

Airport Highway LED Lighting Design Example

Applying Zihai 210W LED street light to replace 400W high pressure sodium lamp on airport-urban highway.

Street condition 3 lanes x 2, with median.

Final result: Average 42 Lux on street

Company: ABC Company
Contact: Mr. XYZ

Date: 07.01.2010
Operator:



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Table of contents

Airport Highway LED Lighting Design Example	
Project Cover	1
Table of contents	2
Luminaire parts list	3
Zhihai ZHSL SL-210A-W	
SL-210A-W	
LDC (Polar)	4
LDC (Linear)	5
Street 1	
Planning data	6
3D Rendering	7
False Color Rendering	8
Valuation Fields	
Valuation Field Roadway 2	
Results overview	9
Isolines (E)	10
Valuation Field Roadway 1	
Results overview	11
Isolines (E)	12



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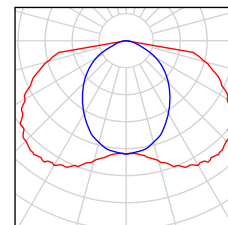
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Airport Highway LED Lighting Design Example / Luminaire parts list

18 Pieces Zhihai ZHSL SL-210A-W
Article No.: ZHSL
Luminaire Luminous Flux: 16800 lm
Luminaire Wattage: 210.0 W
Luminaire classification according to CIE: 100
CIE flux code: 45 82 100 88 84
Fitting: 1 x LED (Correction Factor 1.000).

See our luminaire catalog for an image of the luminaire.



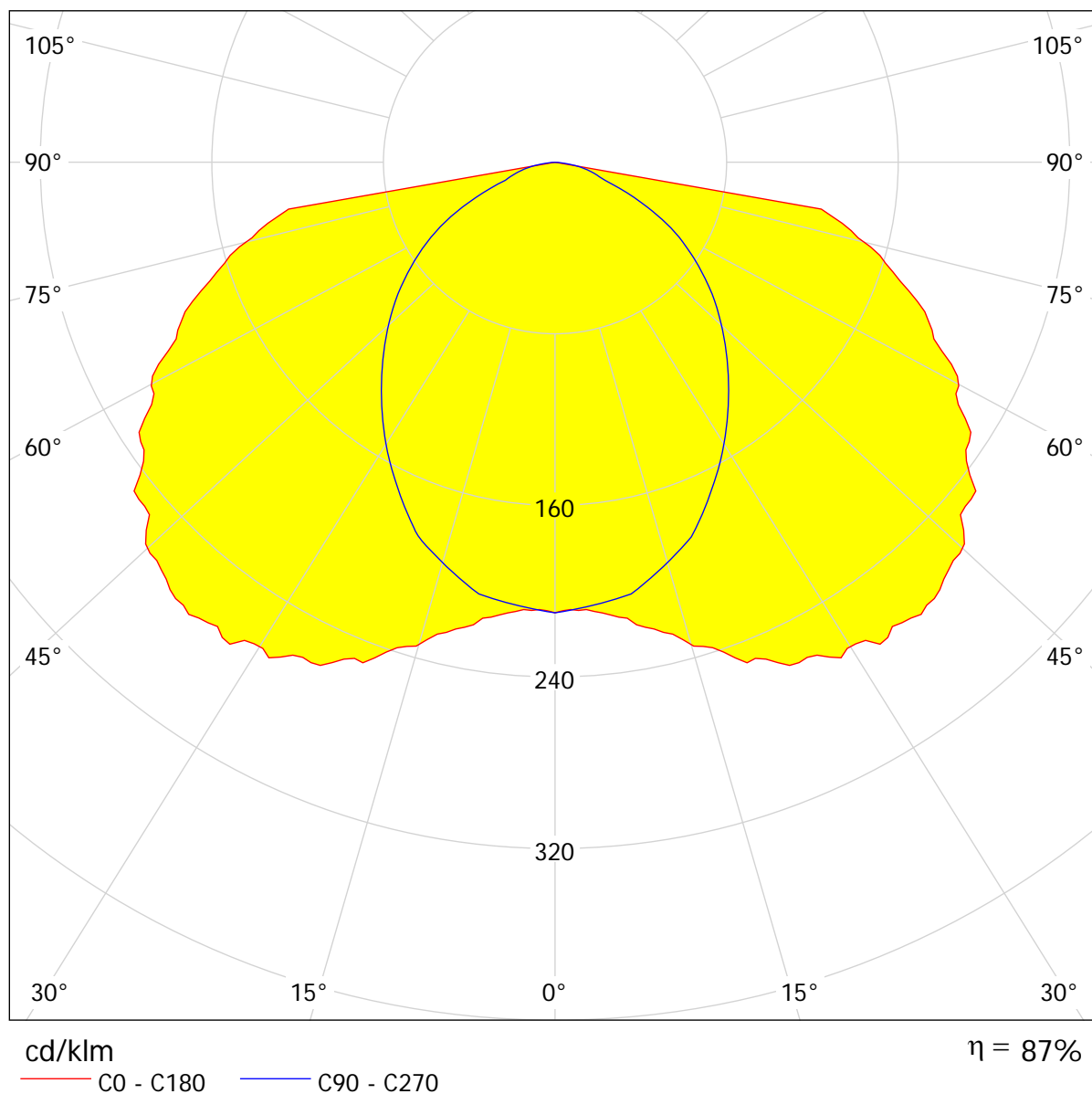


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Zhihai ZHSL SL-210A-W / LDC (Polar)

Luminaire: Zhihai ZHSL SL-210A-W
Lamps: 1 x LED



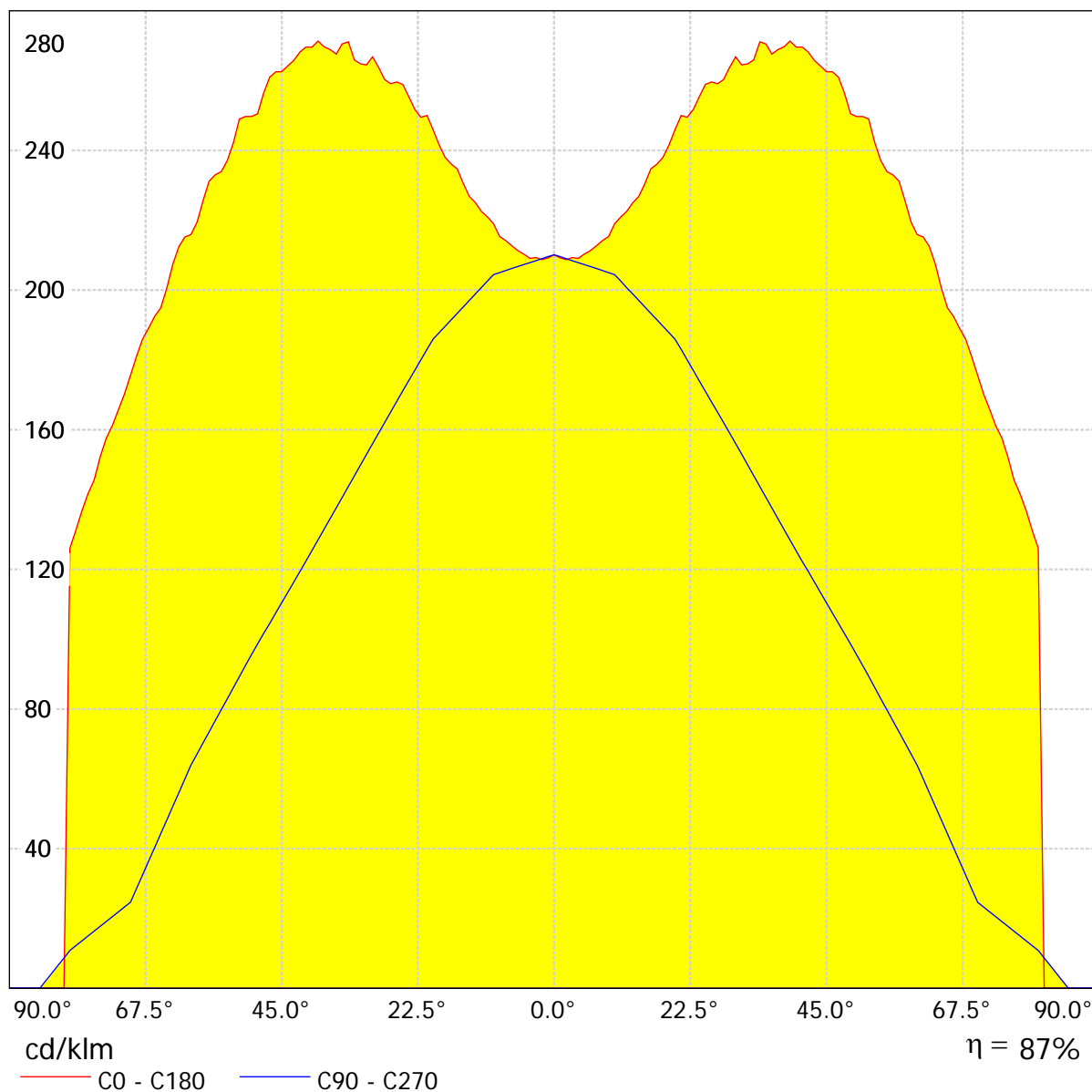


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Zhihai ZHSL SL-210A-W / LDC (Linear)

Luminaire: Zhihai ZHSL SL-210A-W
Lamps: 1 x LED





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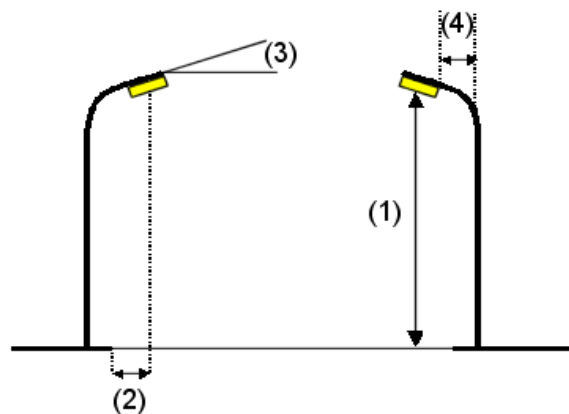
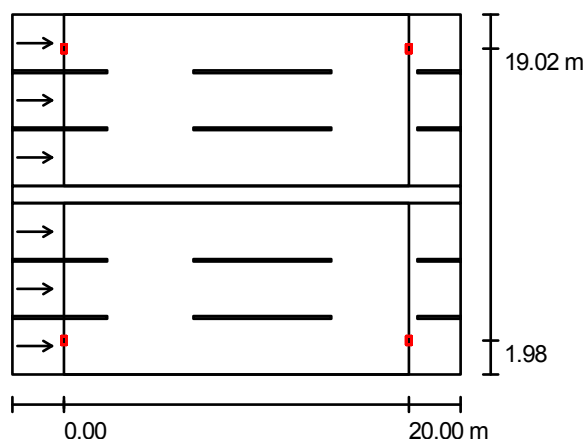
Street 1 / Planning data

Street Profile

Roadway 2 (Width: 10.000 m, Number of lanes: 3, tarmac: R3, q0: 0.070)
 Median 1 (Width: 1.000 m, Height: 0.000 m)
 Roadway 1 (Width: 10.000 m, Number of lanes: 3, tarmac: R3, q0: 0.070)

Light loss factor: 1.00

Luminaire Arrangements



Luminaire: Zhihai ZHSL SL-210A-W
 Luminaire Luminous Flux: 16800 lm
 Luminaire Wattage: 210.0 W
 Arrangement: Double row, opposing
 Pole Distance: 20.000 m
 Mounting Height (1): 10.000 m
 Height: 9.902 m
 Overhang (2): 2.000 m
 Boom Angle (3): 10.0 °
 Boom Length (4): 2.500 m

Maximum luminous intensities
 at 70°: 191 cd/klm
 at 80°: 145 cd/klm
 at 90°: 89 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.4.

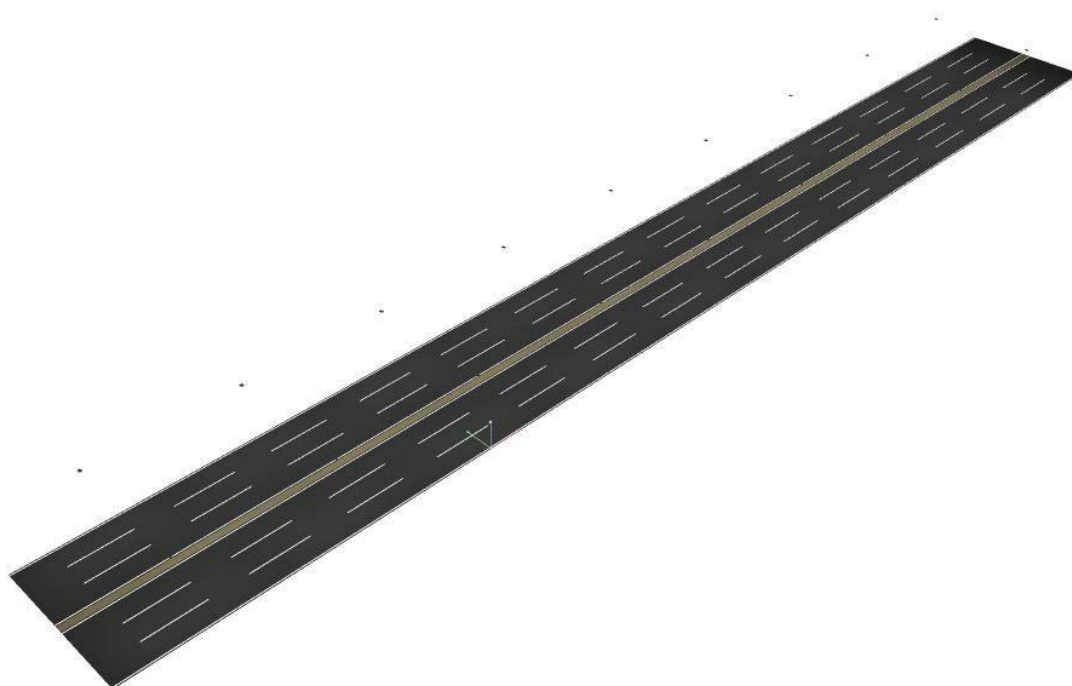


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Street 1 / 3D Rendering



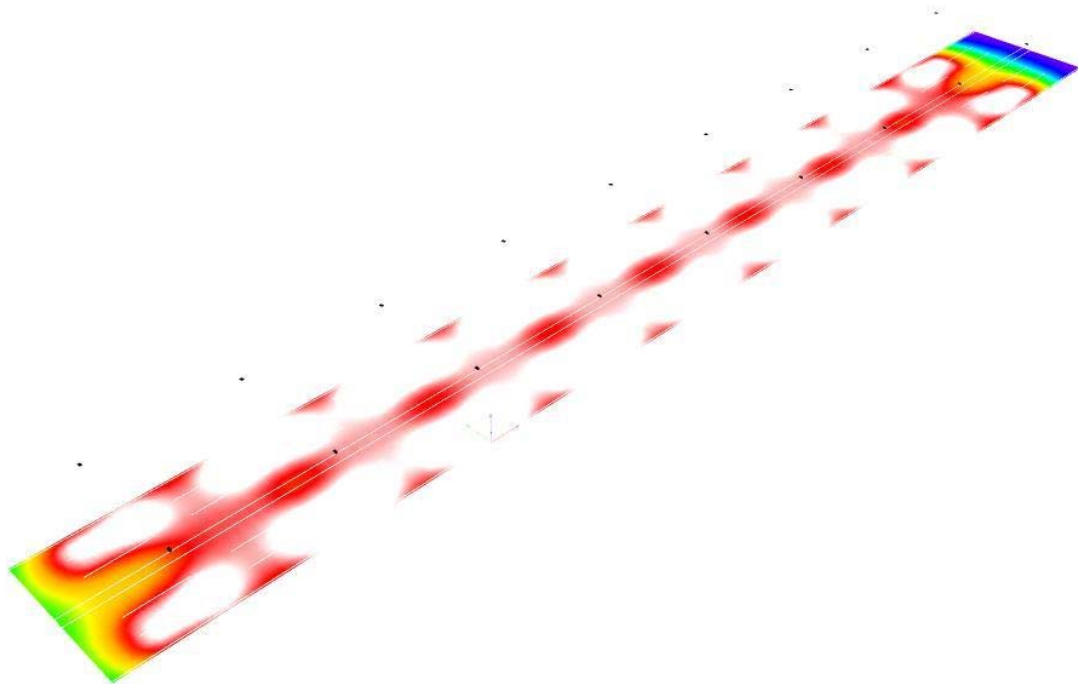


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Street 1 / False Color Rendering



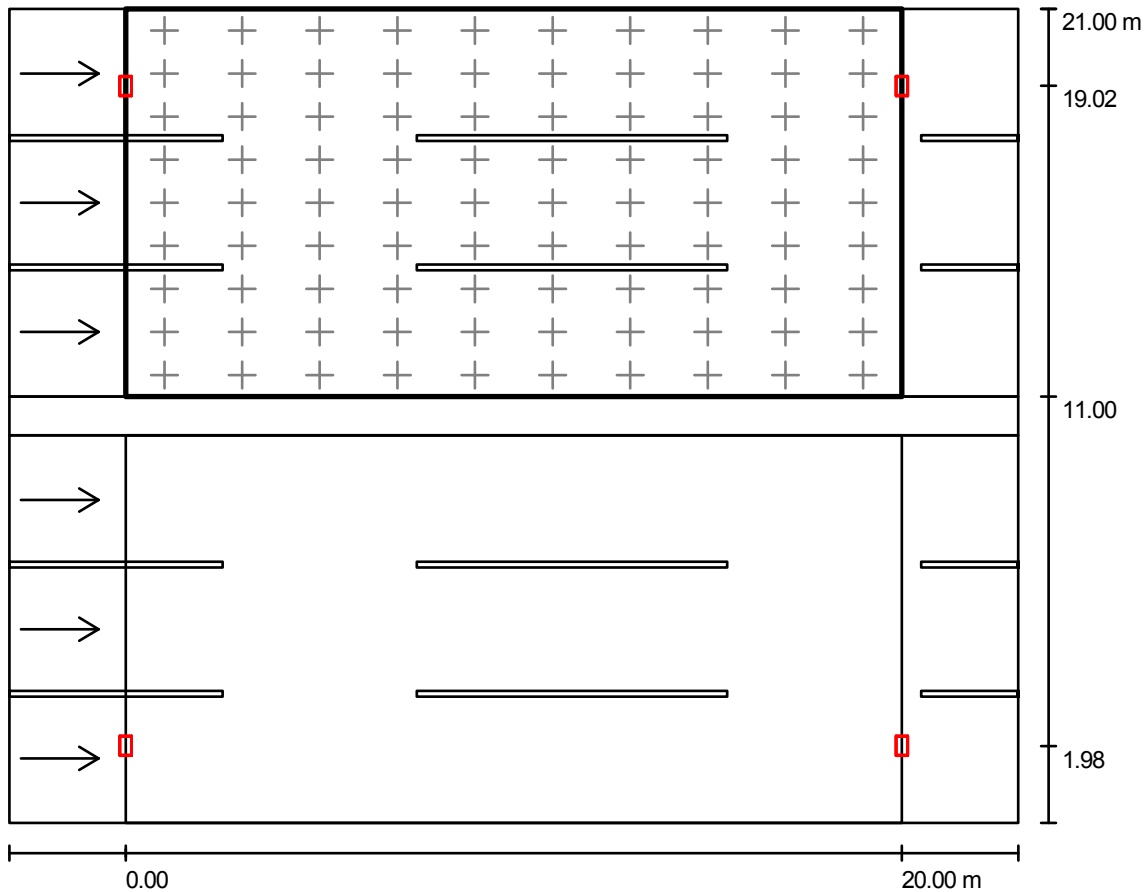
0 5 10 15 20 25 30 35 40 lx

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Street 1 / Valuation Field Roadway 2 / Results overview



Light loss factor: 1.00

Scale 1:195

Grid: 10 x 9 Points

Accompanying Street Elements: Roadway 2.

tarmac: R3, q0: 0.070

Selected Lighting Class: ME4a

(All lighting performance requirements are met.)

	L_{av} [cd/m ²]	U0	UI	TI [%]	SR
Calculated values:	2.53	0.7	0.9	8	0.8
Required values according to class:	≥ 0.75	≥ 0.4	≥ 0.6	≤ 15	≥ 0.5
Fulfilled/Not fulfilled:	✓	✓	✓	✓	✓

Assigned viewer (3 Pieces):

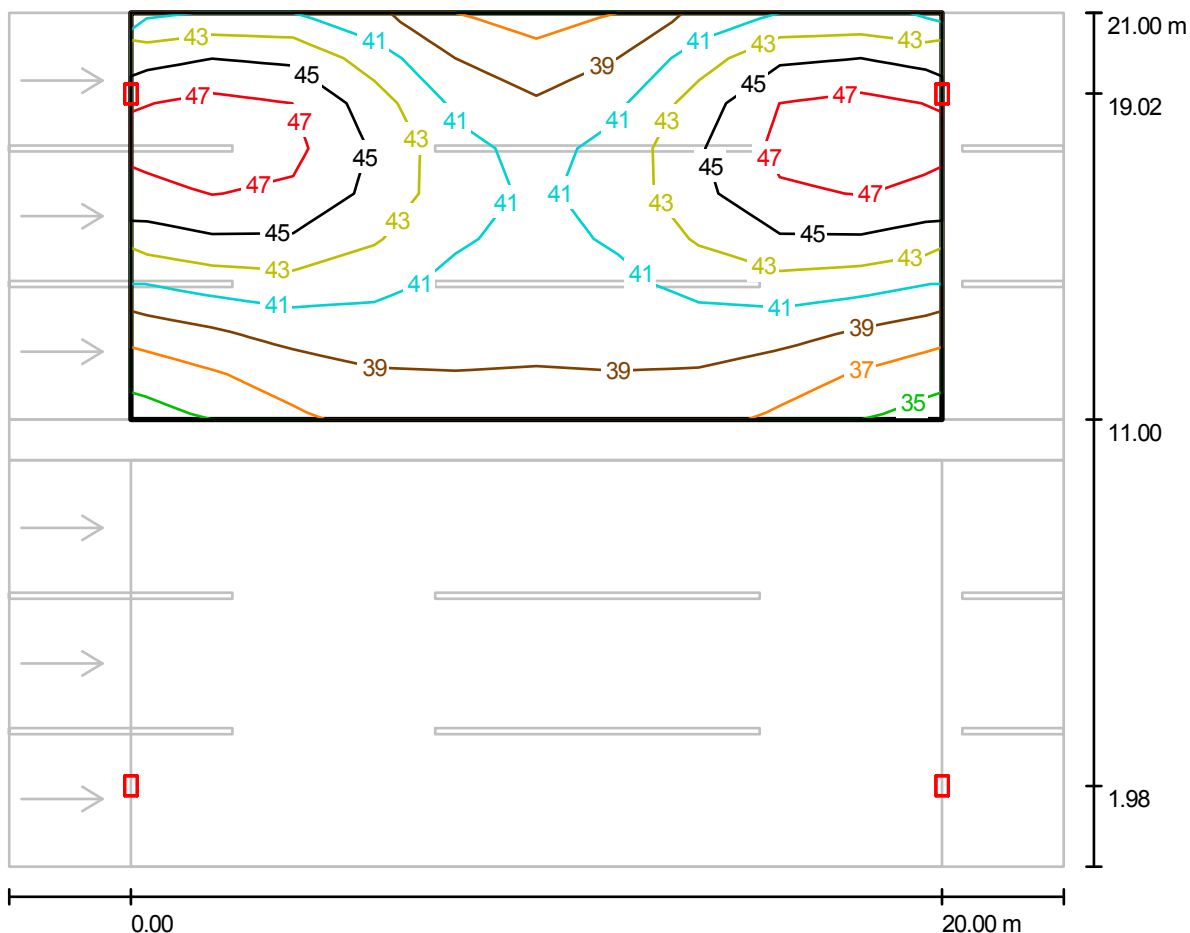
No.	Observer	Position [m]	L_{av} [cd/m ²]	U0	UI	TI [%]
1	Observer 3	(-60.000, 12.667, 1.500)	2.56	0.7	0.9	8
2	Observer 4	(-60.000, 16.000, 1.500)	2.54	0.7	0.9	8
3	Observer 5	(-60.000, 19.333, 1.500)	2.53	0.7	0.9	8

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Street 1 / Valuation Field Roadway 2 / Isolines (E)



Values in Lux, Scale 1 : 186

Grid: 10 x 9 Points

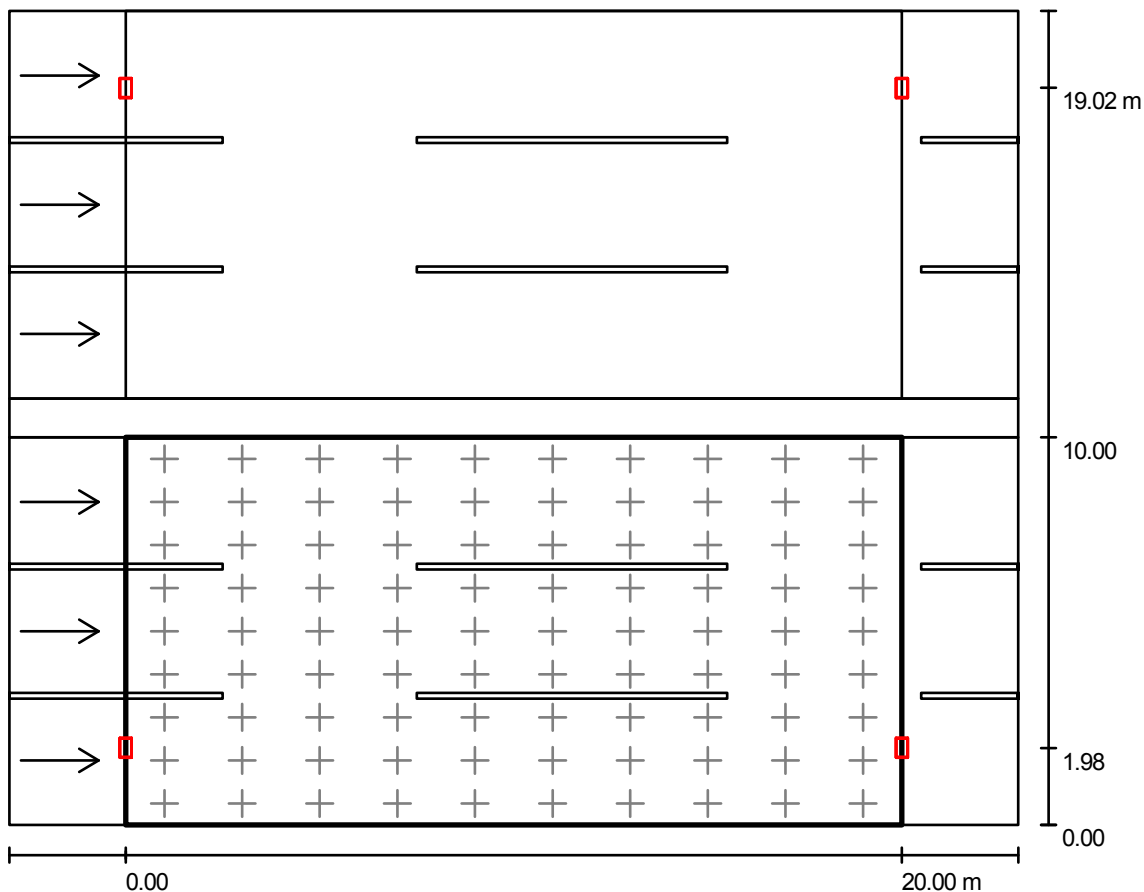
E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	$u0$	E_{min} / E_{max}
42	35	49	0.841	0.726

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Street 1 / Valuation Field Roadway 1 / Results overview



Light loss factor: 1.00

Scale 1:195

Grid: 10 x 9 Points

Accompanying Street Elements: Roadway 1.

tarmac: R3, q0: 0.070

Selected Lighting Class: ME4a

(All lighting performance requirements are met.)

	L_{av} [cd/m ²]	U0	UI	TI [%]	SR
Calculated values:	2.53	0.7	0.9	8	0.8
Required values according to class:	≥ 0.75	≥ 0.4	≥ 0.6	≤ 15	≥ 0.5
Fulfilled/Not fulfilled:	✓	✓	✓	✓	✓

Assigned viewer (3 Pieces):

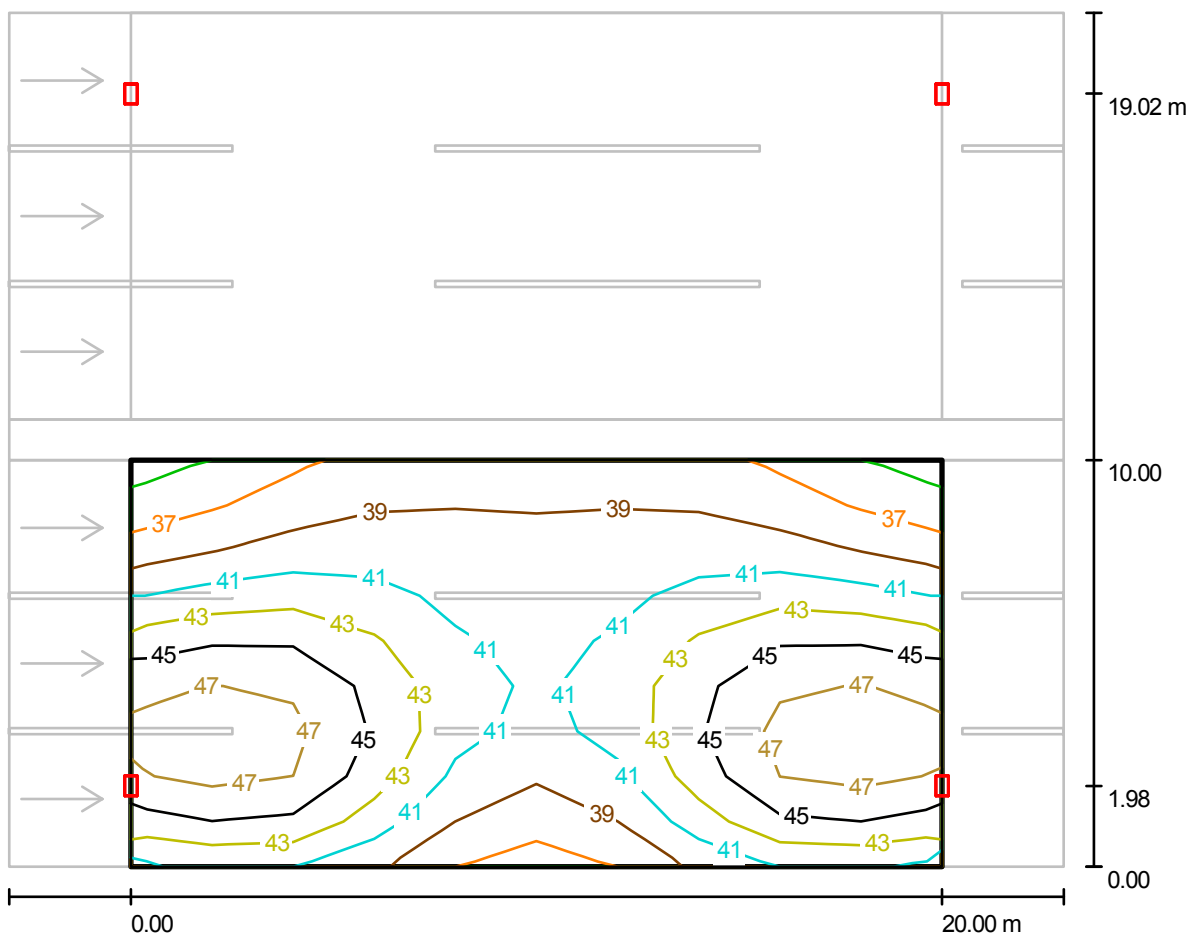
No.	Observer	Position [m]	L_{av} [cd/m ²]	U0	UI	TI [%]
1	Observer 1	(-60.000, 1.667, 1.500)	2.53	0.7	0.9	8
2	Observer 2	(-60.000, 5.000, 1.500)	2.54	0.7	0.9	8
3	Observer 3	(-60.000, 8.333, 1.500)	2.56	0.7	0.9	8

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Street 1 / Valuation Field Roadway 1 / Isolines (E)



Values in Lux, Scale 1 : 186

Grid: 10 x 9 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	$u0$	E_{min} / E_{max}
42	35	49	0.841	0.726