

Operator:  
Jānis Škutāns  
SIA "Gaismas Stils"  
Maskavas iela 12, Rīga

+371 67276760  
+371 20262941  
janis.skutans@gaismasstils.lv

Project address:  
Plostu ielā 20/14 un  
Sarkanmuižas dambis 21B  
Ventspilī

Date:  
09/06/2019



## **Ostas termināļu teritorijas piebrauktuves Plostu ielā 20/14, Ventspilī atjaunošana**

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### Ostas termināļu teritorijas piebrauktuves Plostu ielā 20/14, Ventspilī atjaunošana

#### Ostas termināļu teritorijas piebrauktuves Plostu ielā 20/14, Ventspilī atjaunošana

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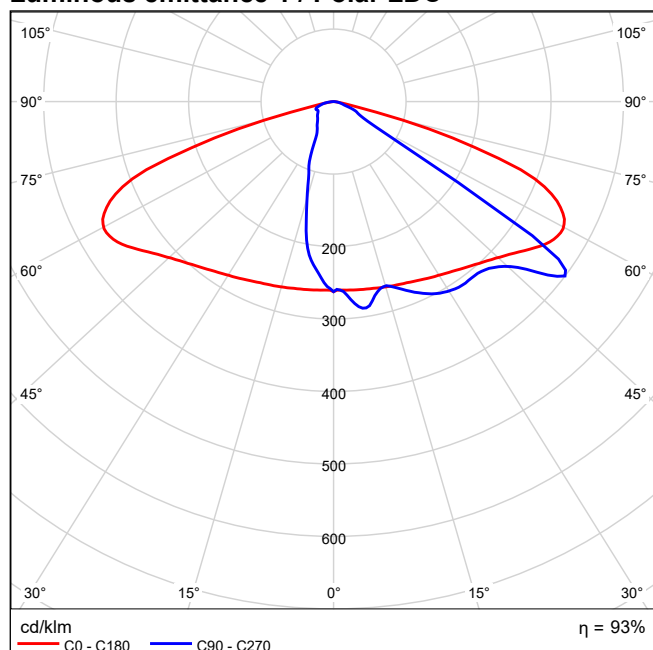
Isolines..... 24

## Cree Europe XSP-E-2SH-E-Q XSP1 HO Field Adjustable 2SH 1x5 MDA-SA\_30K 71W



Light output ratio: 92.68%  
Lamp luminous flux: 9428 lm  
Luminaire luminous flux: 8738 lm  
Power: 71.0 W  
Luminous efficacy: 123.1 lm/W

### Luminous emittance 1 / Polar LDC



### XSP1 High Output

Designed from the ground up as a totally optimized LED street and area lighting system, the XSP High Output Series delivers incredible efficiency without sacrificing application performance. Beyond substantial energy savings and reduced maintenance, Cree achieves greater optical control with our NanoOptic® Precision Delivery Grid™ optic when compared to traditional cobra head luminaires.

The XSP High Output Series is the better alternative for traditional street and area lighting with quick payback and improved performance.

### FEATURES

- Full cut-off optics (NanoOptic® Precision Delivery Grid™)
- Input Power: E=94W / H=63W
- Lumen output: 4000 – 11500lm
- Efficacy: Up to 155lm/W
- CCT: 3000K, 4000K, 5700K (CRI Standard min.70, CRI 80 @3000K on request for MOQ)
- Initial Colour Consistency: 4 MacAdam steps
- Input Voltage: 220-240V
- Driver equipped with temperature sensor to preserve optimal working conditions
- Power factor: Up to > 0.99 at full load
- Lifetime: L80F10 Up to >180Khrs Ta=25°C (>180Khrs L80 IESNA TM-21)
- Surge protection: 10kV CM/DM surge immunity according to EN 61000-4-5 and EN 61547 (Class I SPD equipped with LED signal)
- Fuse option available
- Operative temperature: -40°C up to +50°C
- Insulation class: Class I – Class II
- Enclosure rated IP66 per IEC 60529
- Impact resistance IK08
- Cable type H07RN-F (Cable length Up to 12mt)
- Tool-less entry
- Removable tray
- Control options: Fixed, Field Adjustable Output, Virtual Midnight reprog., DALI, Flux Regulator, Lineswitch, Lumistep, Dynadimmer, Constant Lumen Output
- Nema socket option available
- LED Board equipped with integral ESD and Surge protection
- Fixture assembled without the use of glues, totally dismountable and recyclable.

### CONSTRUCTION AND MATERIALS

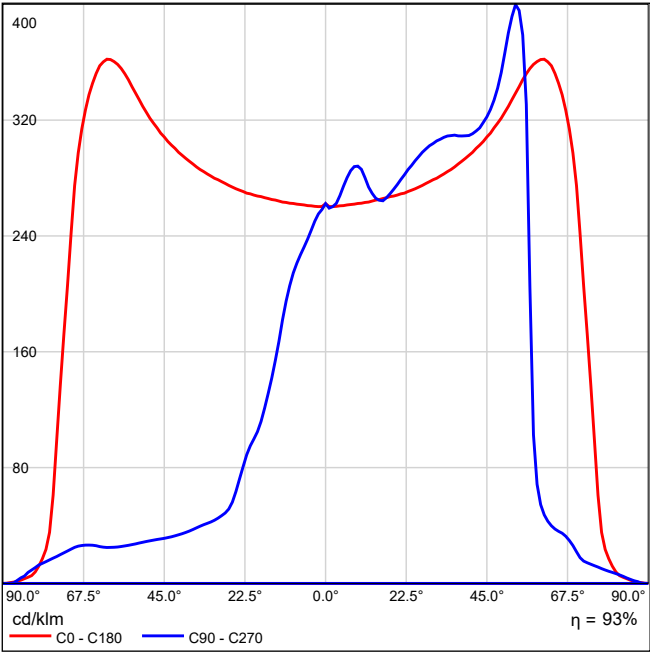
- Die cast, low copper <0,1%, aluminum alloy housing for long weathering and reliability
- Luminaire is designed to mount directly to 76mm or 60mm outer dimension tenons or poles and can be tilted +/- 20°, in steps of 5°
- Luminaire fitter 02 can mount to 60mm OD tenons and fitter 03 to 76mm
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion.

### WARRANTY AND CERTIFICATIONS

- Limited Warranty†: Class 1 — 10 years on Colorfast DeltaGuard® finish / 10 years on luminaire
- Class 2 — 10 years on Colorfast DeltaGuard® finish / 5 years on luminaire
- CE mark / CB mark / ENEC mark / RoHs compliant
- UMSUG Charge code (UK Power performance test)
- Risk group exempt in accordance with Standard CEI EN 62471 for photobiological safety (Tested IEC/TR62778)
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- Compliant to: EN 60598-1; EN 60598-2-3

† See [www.cree-europe.com/en/resources/warranty](http://www.cree-europe.com/en/resources/warranty) for warranty

Luminous emittance 1 / Linear LDC



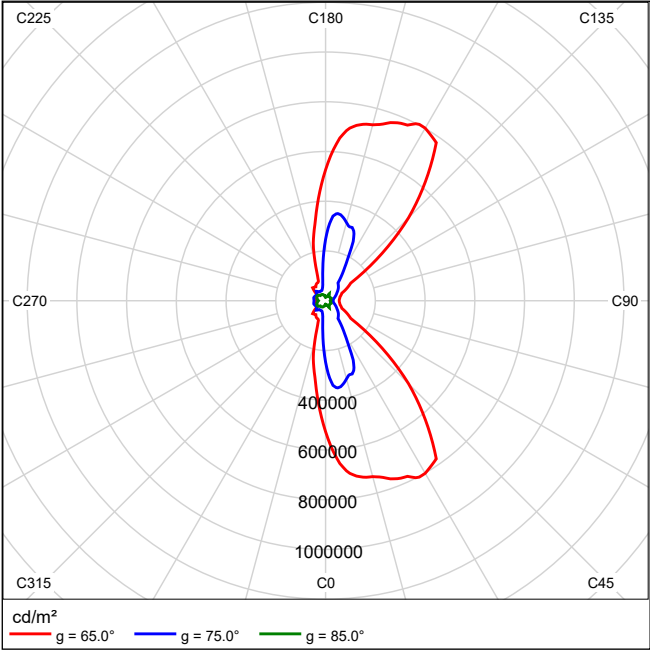
It is not possible to generate a cone diagram, as the light distribution is asymmetrical.

terms

AVAILABLE DISTRIBUTIONS

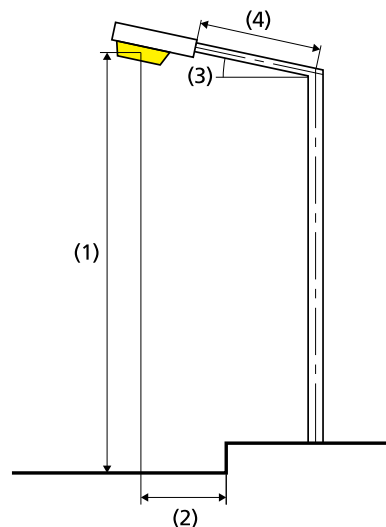
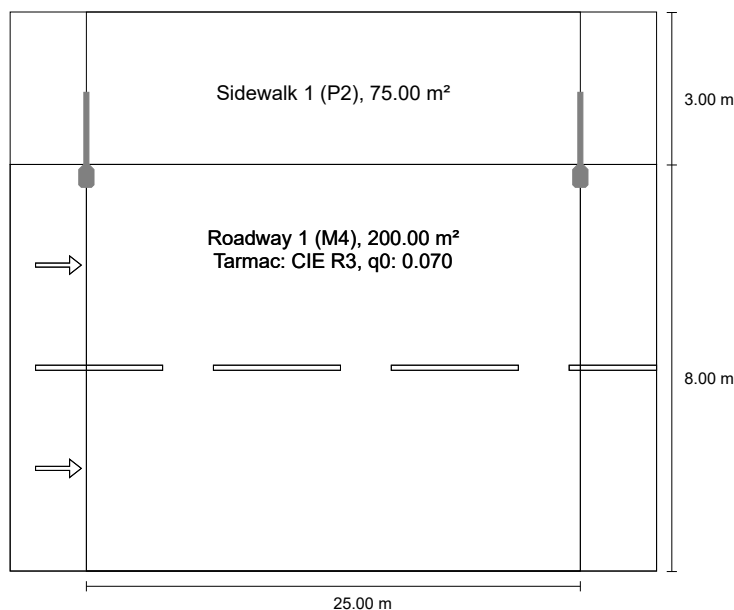
- 2LG (Type II Long) Asymmetric optic for street lighting, cycle paths and footpaths
- 275 (Type II Short 0.75) Asymmetric optic for street lighting
- 210 (Type II Short 1.0) Asymmetric optic for street lighting
- 2SH (Type II Short) Asymmetric optic for street lighting
- 3SH (Type III Short) Asymmetric optic for street lighting
- 3ME (Type III Medium) Asymmetric optic for street lighting and car parks
- 4ME (Type IV Medium) Asymmetric optic for street lighting and car parks

Luminous emittance 1 / Luminance diagram



## Plostu iela 1. posms according to EN 13201:2015

## Cree Europe XSP-E-2SH-E-Q XSP1 HO Field Adjustable 2SH



### Results for valuation fields

Light loss factor: 0.80

#### Sidewalk 1 (P2)

Em [lx] ≥ 10.00 ≤ 15.00	Emin [lx] ≥ 2.00
✓ 14.52	✓ 7.04

#### Roadway 1 (M4)

Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	TI [%] ≤ 15	EIR ≥ 0.30
✓ 1.13	✓ 0.49	✓ 0.82	✓ 10	✓ 0.68

### Results for energy efficiency indicators

<b>Power density indicator (Dp)</b>	0.015 W/lxm²
Energy consumption density	
Arrangement: XSP1 HO Field Adjustable 2SH (284.0 kWh/yr)	1.0 kWh/m² yr

Lamp:	1x5 MDA-SA_30K 71W
Luminous flux (luminaire):	8738.30 lm
Luminous flux (lamp):	9428.00 lm
Operating Hours	
4000 h:	100.0 %, 71.0 W
W/km:	2840.0
Arrangement:	single side top
Pole distance:	25.000 m
Boom inclination (3):	0.0°
Boom length (4):	1.000 m
Light centre height (1):	8.000 m
Light overhang (2):	0.200 m

ULR:	-1.00
ULOR:	0.00

Maximum luminous intensities	
at 70° and above	442 cd/klm *
at 80° and above	21.0 cd/klm *
at 90° and above	0.00 cd/klm *
Luminous intensity class:	G*4

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

\* Luminous intensity values in [cd/klm] for calculating luminous intensity class refer to the output flux of the luminaire, according EN 13201:2015.

Arrangement complies with glare index class D.5

## Sidewalk 1 (P2)

Light loss factor: 0.80  
Grid: 10 x 3 Points

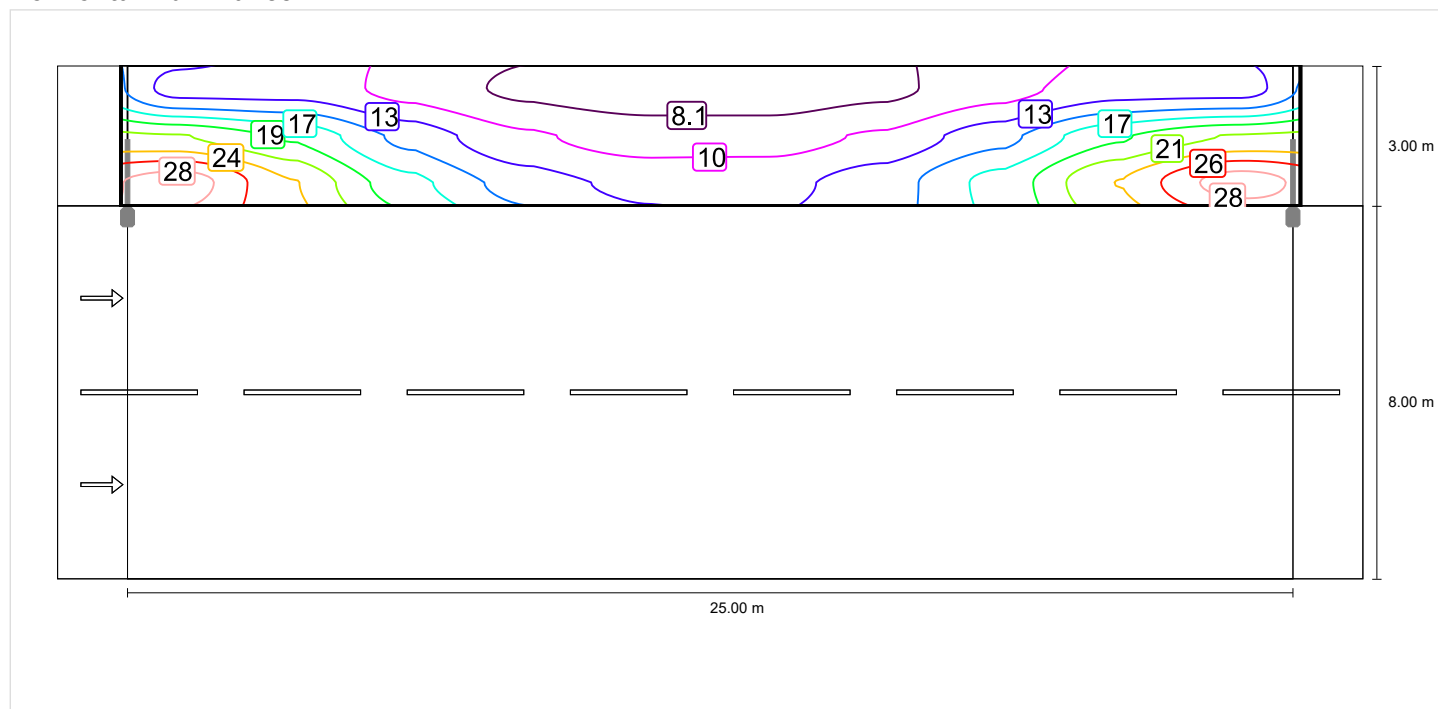
Em [lx] ≥ 10.00 ≤ 15.00	Emin [lx] ≥ 2.00
✓ 14.52	✓ 7.04

## Sidewalk 1 (P2)

Light loss factor: 0.80  
Grid: 10 x 3 Points

Em [lx]	Emin [lx]
≥ 10.00	≥ 2.00
≤ 15.00	
✓ 14.52	✓ 7.04

### Horizontal illuminance





## Roadway 1 (M4)

Light loss factor: 0.80  
Grid: 10 x 6 Points

Lm [cd/m <sup>2</sup> ] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	TI [%] ≤ 15	EIR ≥ 0.30
✓ 1.13	✓ 0.49	✓ 0.82	✓ 10	✓ 0.68

### Assigned observer (2):

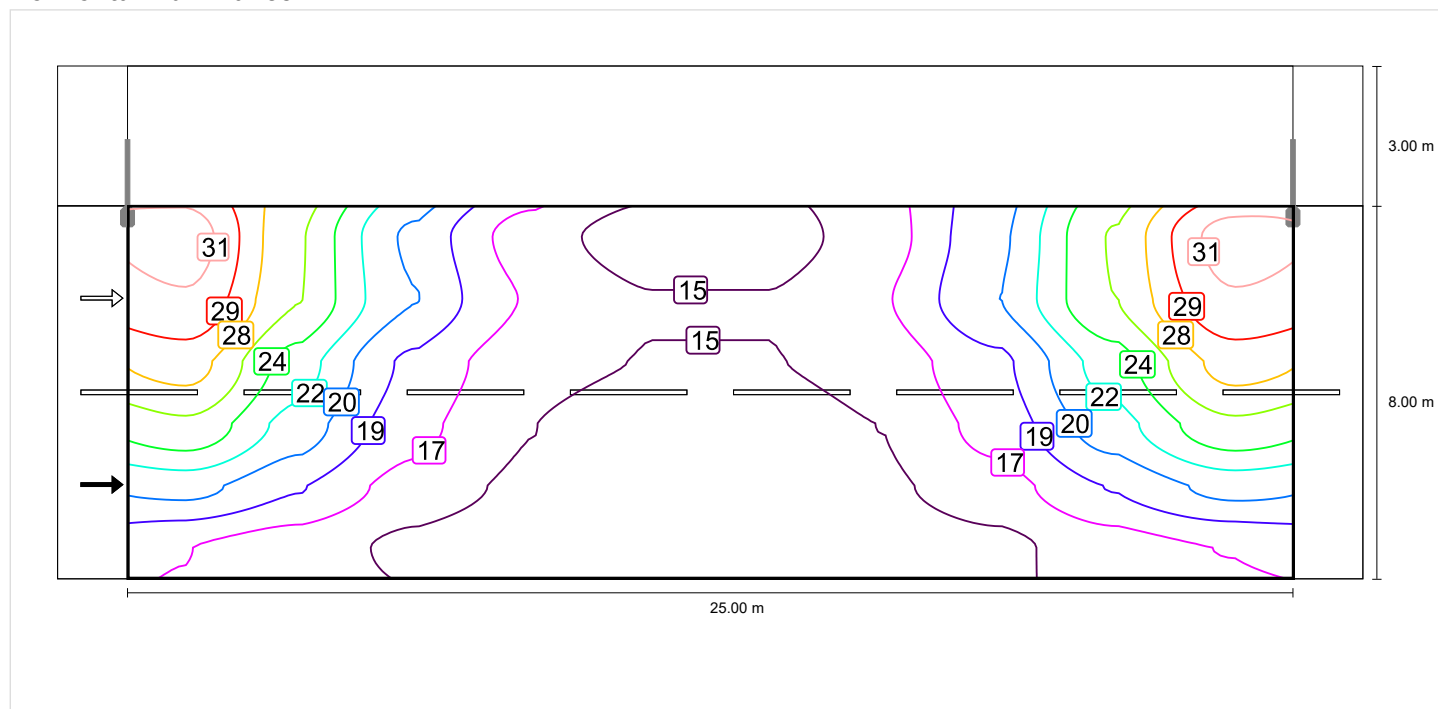
Observer	Position [m]	Lm [cd/m <sup>2</sup> ] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	TI [%] ≤ 15
Observer 1	(-60.000, 2.000, 1.500)	1.21	0.49	0.83	5
Observer 2	(-60.000, 6.000, 1.500)	1.13	0.51	0.82	10

## Roadway 1 (M4)

Light loss factor: 0.80  
Grid: 10 x 6 Points

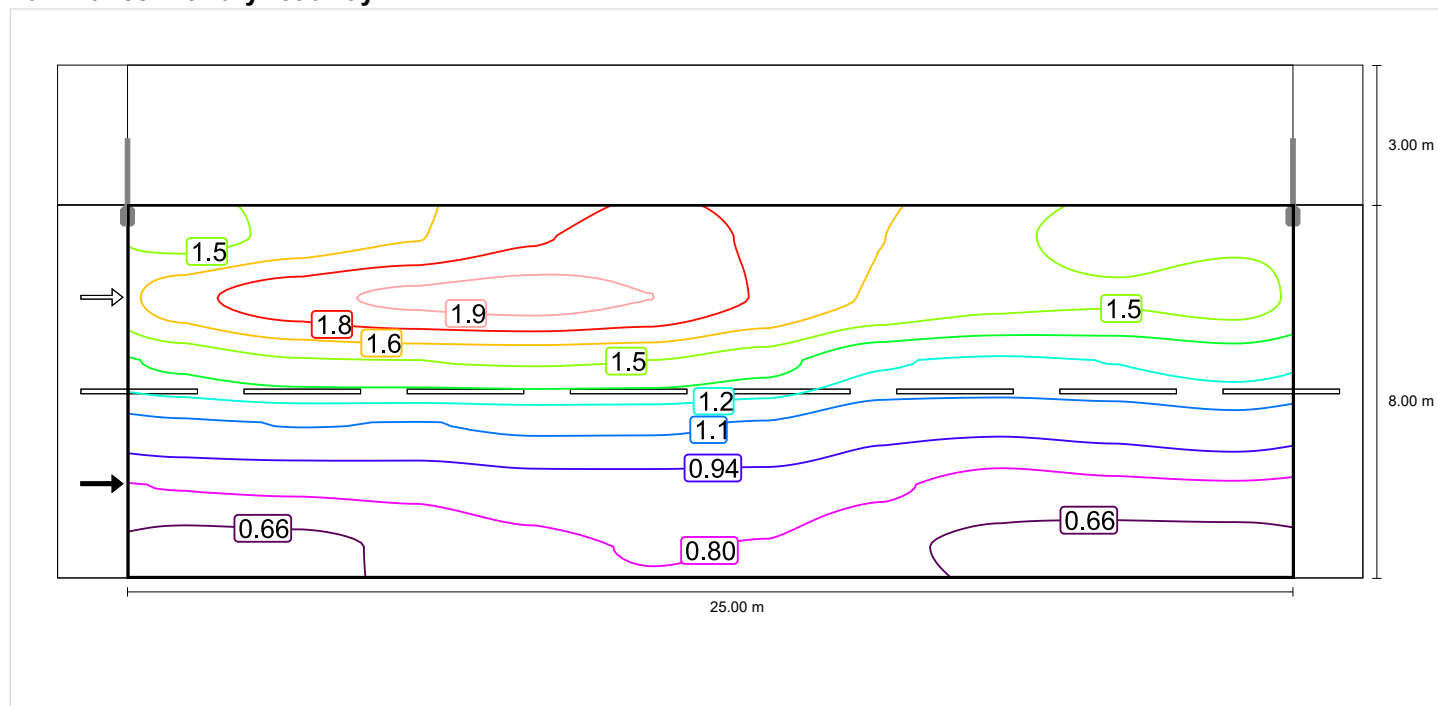
Lm [cd/m <sup>2</sup> ] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	TI [%] ≤ 15	EIR ≥ 0.30
✓ 1.13	✓ 0.49	✓ 0.82	✓ 10	✓ 0.68

### Horizontal illuminance

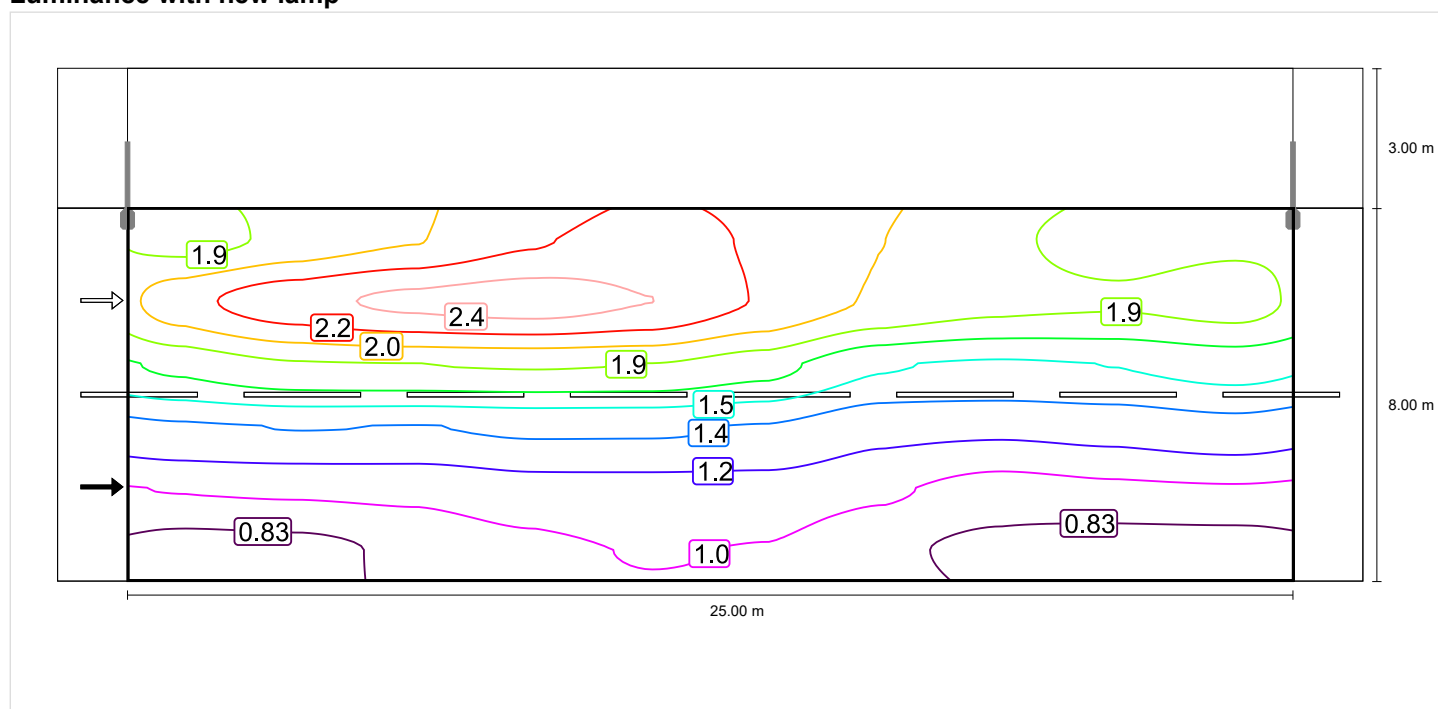


## Observer 1

### Luminance with dry roadway

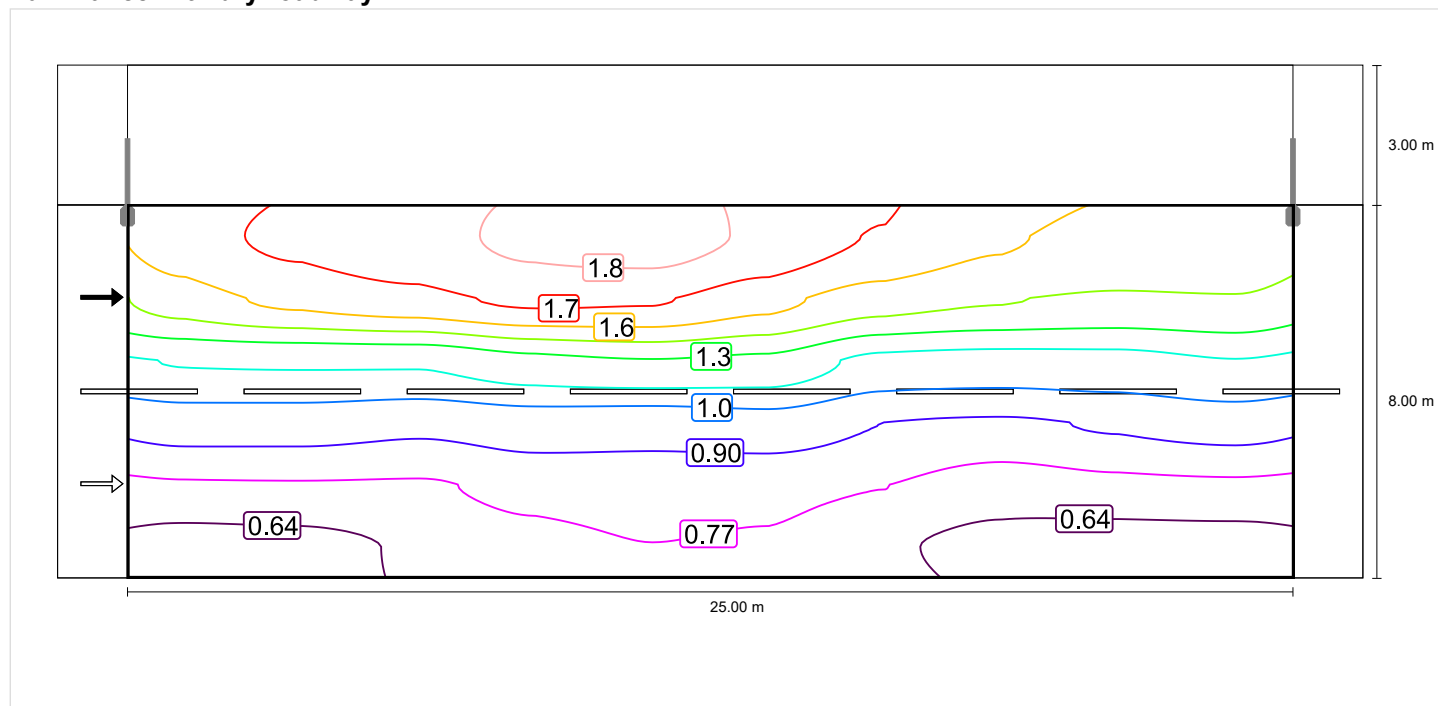


### Luminance with new lamp

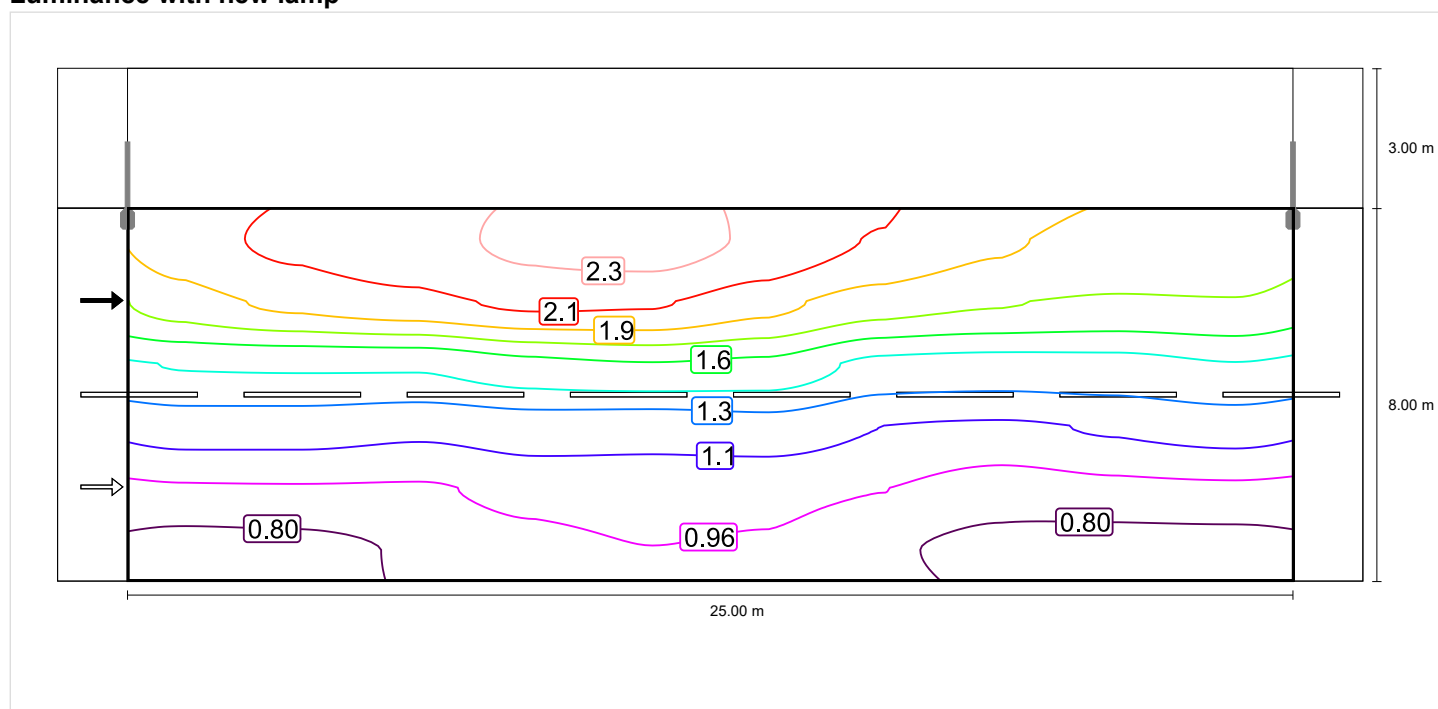


## Observer 2

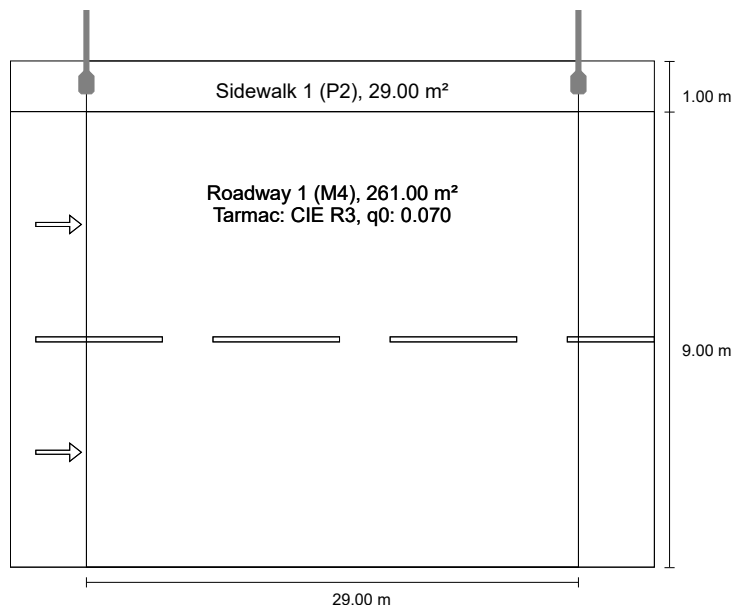
### Luminance with dry roadway



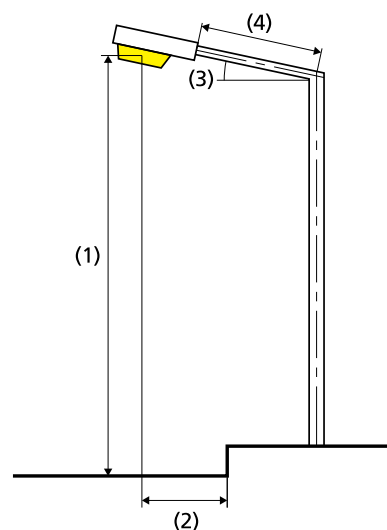
### Luminance with new lamp



### Plostu iela 3. posms according to EN 13201:2015



### Cree Europe XSP-E-2SH-E-Q XSP1 HO Field Adjustable 2SH



#### Results for valuation fields

Light loss factor: 0.80

#### Sidewalk 1 (P2)

Em [lx] ≥ 10.00 ≤ 15.00	Emin [lx] ≥ 2.00
✓ 14.65	✓ 9.58

#### Roadway 1 (M4)

Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	TI [%] ≤ 15	EIR ≥ 0.30
✓ 0.76	✓ 0.50	✓ 0.85	✓ 8	✓ 0.72

#### Results for energy efficiency indicators

##### Power density indicator (Dp)

0.019 W/lxm²

##### Energy consumption density

Arrangement: XSP1 HO Field Adjustable 2SH (284.0 kWh/yr)

1.0 kWh/m² yr

Lamp:	1x5 MDA-SA_30K 71W
Luminous flux (luminaire):	8738.30 lm
Luminous flux (lamp):	9428.00 lm
Operating Hours	
4000 h:	100.0 %, 71.0 W
W/km:	2414.0
Arrangement:	single side top
Pole distance:	29.000 m
Boom inclination (3):	0.0°
Boom length (4):	1.000 m
Light centre height (1):	10.000 m
Light overhang (2):	-0.600 m

ULR:	-1.00
ULOR:	0.00

#### Maximum luminous intensities

at 70° and above	442 cd/klm *
at 80° and above	21.0 cd/klm *
at 90° and above	0.00 cd/klm *

Luminous intensity class: G\*4

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

\* Luminous intensity values in [cd/klm] for calculating luminous intensity class refer to the output flux of the luminaire, according EN 13201:2015.

Arrangement complies with glare index class D.5

## Sidewalk 1 (P2)

Light loss factor: 0.80  
Grid: 10 x 3 Points

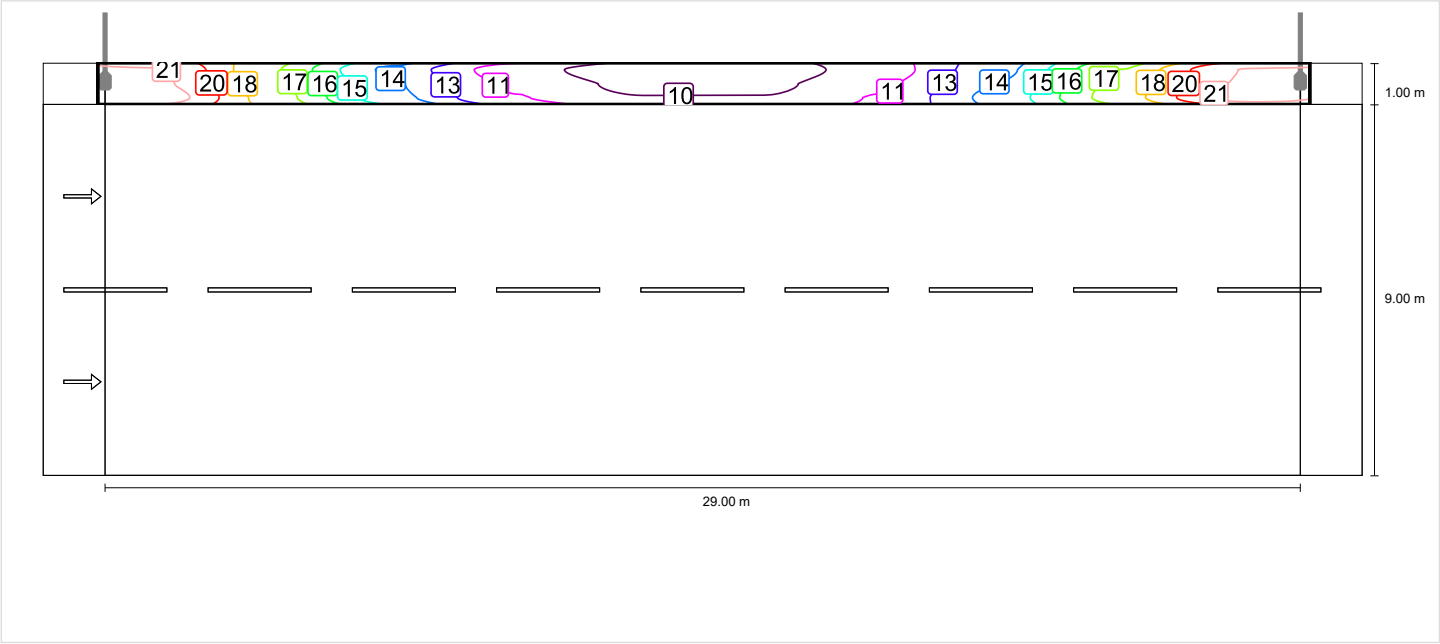
Em [lx] ≥ 10.00 ≤ 15.00	Emin [lx] ≥ 2.00
✓ 14.65	✓ 9.58

Sidewalk 1 (P2)

Light loss factor: 0.80  
Grid: 10 x 3 Points

Em [lx]	Emin [lx]
≥ 10.00	≥ 2.00
≤ 15.00	
✓ 14.65	✓ 9.58

Horizontal illuminance



## Roadway 1 (M4)

Light loss factor: 0.80  
Grid: 10 x 6 Points

Lm [cd/m <sup>2</sup> ] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	TI [%] ≤ 15	EIR ≥ 0.30
✓ 0.76	✓ 0.50	✓ 0.85	✓ 8	✓ 0.72

### Assigned observer (2):

Observer	Position [m]	Lm [cd/m <sup>2</sup> ] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	TI [%] ≤ 15
Observer 1	(-60.000, 2.250, 1.500)	0.83	0.50	0.85	4
Observer 2	(-60.000, 6.750, 1.500)	0.76	0.53	0.86	8

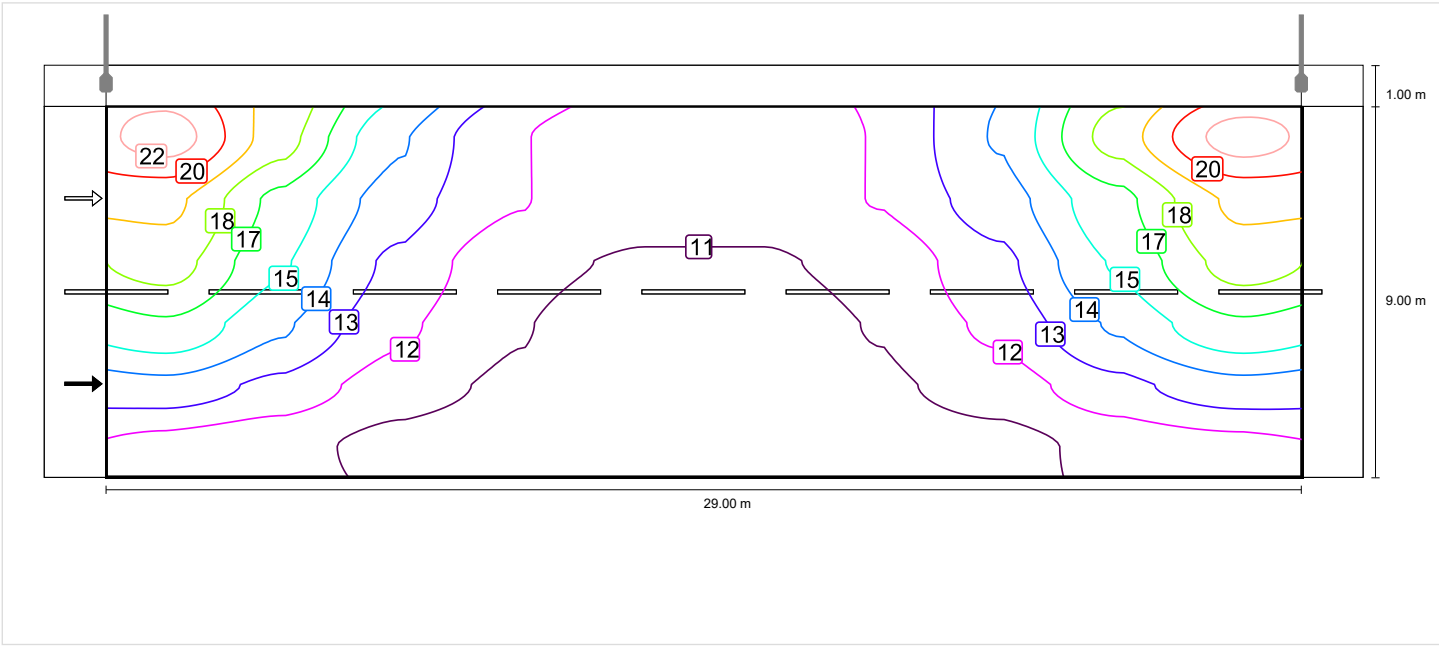


Roadway 1 (M4)

Light loss factor: 0.80  
Grid: 10 x 6 Points

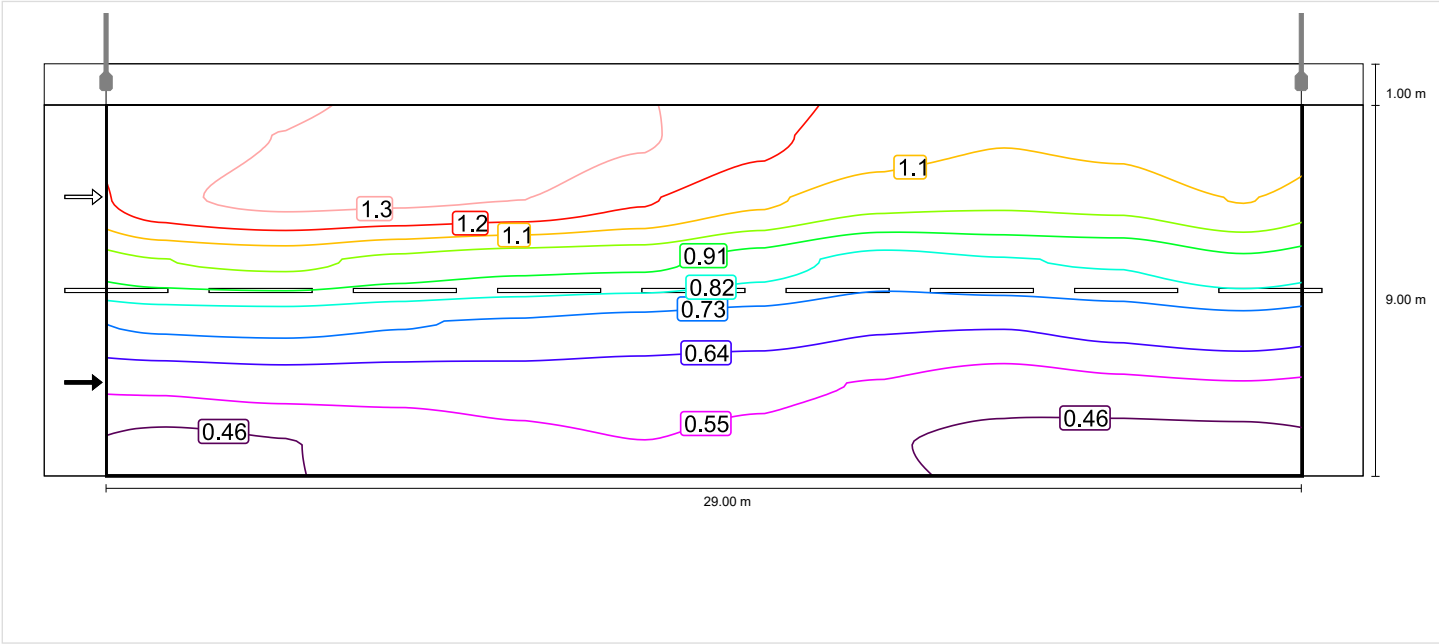
Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	TI [%] ≤ 15	EIR ≥ 0.30
✓ 0.76	✓ 0.50	✓ 0.85	✓ 8	✓ 0.72

Horizontal illuminance

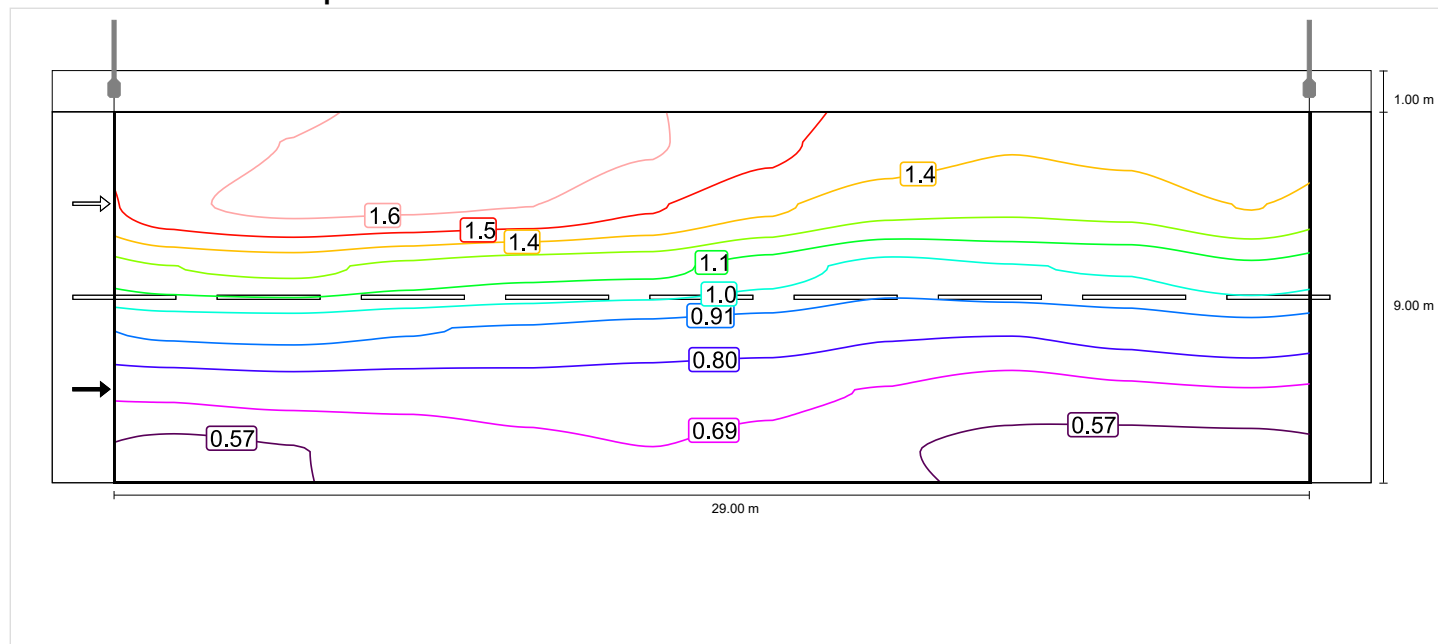


Observer 1

Luminance with dry roadway

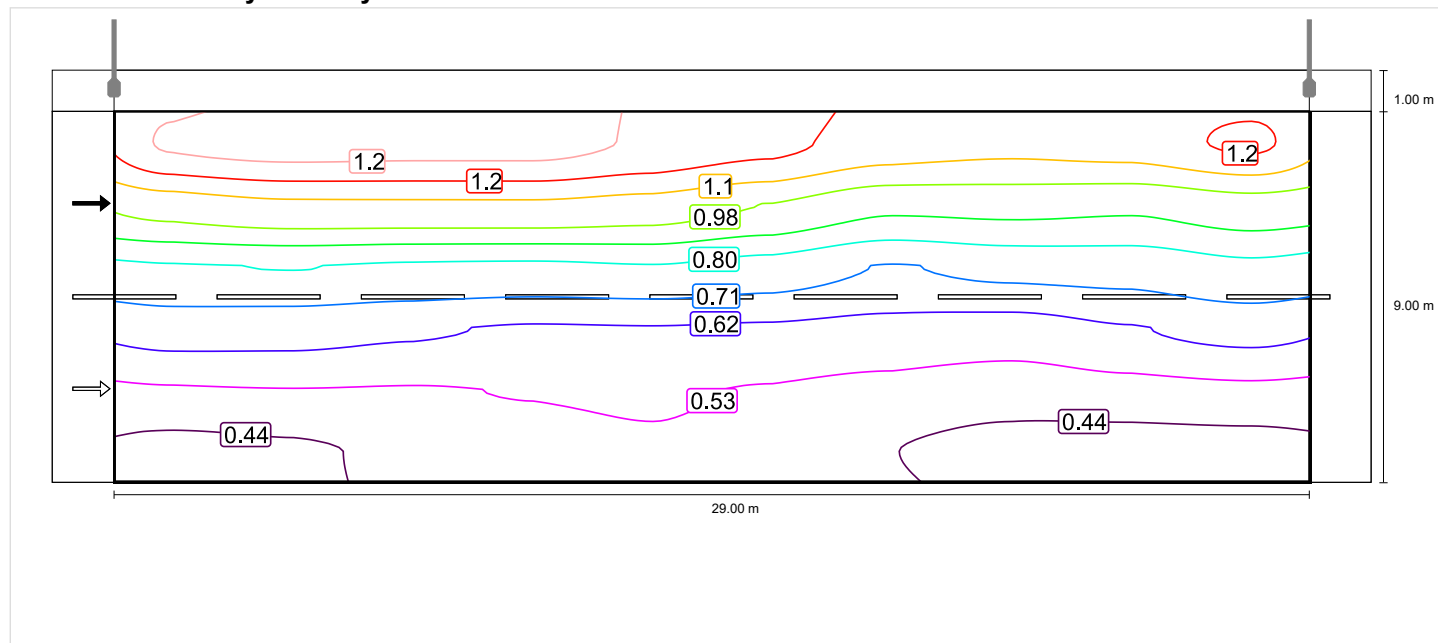


## Luminance with new lamp

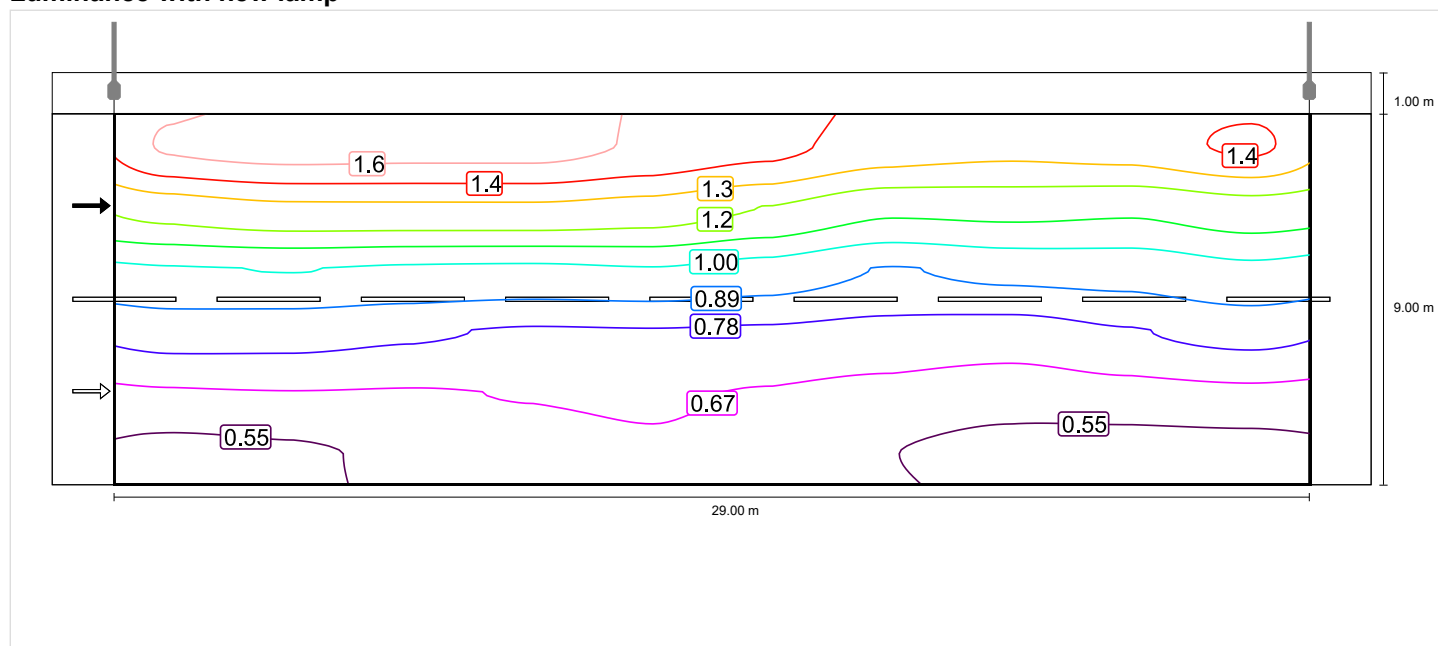


## Observer 2

## Luminance with dry roadway

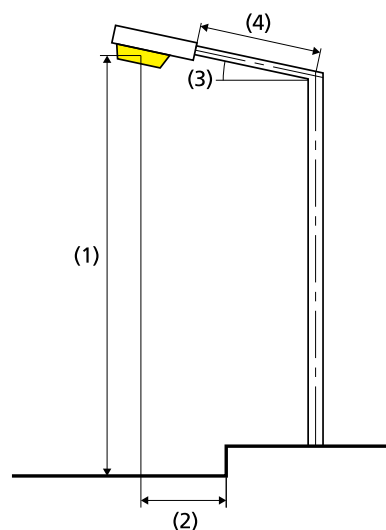
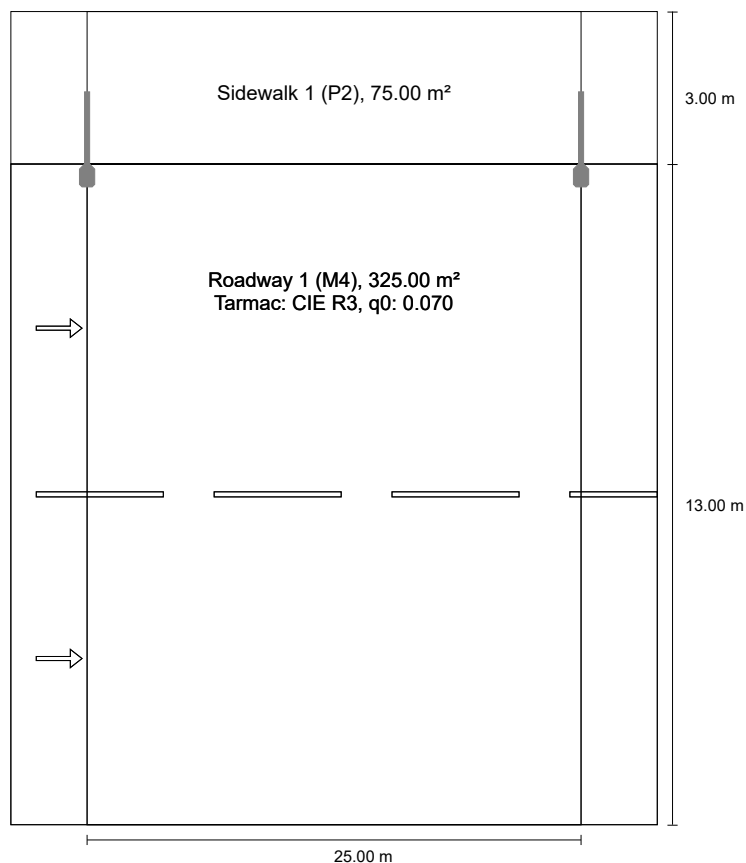


## Luminance with new lamp



## Plostu iela 2. posms according to EN 13201:2015

## Cree Europe XSP-E-2SH-E-Q XSP1 HO Field Adjustable 2SH



Lamp:	1x5 MDA-SA_30K 71W
Luminous flux (luminaire):	8738.30 lm
Luminous flux (lamp):	9428.00 lm
Operating Hours	
4000 h:	100.0 %, 71.0 W
W/km:	2840.0
Arrangement:	single side top
Pole distance:	25.000 m
Boom inclination (3):	0.0°
Boom length (4):	1.000 m
Light centre height (1):	10.000 m
Light overhang (2):	0.200 m

### Results for valuation fields

Light loss factor: 0.80

#### Sidewalk 1 (P2)

Em [lx] ≥ 10.00 ≤ 15.00	Emin [lx] ≥ 2.00
✓ 12.92	✓ 7.69

#### Roadway 1 (M4)

Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	TI [%] ≤ 15	EIR ≥ 0.30
✓ 0.80	✓ 0.43	✓ 0.80	✓ 8	✓ 0.31

### Results for energy efficiency indicators

<b>Power density indicator (Dp)</b>	0.013 W/lxm²
Energy consumption density	
Arrangement: XSP1 HO Field Adjustable 2SH (284.0 kWh/yr)	0.7 kWh/m² yr

ULR:	-1.00
ULOR:	0.00
Maximum luminous intensities	
at 70° and above	442 cd/klm *
at 80° and above	21.0 cd/klm *
at 90° and above	0.00 cd/klm *
Luminous intensity class:	G*4

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

\* Luminous intensity values in [cd/klm] for calculating luminous intensity class refer to the output flux of the luminaire, according EN 13201:2015.

Arrangement complies with glare index class D.5

## Sidewalk 1 (P2)

Light loss factor: 0.80

Grid: 10 x 3 Points

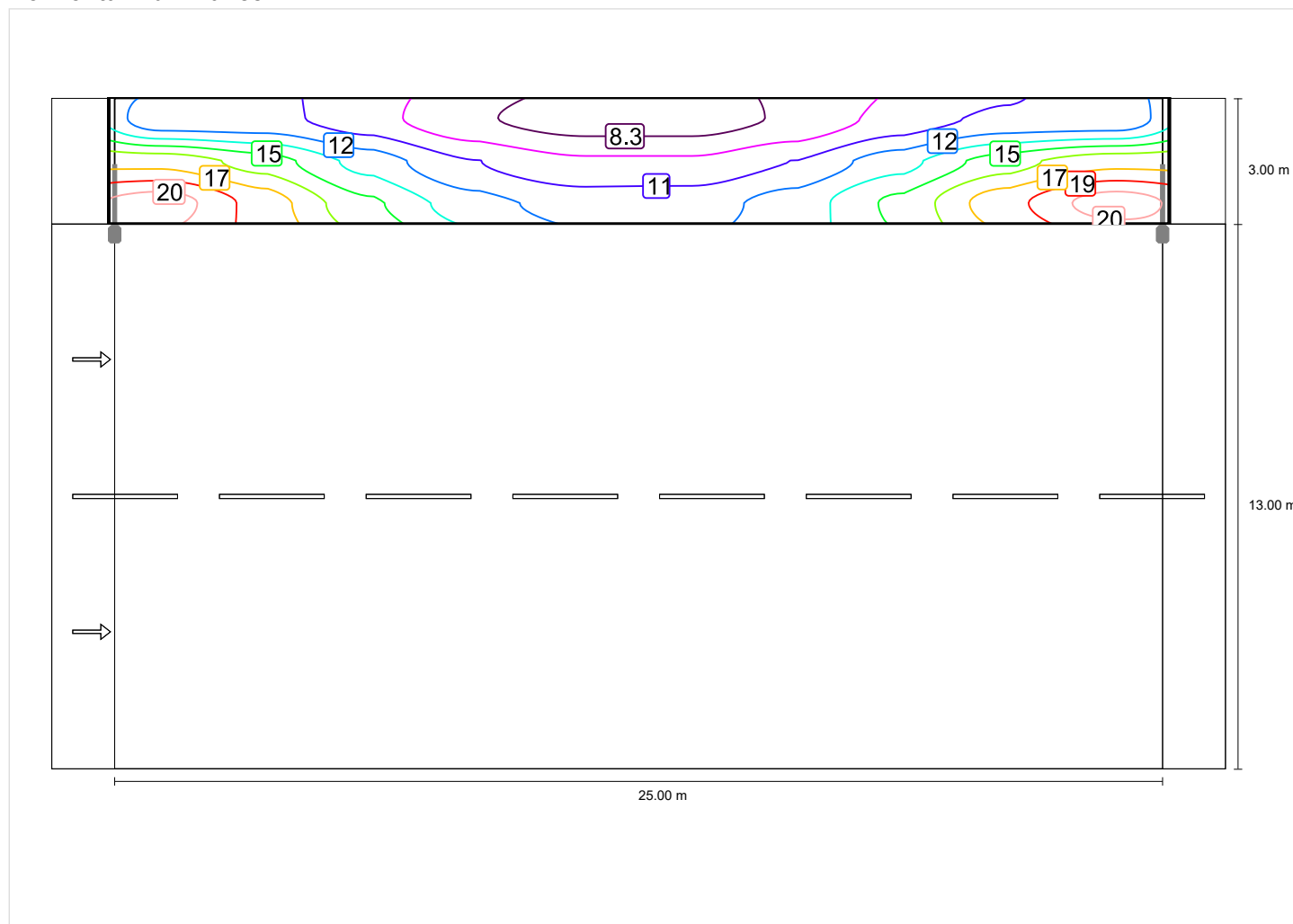
Em [lx] ≥ 10.00 ≤ 15.00	Emin [lx] ≥ 2.00
✓ 12.92	✓ 7.69

## Sidewalk 1 (P2)

Light loss factor: 0.80  
Grid: 10 x 3 Points

Em [lx]	Emin [lx]
≥ 10.00	≥ 2.00
≤ 15.00	
✓ 12.92	✓ 7.69

### Horizontal illuminance



## Roadway 1 (M4)

Light loss factor: 0.80  
Grid: 10 x 6 Points

Lm [cd/m <sup>2</sup> ] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	TI [%] ≤ 15	EIR ≥ 0.30
✓ 0.80	✓ 0.43	✓ 0.80	✓ 8	✓ 0.31

### Assigned observer (2):

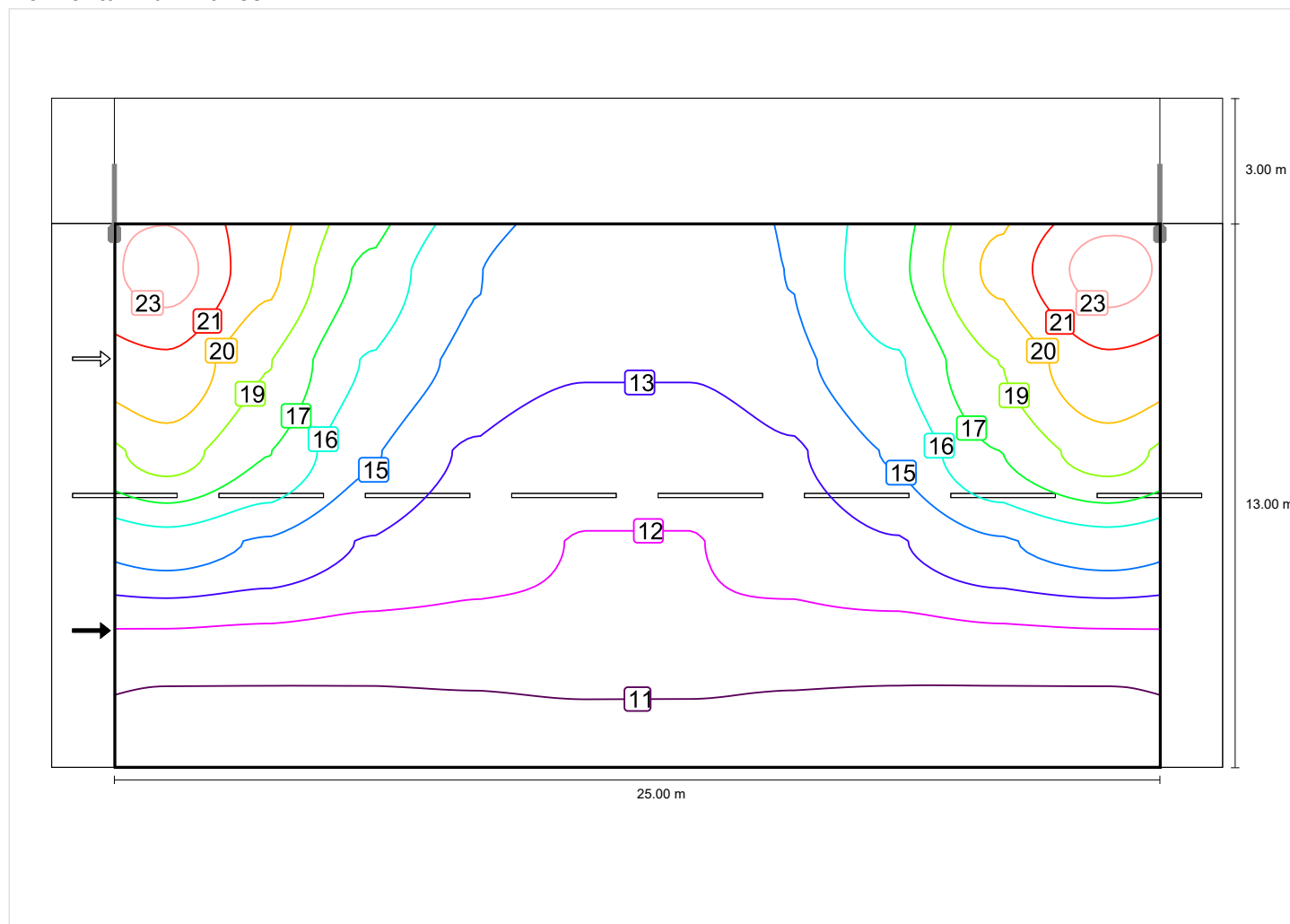
Observer	Position [m]	Lm [cd/m <sup>2</sup> ] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	TI [%] ≤ 15
Observer 1	(-60.000, 3.250, 1.500)	0.87	0.43	0.80	3
Observer 2	(-60.000, 9.750, 1.500)	0.80	0.46	0.84	8

## Roadway 1 (M4)

Light loss factor: 0.80  
Grid: 10 x 6 Points

Lm [cd/m <sup>2</sup> ] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	TI [%] ≤ 15	EIR ≥ 0.30
✓ 0.80	✓ 0.43	✓ 0.80	✓ 8	✓ 0.31

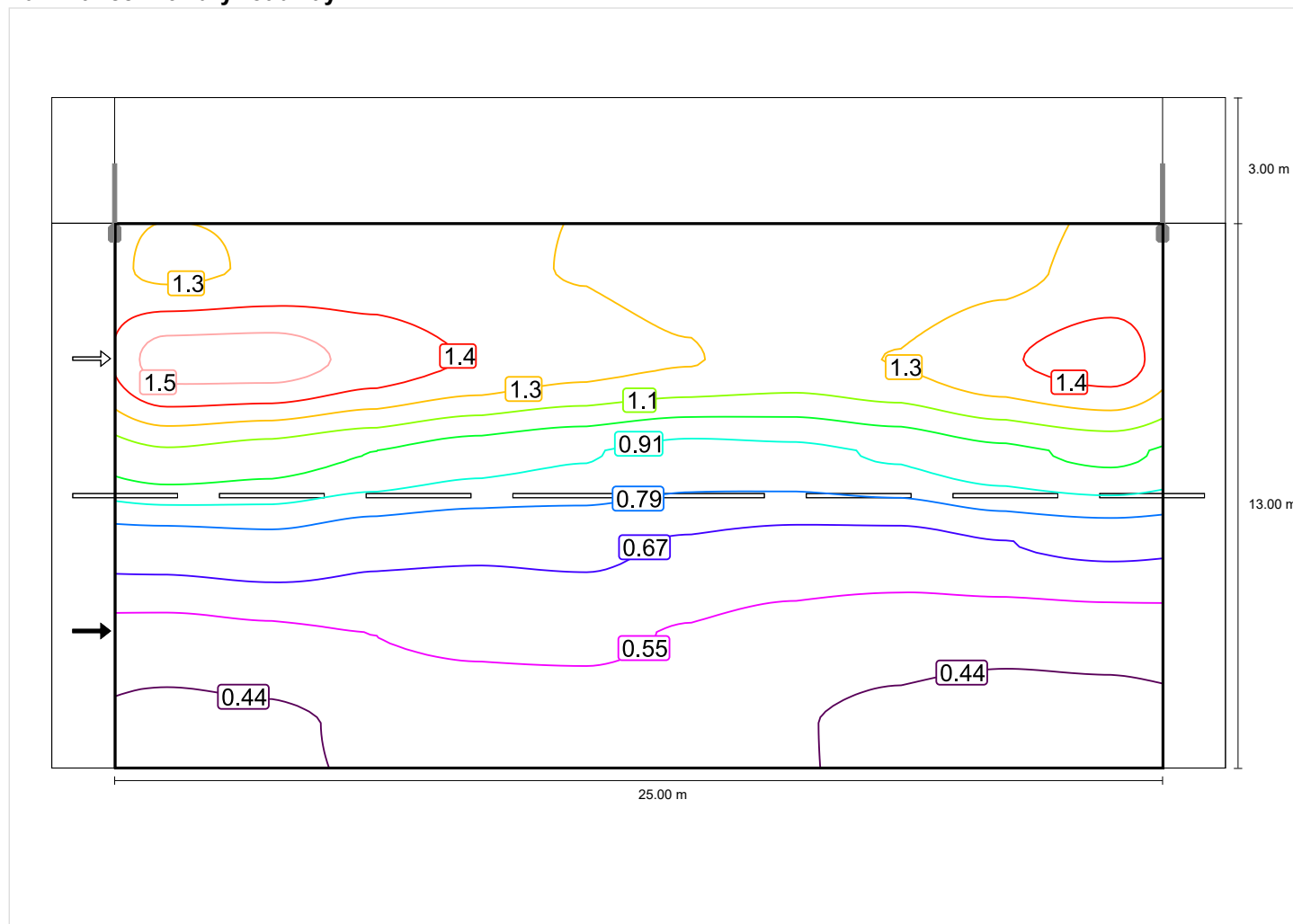
### Horizontal illuminance



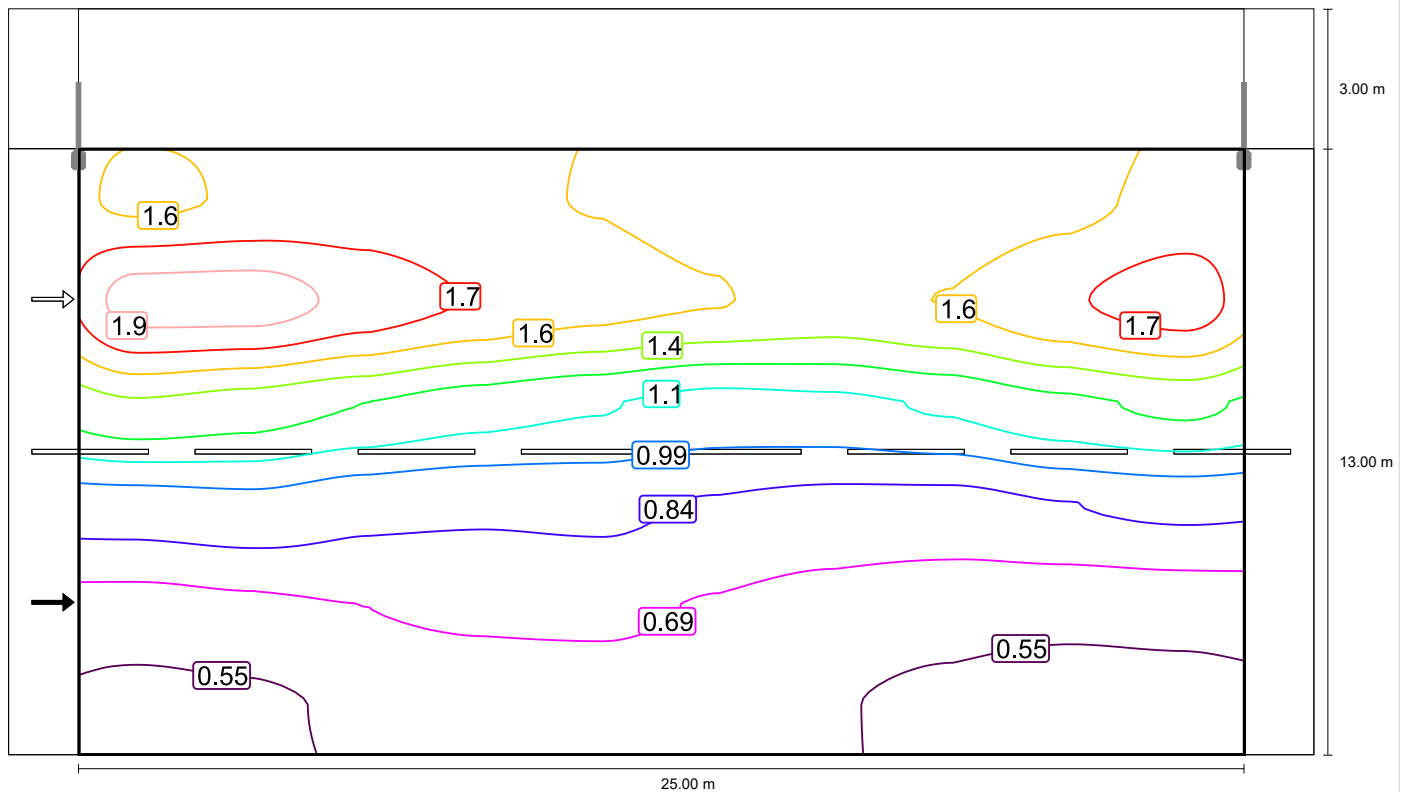


## Observer 1

### Luminance with dry roadway

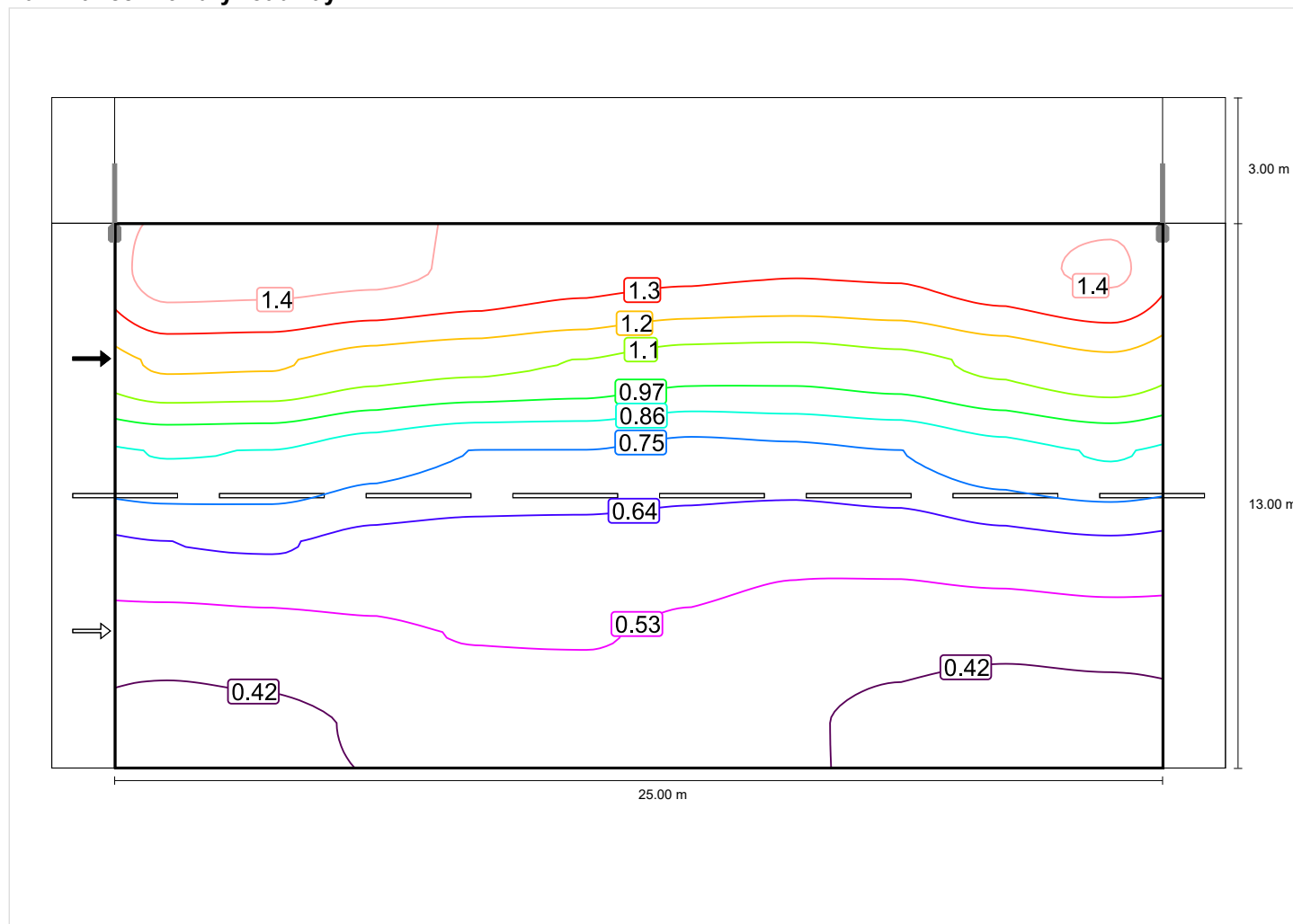


## Luminance with new lamp



## Observer 2

### Luminance with dry roadway



## Luminance with new lamp

