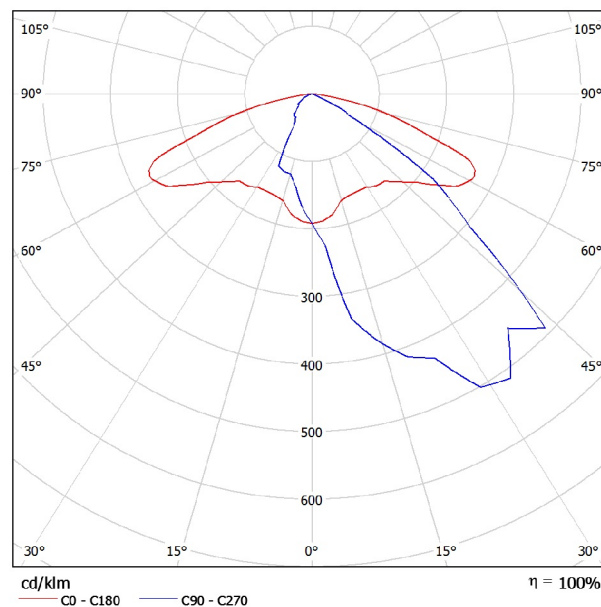


**Kustes dambja rekonstrukcijas apgaismojuma aprēķins.**

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e-Mail daniils@nitsa.lv**Thorn 96259907 INDRA L 98W CL1 PN MA60 [STD] / Luminaire Data Sheet**

Luminous emittance 1:

Luminaire classification according to CIE: 100  
CIE flux code: 41 84 100 95 101

An LED road lighting luminaire with 7800lm light engine in a large body outline. Body and bracket in die-cast Aluminium, body: powder coated RAL 9006, acrylic flat enclosure. Class I electrical, IP65. Post top or side entry mounting to Ø60 mm spigot with adjustable tilting. Nema socket. Complete with 4200K LED

Dimensions: 720 x 465 x 139 mm  
Total power: 98 W  
Weight: 7.9 kg  
Scx: 0.052 m²

LED lifetime to 70% luminous flux at 25°C; 60,000 hours

Due to missing symmetry properties, no UGR table can be displayed for this luminaire.

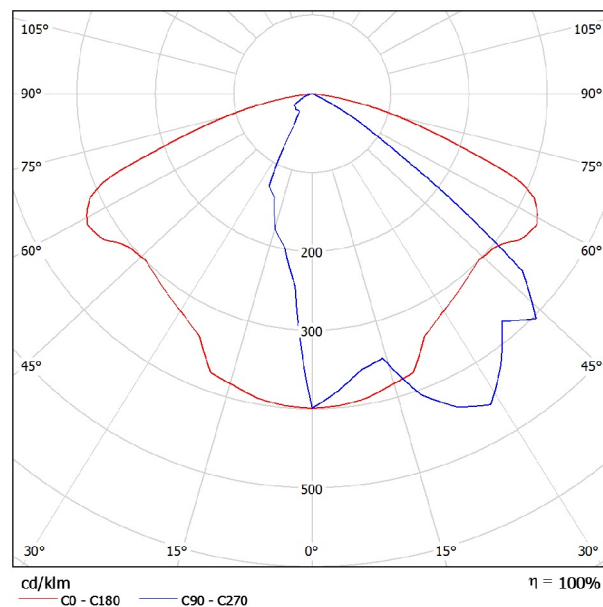
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## Thorn 96259902 INDRA S 49W CL1 PN MA60 [STD] / Luminaire Data Sheet

Luminous emittance 1:



Luminaire classification according to CIE: 100  
CIE flux code: 46 86 100 96 99

An LED road lighting luminaire with 3900lm light engine in a small body outline. Body and bracket in die-cast Aluminium, body: powder coated RAL 9006, acrylic flat enclosure. Class I electrical, IP65. Post top or side entry mounting to Ø60 mm spigot with adjustable tilting. Nema socket. Complete with 4200K LED

Dimensions: 431 x 310 x 135 mm  
Total power: 49 W  
Weight: 4.8 kg  
Scx: 0.029 m²

LED lifetime to 70% luminous flux at 25°C; 60,000 hours

Due to missing symmetry properties, no UGR table can be displayed for this luminaire.

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## Kustes dambis / Planning data

### Street Profile

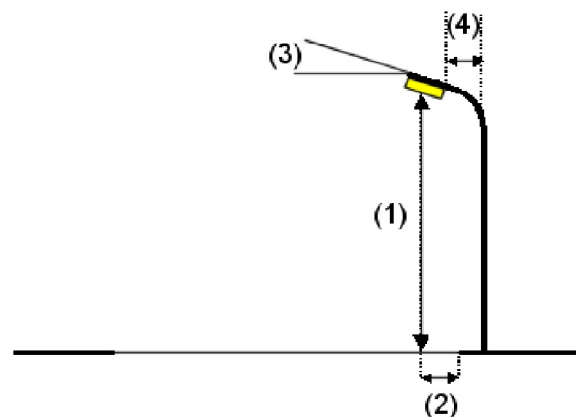
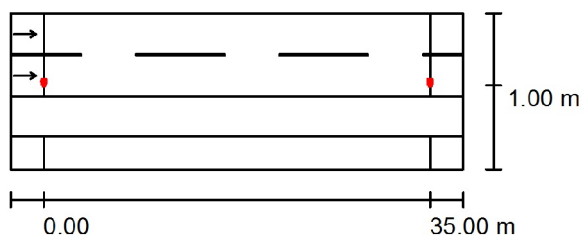
Roadway 1 (Width: 7.500 m, Number of lanes: 2, tarmac: R3, q0: 0.070)

Grass Strip 1 (Width: 3.600 m)

Bicycle Lane 1 (Width: 3.000 m)

Light loss factor: 0.67

### Luminaire Arrangements



Luminaire:	Thorn 96259907 INDRA L 98W CL1 PN MA60 [STD]
Luminous flux (Luminaire):	7790 lm
Luminous flux (Lamps):	7790 lm
Luminaire Wattage:	98.0 W
Arrangement:	Single row, bottom
Pole Distance:	35.000 m
Mounting Height (1):	9.500 m
Height:	9.829 m
Overhang (2):	1.359 m
Boom Angle (3):	15.0 °
Boom Length (4):	1.000 m

Maximum luminous intensities	
at 70°:	531 cd/klm
at 80°:	208 cd/klm
at 90°:	4.27 cd/klm

Any direction forming the specified angle from the downward vertical, with the luminaire installed for use.

Arrangement complies with glare index class D.6.

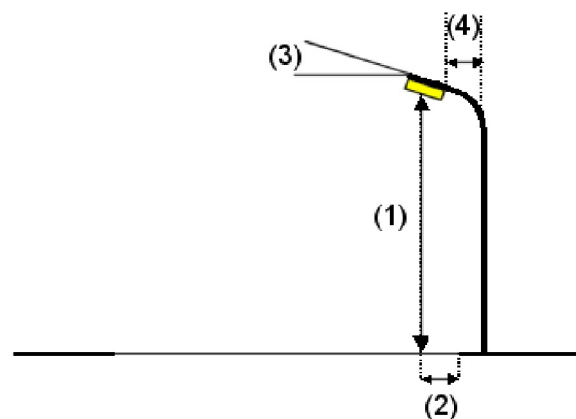
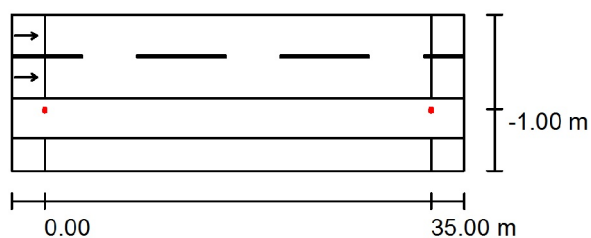
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## Kustes dambis / Planning data

### Luminaire Arrangements



Luminaire:	Thorn 96259902 INDRA S 49W CL1 PN MA60 [STD]
Luminous flux (Luminaire):	3928 lm
Luminous flux (Lamps):	3928 lm
Luminaire Wattage:	49.0 W
Arrangement:	Single row, bottom
Pole Distance:	35.000 m
Mounting Height (1):	9.500 m
Height:	9.782 m
Overhang (2):	-0.820 m
Boom Angle (3):	15.0 °
Boom Length (4):	1.000 m

Maximum luminous intensities

at 70°: 500 cd/klm

at 80°: 206 cd/klm

at 90°: 4.40 cd/klm

Any direction forming the specified angle from the downward vertical, with the luminaire installed for use.

Arrangement complies with glare index class D.6.

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[STD]

Article No.: 96259902

Luminous flux (Luminaire): 3928 lm

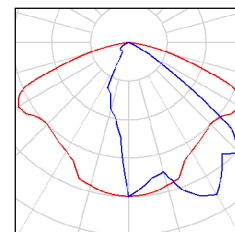
Luminous flux (Lamps): 3928 lm

Luminaire Wattage: 49.0 W

Luminaire classification according to CIE: 100

CIE flux code: 46 86 100 96 99

Fitting: 1 x LED 49 W (Correction Factor 1.000).

Thorn 96259907 INDRA L 98W CL1 PN MA60  
[STD]

Article No.: 96259907

Luminous flux (Luminaire): 7790 lm

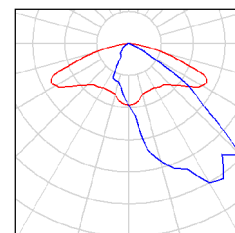
Luminous flux (Lamps): 7790 lm

Luminaire Wattage: 98.0 W

Luminaire classification according to CIE: 100

CIE flux code: 41 84 100 95 101

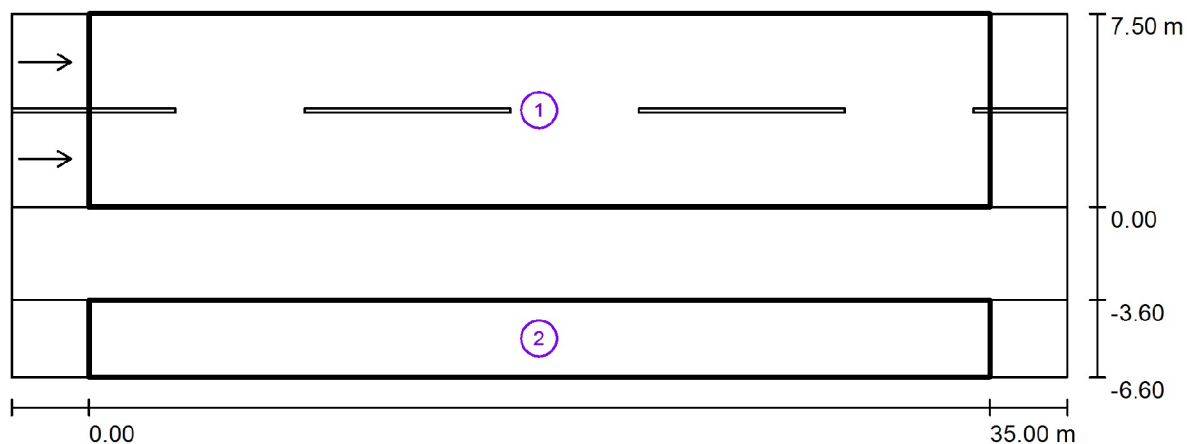
Fitting: 1 x LED 98 W (Correction Factor 1.000).



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## Kustes dambis / Photometric Results



Light loss factor: 0.67

Scale 1:294

## Calculation Field List

## 1 Valuation Field Roadway 1

Length: 35.000 m, Width: 7.500 m

Grid: 12 x 6 Points

Accompanying Street Elements: Roadway 1.

tarmac: R3, q0: 0.070

Selected Lighting Class: ME4a

(Not all lighting performance requirements are met.)

	$L_{av}$ [cd/m <sup>2</sup> ]	U0	UI	TI [%]	SR
Calculated values:	0.45	0.63	0.58	6	1.08
Required values according to class:	$\geq 0.75$	$\geq 0.40$	$\geq 0.60$	$\leq 15$	$\geq 0.50$
Fulfilled/Not fulfilled:	✗	✓	✗	✓	✓

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## Kustes dambis / Photometric Results

### Calculation Field List

#### 2 Valuation Field Bicycle Lane 1

Length: 35.000 m, Width: 3.000 m

Grid: 12 x 3 Points




Accompanying Street Elements: Bicycle Lane 1.

Selected Lighting Class: S6

(Not all lighting performance requirements are met.)

Additional ES Lighting Class: ES9

(Not all lighting performance requirements are met.)

	$E_{av}$ [lx]	$E_{min}$ [lx]	$E_{min}$ (semi-cyl.) [lx]
Calculated values:	5.27	3.25	0.81
Required values according to class:	$\geq 2.00$	$\geq 0.60$	$\geq 0.50$
Fulfilled/Not fulfilled:	 <sup>1</sup>		

<sup>1</sup> Notice: To provide for uniformity, the actual value of the maintained average illuminance may not exceed 1.5 times the minimum value indicated for the class.

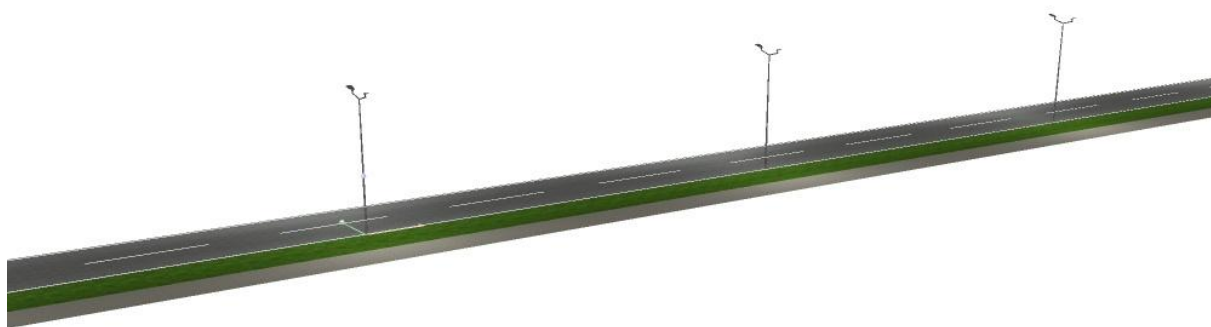


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## Kustes dambis / 3D Rendering

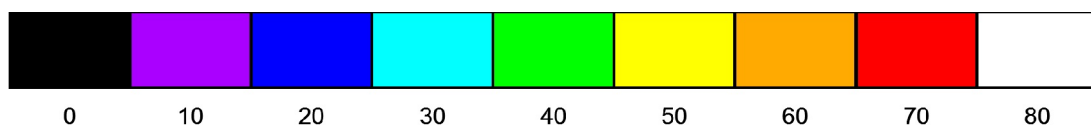


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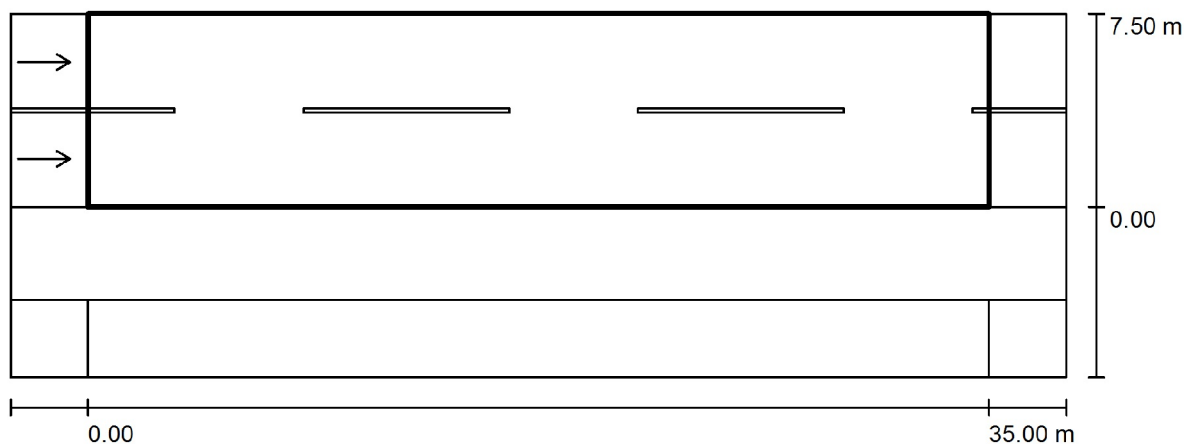
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## Kustes dambis / False Color Rendering



lx

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Light loss factor: 0.67

Scale 1:294

Grid: 12 x 6 Points

Accompanying Street Elements: Roadway 1.

tarmac: R3, q0: 0.070

Selected Lighting Class: ME4a

(Not all lighting performance requirements are met.)

	$L_{av}$ [cd/m <sup>2</sup> ]	U0	UI	TI [%]	SR
Calculated values:	0.45	0.63	0.58	6	1.08
Required values according to class:	$\geq 0.75$	$\geq 0.40$	$\geq 0.60$	$\leq 15$	$\geq 0.50$
Fulfilled/Not fulfilled:	✗	✓	✗	✓	✓

**Assigned observer (2 Pieces):**

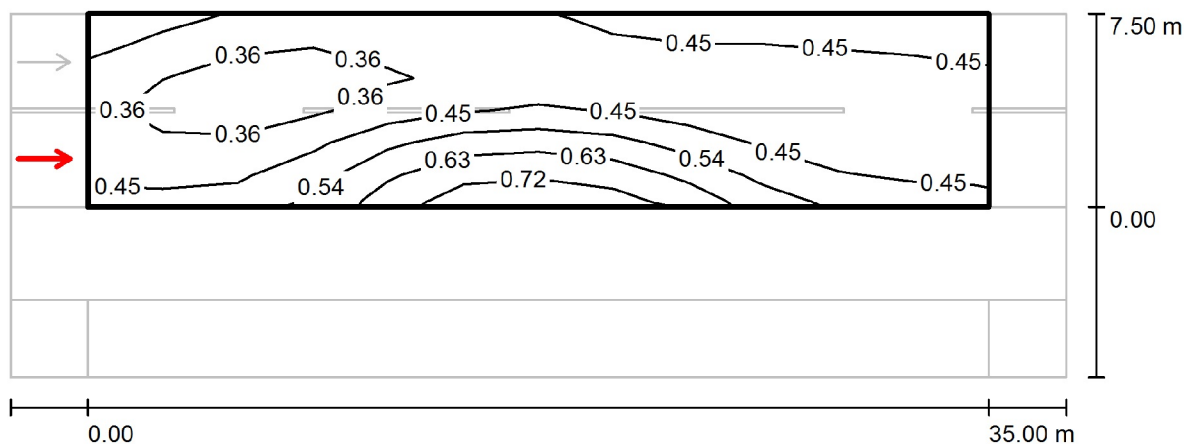
No.	Observer	Position [m]	$L_{av}$ [cd/m <sup>2</sup> ]	U0	UI	TI [%]
1	Observer 1	(-60.000, 1.875, 1.500)	0.45	0.63	0.58	5
2	Observer 2	(-60.000, 5.625, 1.500)	0.48	0.75	0.79	6

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### Kustes dambis / Valuation Field Roadway 1 / Observer 1 / Isolines (L)



Values in Candela/m<sup>2</sup>, Scale 1 : 294

Grid: 12 x 6 Points

Observer Position: (-60.000 m, 1.875 m, 1.500 m)

tarmac: R3, q0: 0.070

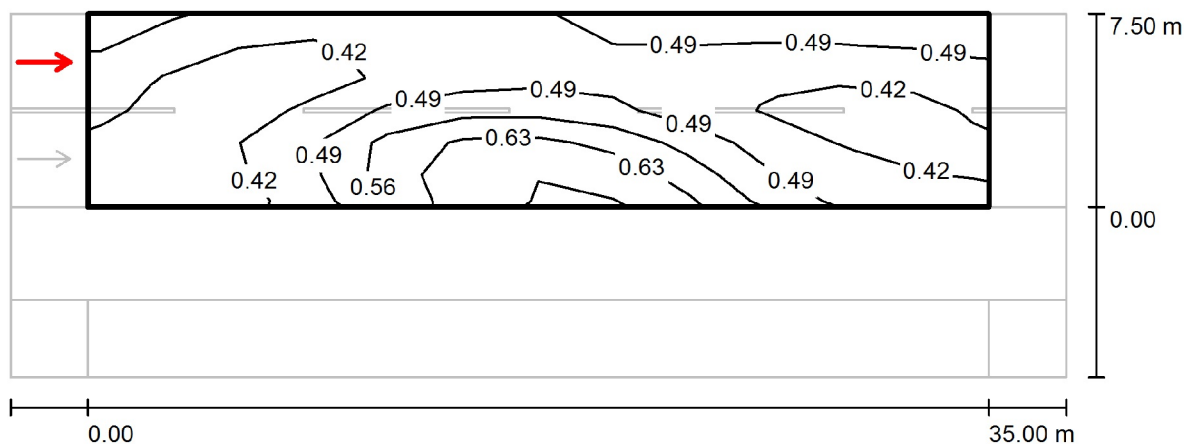
	$L_{av}$ [cd/m <sup>2</sup> ]	U0	UI	TI [%]
Calculated values:	0.45	0.63	0.58	5
Required values according to class ME4a:	≥ 0.75	≥ 0.40	≥ 0.60	≤ 15
Fulfilled/Not fulfilled:	✗	✓	✗	✓

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## Kustes dambis / Valuation Field Roadway 1 / Observer 2 / Isolines (L)



Values in Candela/m², Scale 1 : 294

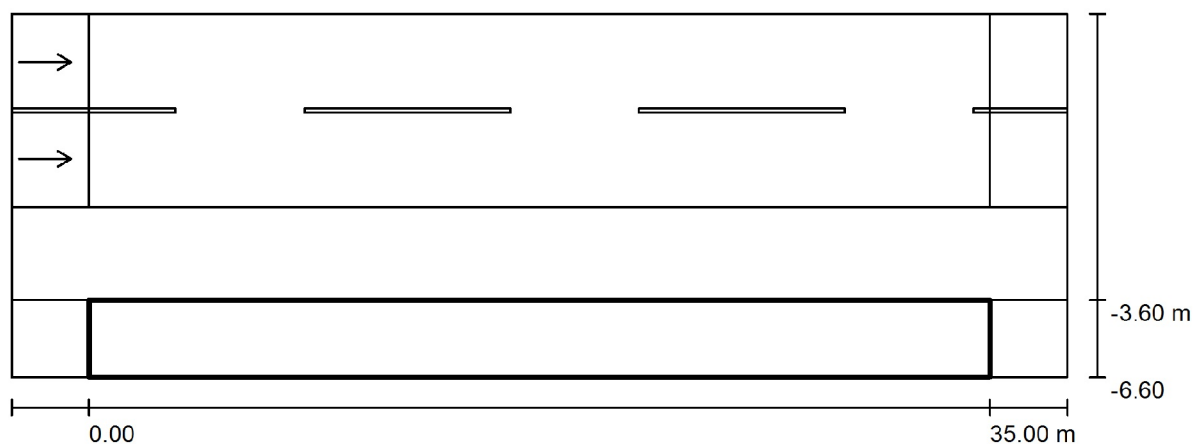
Grid: 12 x 6 Points

Observer Position: (-60.000 m, 5.625 m, 1.500 m)

tarmac: R3, q0: 0.070

	$L_{av}$ [cd/m²]	U0	UI	TI [%]
Calculated values:	0.48	0.75	0.79	6
Required values according to class ME4a:	$\geq 0.75$	$\geq 0.40$	$\geq 0.60$	$\leq 15$
Fulfilled/Not fulfilled:	✗	✓	✓	✓

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Light loss factor: 0.67

Scale 1:294

Grid: 12 x 3 Points

Accompanying Street Elements: Bicycle Lane 1.

Selected Lighting Class: S6

(Not all lighting performance requirements are met.)

Additional ES Lighting Class: ES9

(Not all lighting performance requirements are met.)

	$E_{av}$ [lx]	$E_{min}$ [lx]	$E_{min}$ (semi-cyl.) [lx]
Calculated values:	5.27	3.25	0.81
Required values according to class:	$\geq 2.00$	$\geq 0.60$	$\geq 0.50$
Fulfilled/Not fulfilled:	✗ <sup>1</sup>	✓	✓

<sup>1</sup> Notice: To provide for uniformity, the actual value of the maintained average illuminance may not exceed 1.5 times the minimum value indicated for the class.