LumiTar Array Lighting Technology Ltd

Date of measurement
17.02.2015

Device
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LES street light luminaire NAVIGATOR 56SE V2.9

Total luminous flux
 $\Phi = 5,188 \text{ lm}$

Result: Maximum light intensity at $C = 0.0^\circ$ and $\gamma = 0.0^\circ$
4,168.2 cd

Lamp(s) under test

(1) Array LES

Result: Symmetrical properties
symmetrical to C0/C180 + C90/C270

Control gear / Ballast

(1) integrated in luminaire

Position of device according to customer during measurement
horizontal horizontal

Ambient temperature during measurement [$^\circ\text{C}$]

Measuring point	T _{MIN}	T _{MAX}	T _{AVG}
Environment	24.9	25.1	25.0

Light centre
Centre of luminous area

Electrical operating parameters

Measuring point	U [VAC]	I [A]	P [W]
Primary circuit	230.0	0.180	41.5

Coordinates		
Starting angle C	Final angle C	Measured in C steps
0.0 $^\circ$	357.5 $^\circ$	2.5 $^\circ$

Starting angle γ	Final angle γ	Measured in γ steps
0.0 $^\circ$	120.0 $^\circ$	2.5 $^\circ$

Test Equipment

- (1) Device: AC Power Source
Brand: Hewlett Packard
Type: 6813A
- (2) Device: Digital Power Meter
Brand: Yokogawa
Type: WT-210
- (3) Device: Eccentric goniophotometer with rotating mirror
Brand: Czibula&Grundmann GmbH
Type: Unique
- (4) Device: Standard Light Source
Brand: Czibula&Grundmann GmbH
Type: WI-41

Luminaire dimensions [mm]		
Length	Width	Height
620	260	130

Dimensions of illuminated/luminous area [mm]		
Length	Width	Height
100	0	30

Stability of luminous flux of lamp and/or luminaire
< 0.3 %

Classification

DIN 5040 Teil 2	A41
BZ (CIBSE TM 5)	BZ 5
UTE C71-121	0.98E+0.02T
CIE FLUX CODE	49 71 91 98 100

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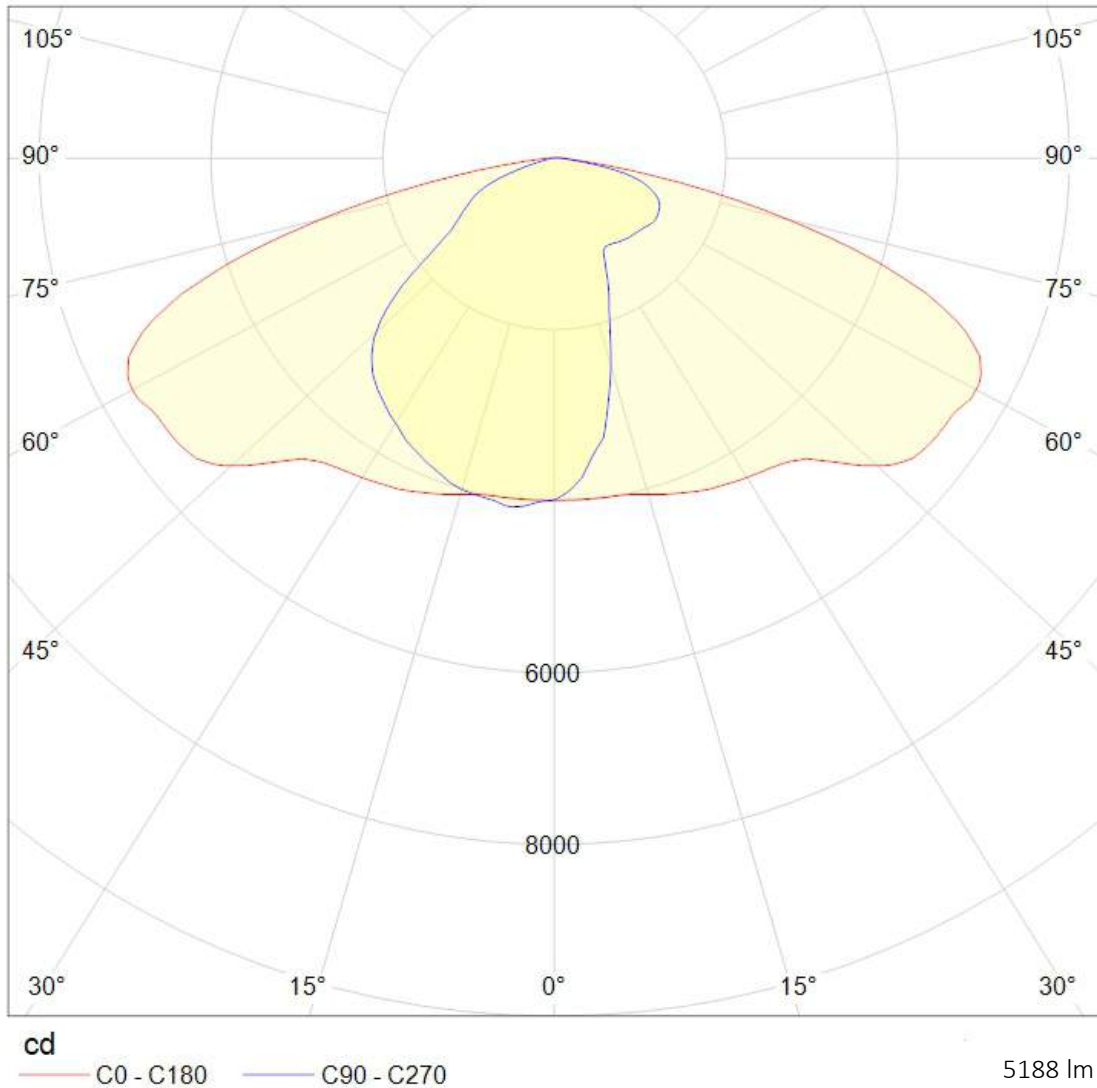
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Total luminous flux
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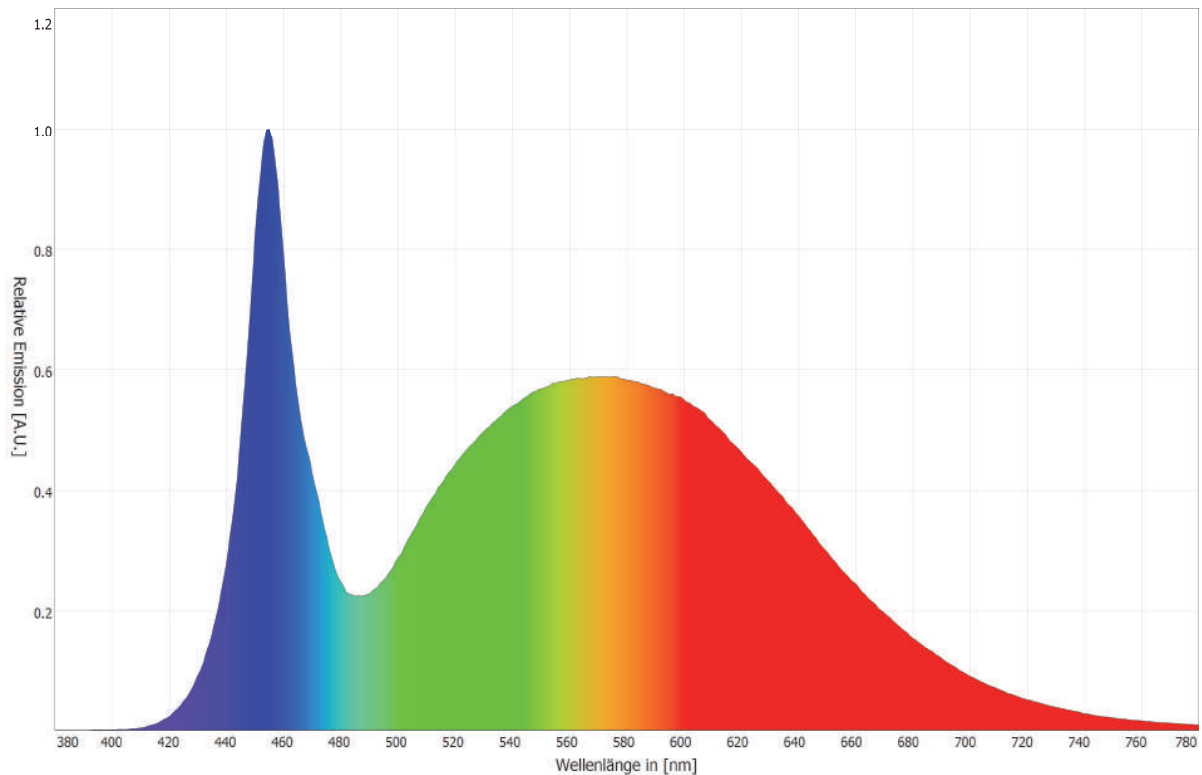
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Total luminous flux
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Result: Spectral distribution



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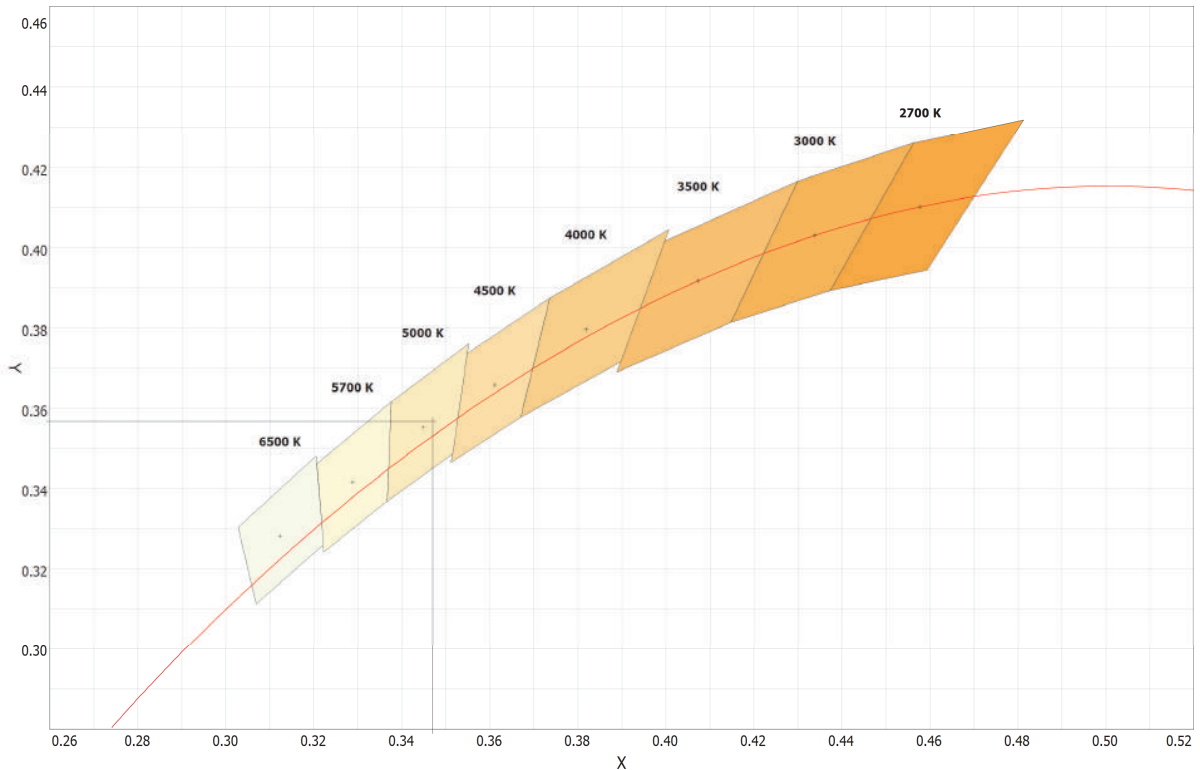
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Total luminous flux
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Result: CCT

4949 K



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Total luminous flux
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Result: CRI

85

Result: Colour coordinates

x 0,3470

y 0,3567

