

**Akce**

741 2024 Kopřivnice - Průmyslový park, VO

**Zadání**

Svitidla TECEO GEN2 na 10metrových sloupech, sloupy za chodníkem, třída osvětlení *M4*

**Zatřídění a požadavky na osvětlení**

ČSN EN 13201-2

| Třída osvětlení | $\bar{L}_m$ [cd/m <sup>2</sup> ] | $U_0$ [-] | $U_1$ [-] | $f_{TI}$ [%] | $R_{EI}$ [-] |
|-----------------|----------------------------------|-----------|-----------|--------------|--------------|
| <i>M1</i>       | ≥ 2,00                           | ≥ 0,40    | ≥ 0,70    | ≤ 10         | ≥ 0,35       |
| <i>M2</i>       | ≥ 1,50                           | ≥ 0,40    | ≥ 0,70    | ≤ 10         | ≥ 0,35       |
| <i>M3</i>       | ≥ 1,00                           | ≥ 0,40    | ≥ 0,60    | ≤ 15         | ≥ 0,30       |
| <i>M4</i>       | ≥ 0,75                           | ≥ 0,40    | ≥ 0,60    | ≤ 15         | ≥ 0,30       |
| <i>M5</i>       | ≥ 0,50                           | ≥ 0,35    | ≥ 0,40    | ≤ 15         | ≥ 0,30       |
| <i>M6</i>       | ≥ 0,30                           | ≥ 0,35    | ≥ 0,40    | ≤ 20         | ≥ 0,30       |

**Uspořádání soustavy VO**

Svitidla: **TECEO 1 / 5303 BackLight / 40 LED / WW727 / 600 mA / 75 W**  
Závěsná výška: 10 m  
Výložník: 1,0 m / 0°  
Náklon svítidla: 0°  
Umístění sloupu: dle zadání za chodníkem  
Rozeč: v přímém úseku až 37 m

**Vypracoval**

Ing. Roman Sedláček, světelný technik  
Schröder Czech Republic, a.s.  
V Praze dne 9. prosince 2024

## Kopřivnice - Průmyslový park, VO

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**Standard** EN 13201:2015

**Designer** rs

**Study #** 741 2024

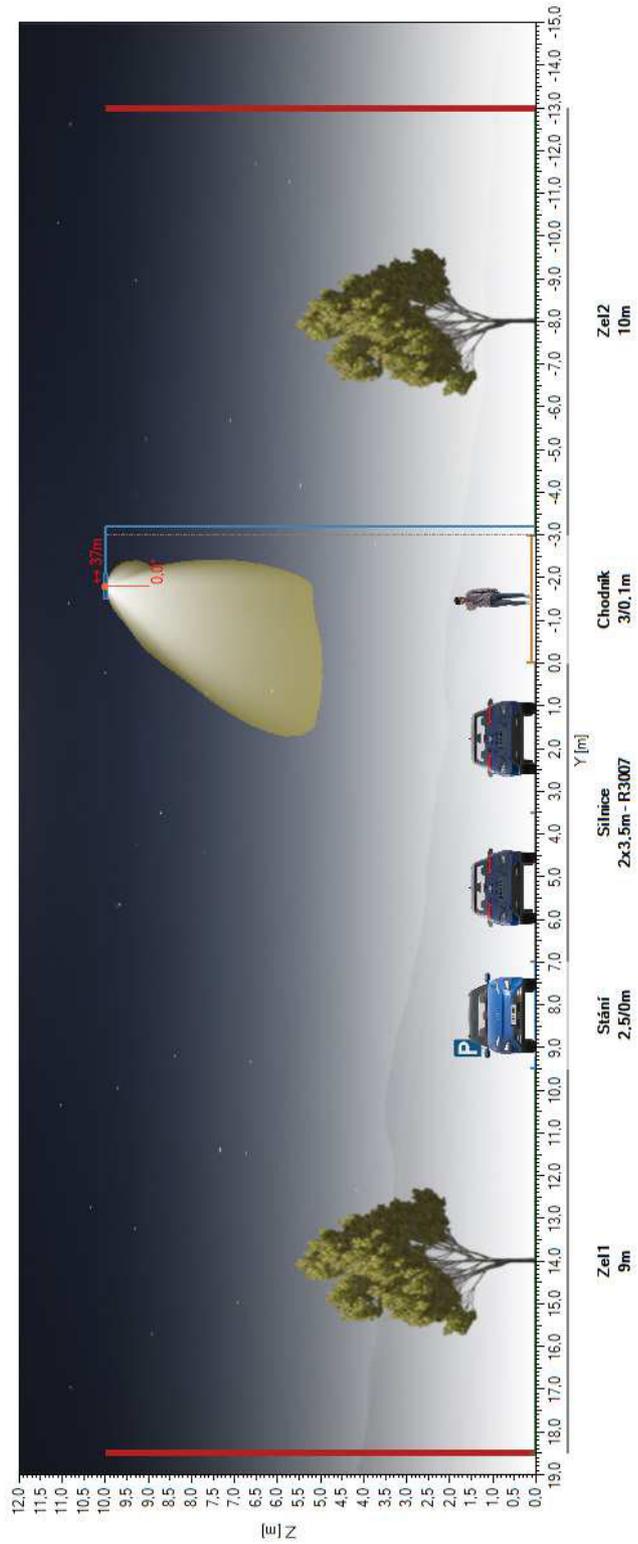
**Date** 09.12.2024

**Application** Ulysse 4.1.0

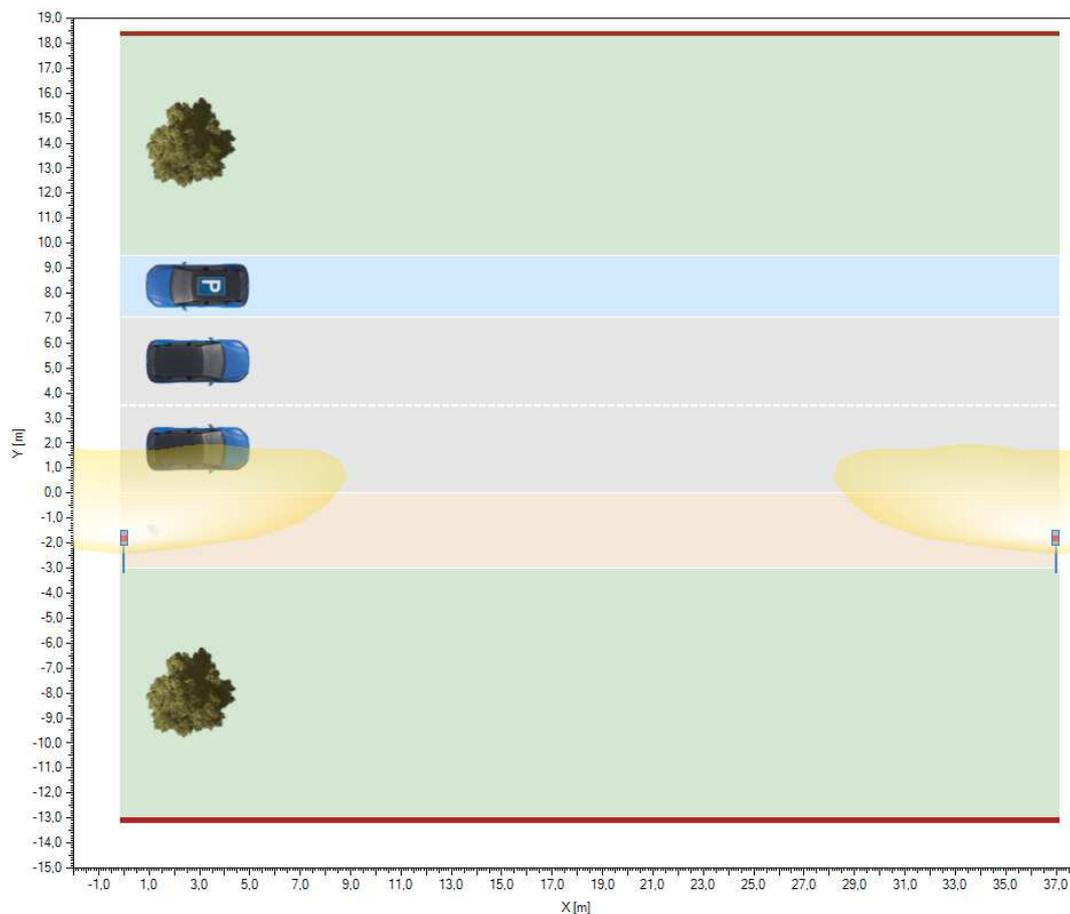
**File** Výpočet.lp3

# 1. 2D View

## 1.1. Cross section



## 1.2. Top view



## 2. Fixtures

### 2.1. TECEO GEN2 1 40 LEDs 600mA (LED) WW727 Flat glass 5303 LE, BLD 449332

Type TECEO GEN2 1

Reflector 5303

Source 40 LEDs 600mA (LED) WW727

Protector Flat glass

Source flux 10,960 klm

G\* 3

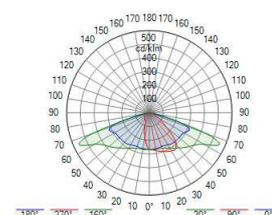
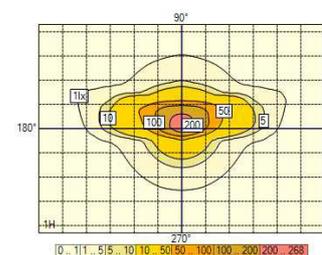
Luminaire wattage 75,0 W

MF 0,85

Matrix 449332

Luminaire flux 8,881 klm

Efficacy 118 lm/W



### 3. Results

#### 3.1. Grid summary

##### Fasáda 1 (IL)

| 1. Normal illuminance  | Ave (A)<br>(lx) | Min/Ave<br>(%) | Min/Max<br>(%) | Min (lx) | Max (lx) |
|------------------------|-----------------|----------------|----------------|----------|----------|
| Uspořádání soustavy VO | 0,35            | 0              | 0              | 0,00     | 0,94     |

##### Stání (IL)

| 1. Z positive illuminance | Ave (A)<br>(lx) | Min/Ave<br>(%) | Min/Max<br>(%) | Min (lx) | Max (lx) |
|---------------------------|-----------------|----------------|----------------|----------|----------|
| Uspořádání soustavy VO    | 7,43            | 74             | 51             | 5,49     | 10,73    |

##### Silnice (LU)

M4 (LU : Ave = 0,75 cd/m<sup>2</sup> Uo = 40 % UI = 60 % UoW = 15 % TI : 15 % EIR : 0,30)

| 1. Luminance R-Table - R3007                             | Ave (A)<br>(cd/m <sup>2</sup> ) | Min/Ave<br>(%) | Min/Max<br>(%) | Min<br>(cd/m <sup>2</sup> ) | Max<br>(cd/m <sup>2</sup> ) | UL (%) |
|--|---------------------------------|----------------|----------------|-----------------------------|-----------------------------|--------|
| Uspořádání soustavy VO - Observer 1 (-60,00; 1,75; 1,50) | 0,76                            | 59             | 37             | 0,45                        | 1,21                        | 86 %   |
| Uspořádání soustavy VO - Observer 2 (-60,00; 5,25; 1,50) | 0,84                            | 56             | 33             | 0,47                        | 1,41                        | 84 %   |

##### Silnice (IL)

| 1. Z positive illuminance | Ave (A)<br>(lx) | Min/Ave<br>(%) | Min/Max<br>(%) | Min (lx) | Max (lx) |
|---------------------------|-----------------|----------------|----------------|----------|----------|
| Uspořádání soustavy VO    | 13,4            | 56             | 31             | 7,5      | 24,4     |

##### Chodník (IL)

| 1. Z positive illuminance | Ave (A)<br>(lx) | Min/Ave<br>(%) | Min/Max<br>(%) | Min (lx) | Max (lx) |
|---------------------------|-----------------|----------------|----------------|----------|----------|
| Uspořádání soustavy VO    | 13,4            | 38             | 20             | 5,1      | 25,2     |

##### Fasáda 2 (IL)

| 1. Inverse illuminance | Ave (A)<br>(lx) | Min/Ave<br>(%) | Min/Max<br>(%) | Min (lx) | Max (lx) |
|------------------------|-----------------|----------------|----------------|----------|----------|
| Uspořádání soustavy VO | 0,53            | 0              | 0              | 0,00     | 1,53     |

#### 3.2. Observer summary

##### Silnice (TI 1)

M4 (LU : Ave = 0,75 cd/m<sup>2</sup> Uo = 40 % UI = 60 % UoW = 15 % TI : 15 % EIR : 0,30)

|  | TI |
|--|----|
| Uspořádání soustavy VO - Direction (0,0) | 10 |

##### Silnice (TI 2)

M4 (LU : Ave = 0,75 cd/m<sup>2</sup> Uo = 40 % UI = 60 % UoW = 15 % TI : 15 % EIR : 0,30)

|  | TI |
|--|----|
| Uspořádání soustavy VO - Direction (0,0) | 6  |

### 3.3. Values summary

EIR road

M4 (LU : Ave = 0,75 cd/m<sup>2</sup> Uo = 40 % UI = 60 % UoW = 15 % TI : 15 % EIR : 0,30)

|  |          |
|--|----------|
|  | EIR road |
| Uspořádání soustavy VO - Silnice (EIR) | 0,53     |

## 4. Uspořádání soustavy VO

### 4.1. Matrix description

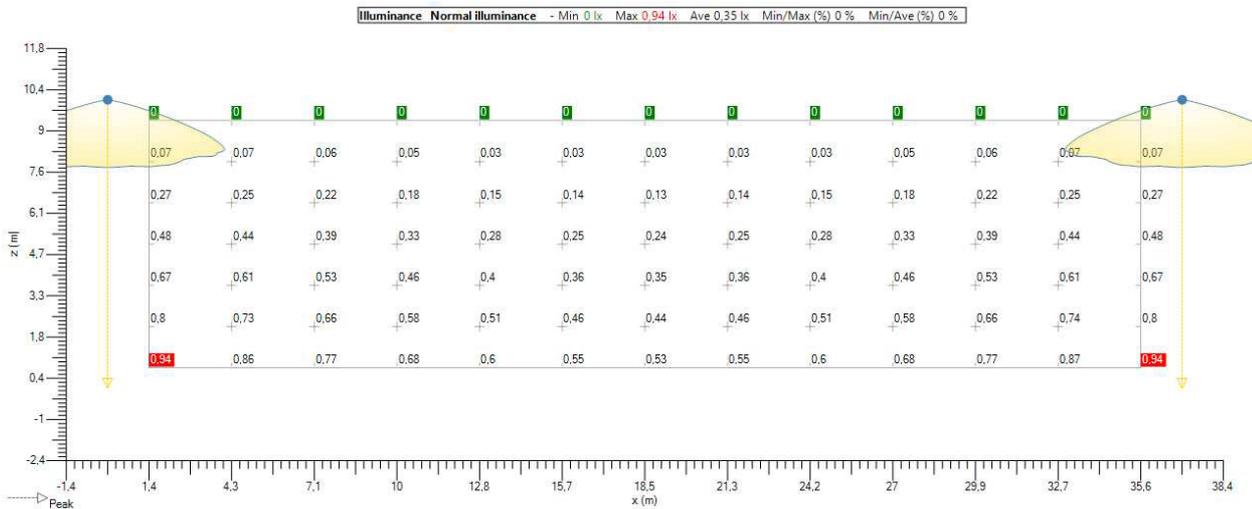
| Photometric colour  | Description   | Current [mA] | Source flux [klm] | Luminair e flux [klm] | Power [W] | Efficacy [lm/W] | MF    | Height [m] | Fixture   |
|---|---|--------------|-------------------|-----------------------|-----------|-----------------|-------|------------|---|
|  | TECEO GEN2 1 40 LEDs 600mA (LED) WW727 Flat glass 5303 LE, BLD 449332 | 600          | 10,960            | 8,881                 | 74,7      | 119             | 0,850 | 6 x 10,00  |  |

### 4.2. Luminaire groups

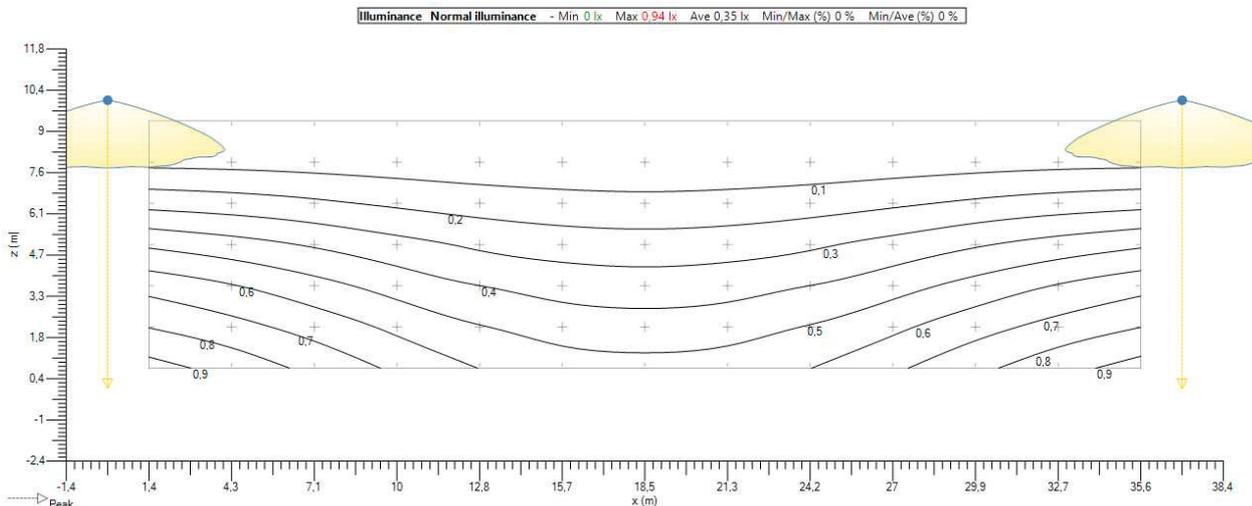
| Linear                              |   |    |          |       |       |           |         |           |          |         |           |             |          |          |       |       |
|-------------------------------------|---|----|----------|-------|-------|-----------|---------|-----------|----------|---------|-----------|-------------|----------|----------|-------|-------|
|                                     | Colour  | N° | Position |       |       | Luminaire |         |           |          |         | Dimension |             |          | Rotation |       |       |
|                                     |   |    | X [m]    | Y [m] | Z [m] | Name      | Az. [°] | Incl. [°] | Rot. [°] | Dim [%] | Count     | Spacing [m] | Size [m] | X [°]    | Y [°] | Z [°] |
| <input checked="" type="checkbox"/> |  | 1  | -37,00   | -1,80 | 10,00 | Sloupy VO | 0,0     | 0,0       | 0,0      | 100     | 6         | 37,00       | 185,00   | 0,0      | 0,0   | 0,0   |

### 4.3. Fasáda 1 (IL) - Normal

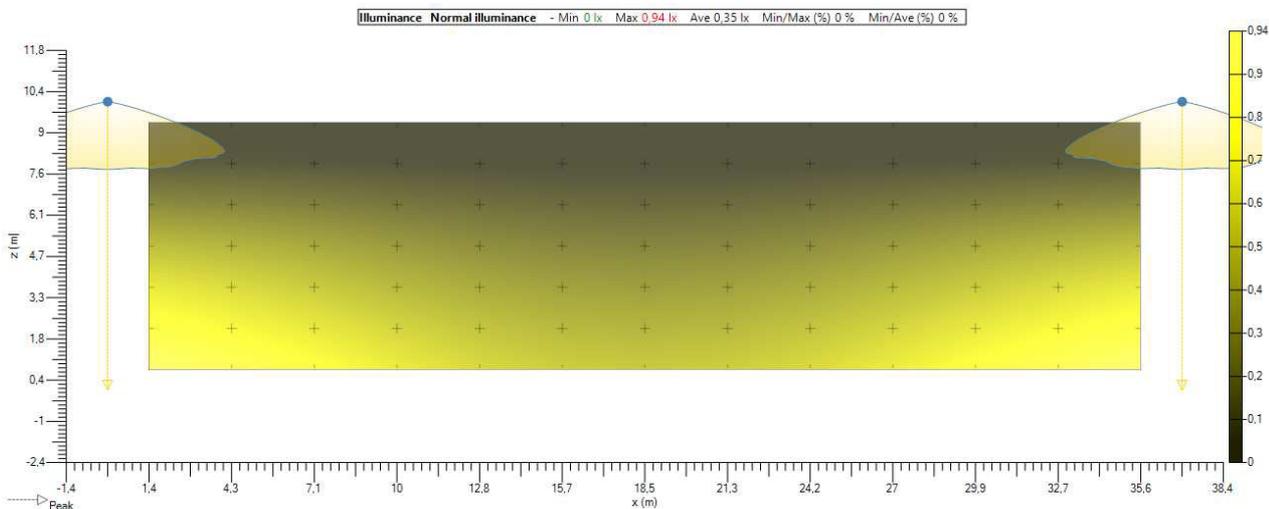
#### Values



#### Isolevel

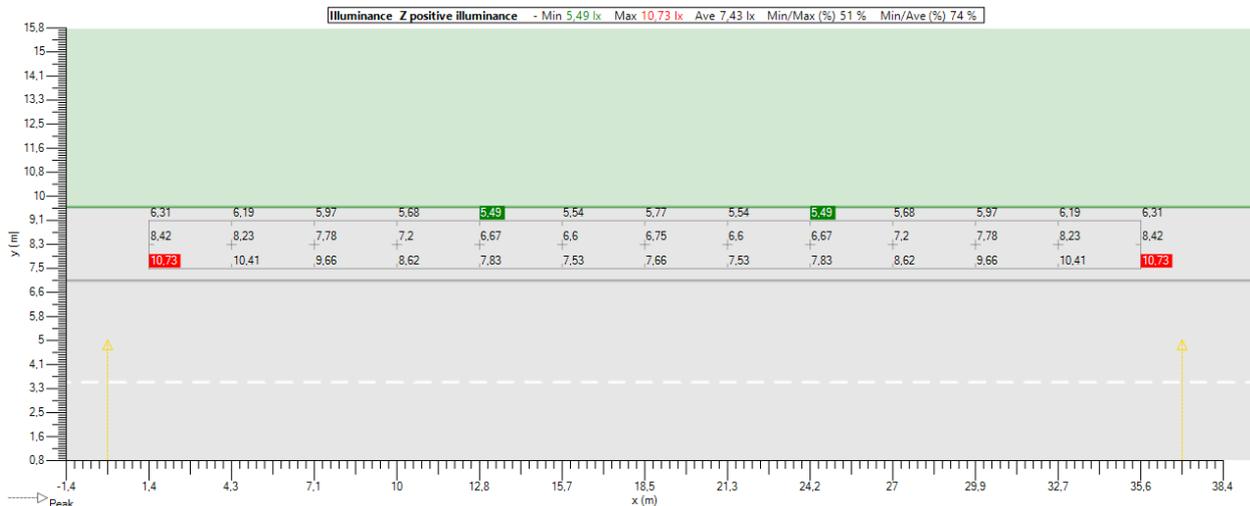


#### Shading

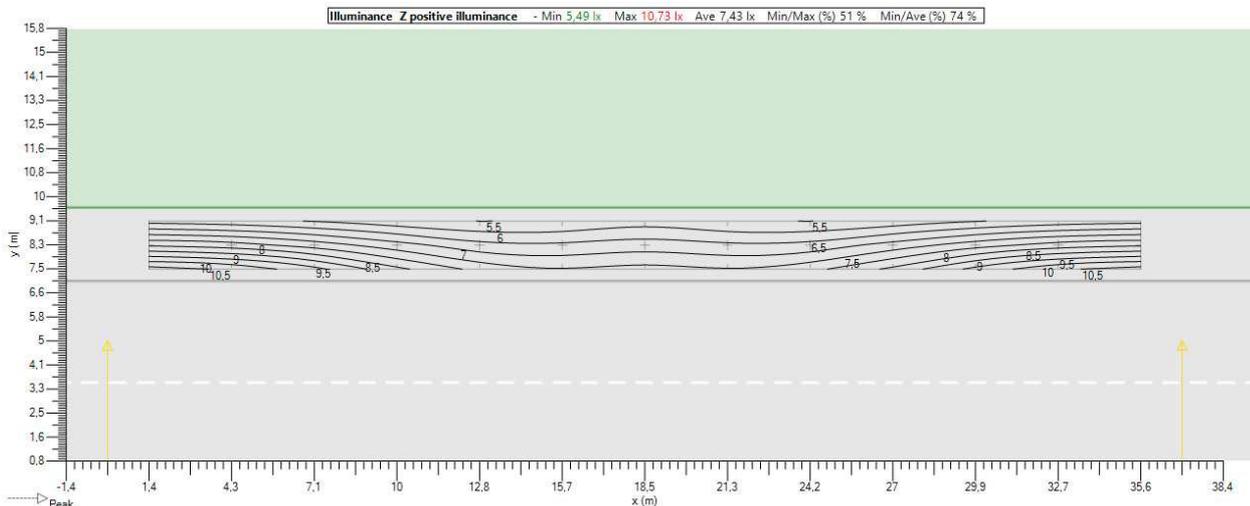


### 4.4. Stání (IL) - Z positive

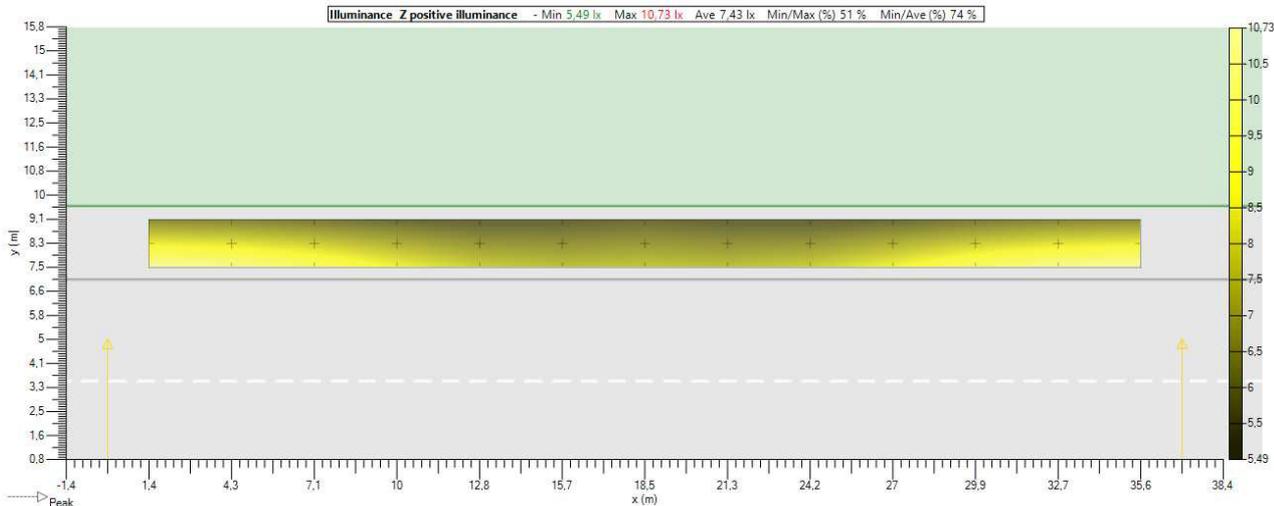
#### Values



#### Isolevel

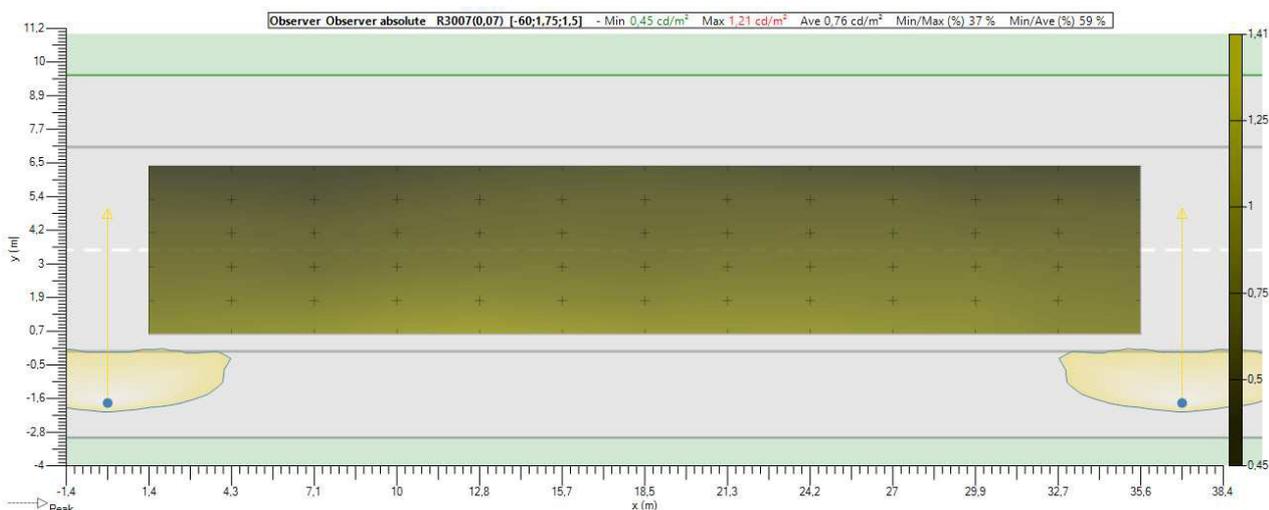
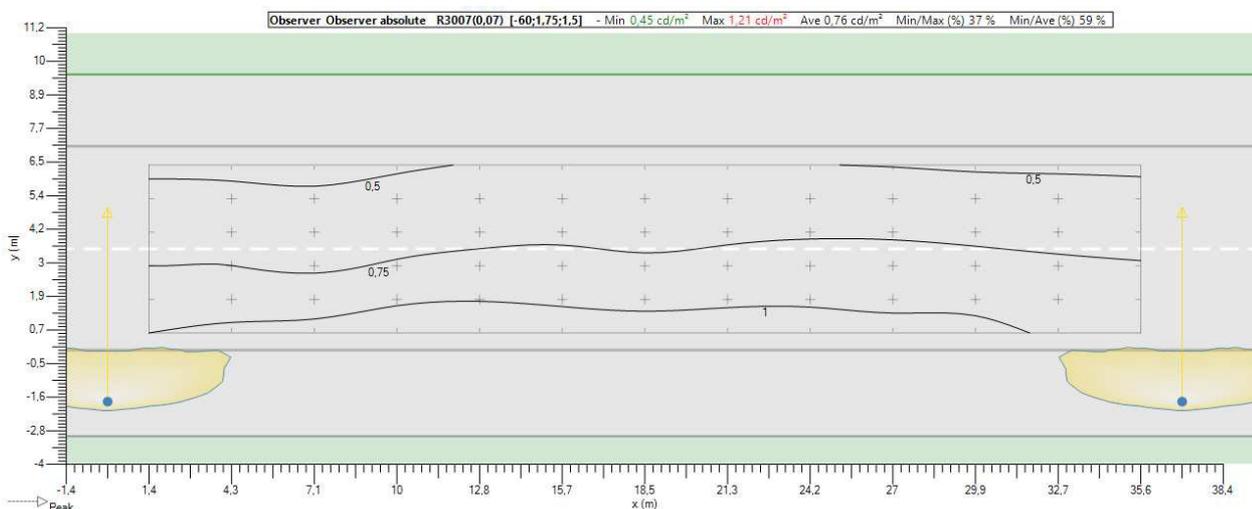


#### Shading

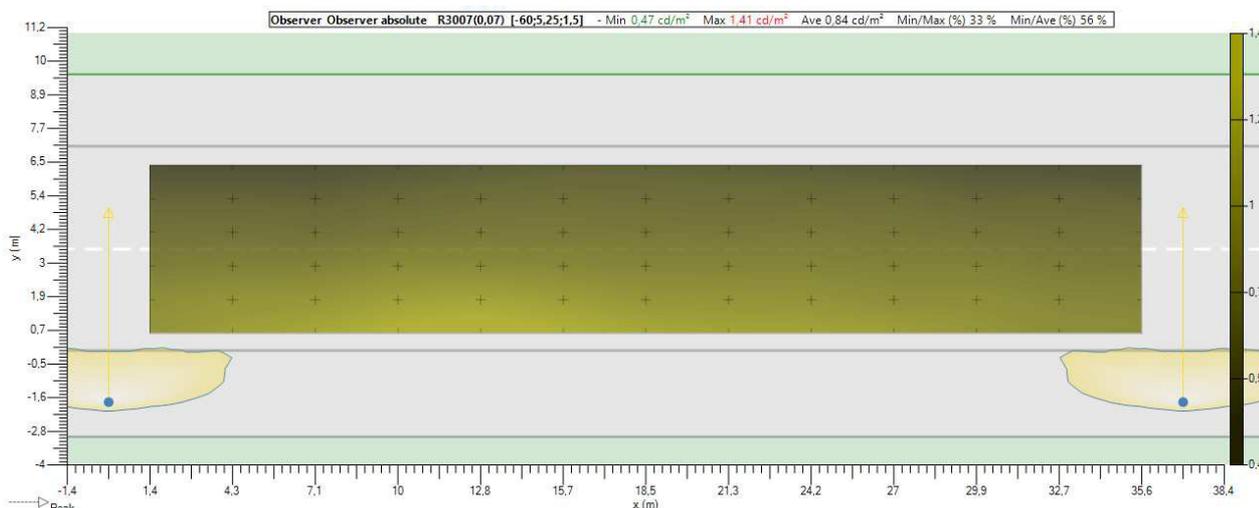
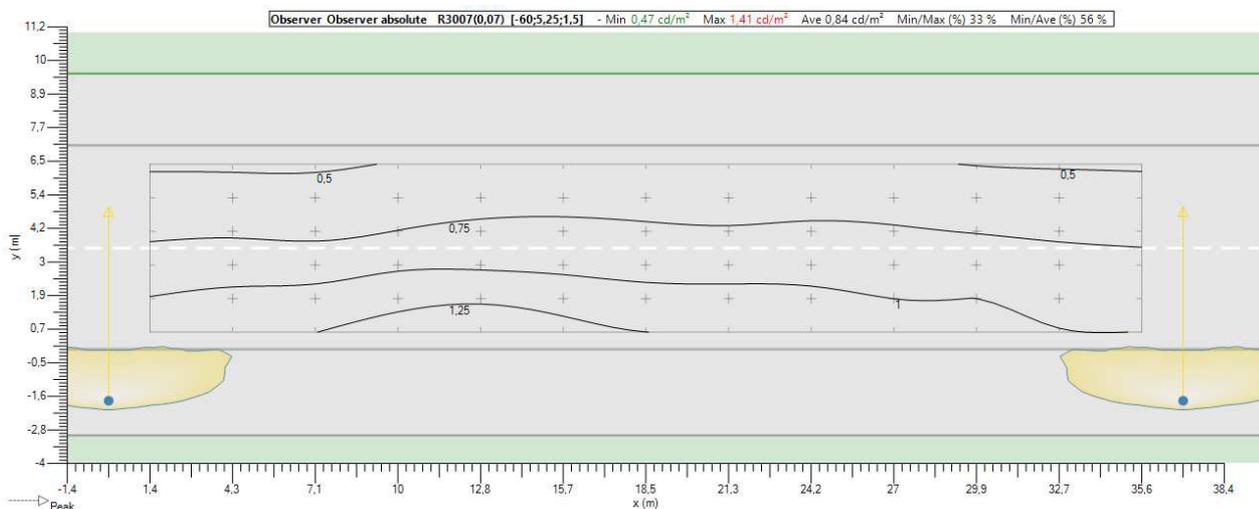
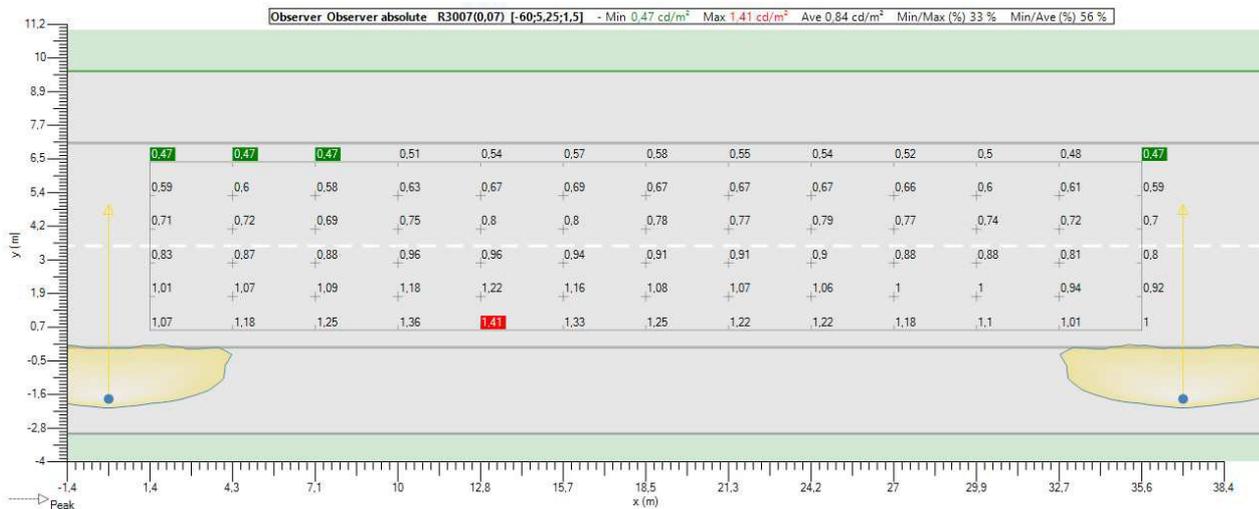


### 4.5. Luminance - Silnice (LU) - R3007

#### Silnice (LU) - Absolute 1

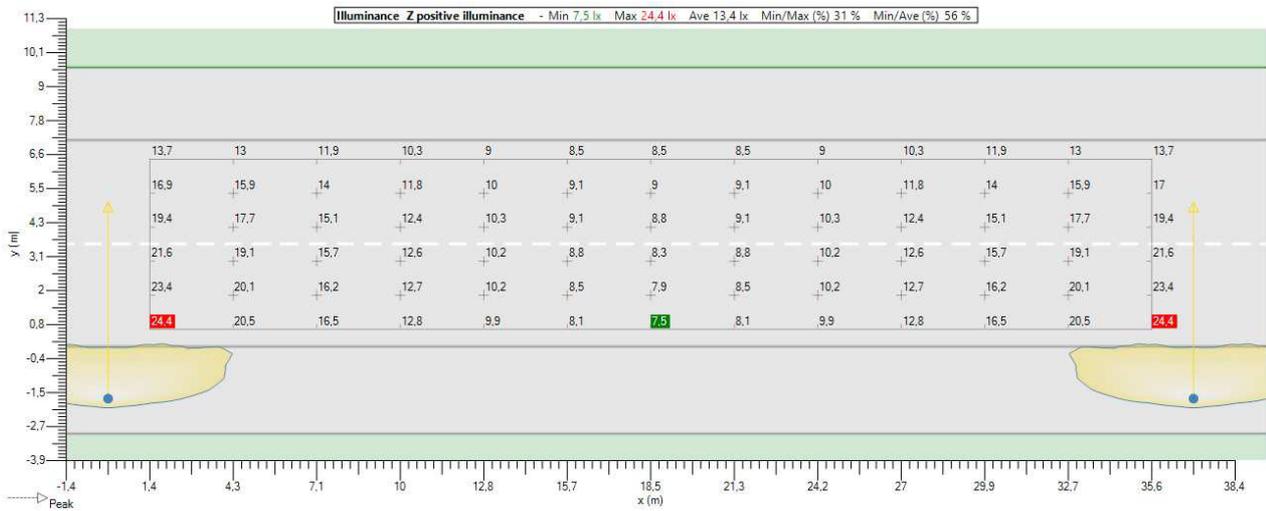


Silnice (LU) - Absolute 2

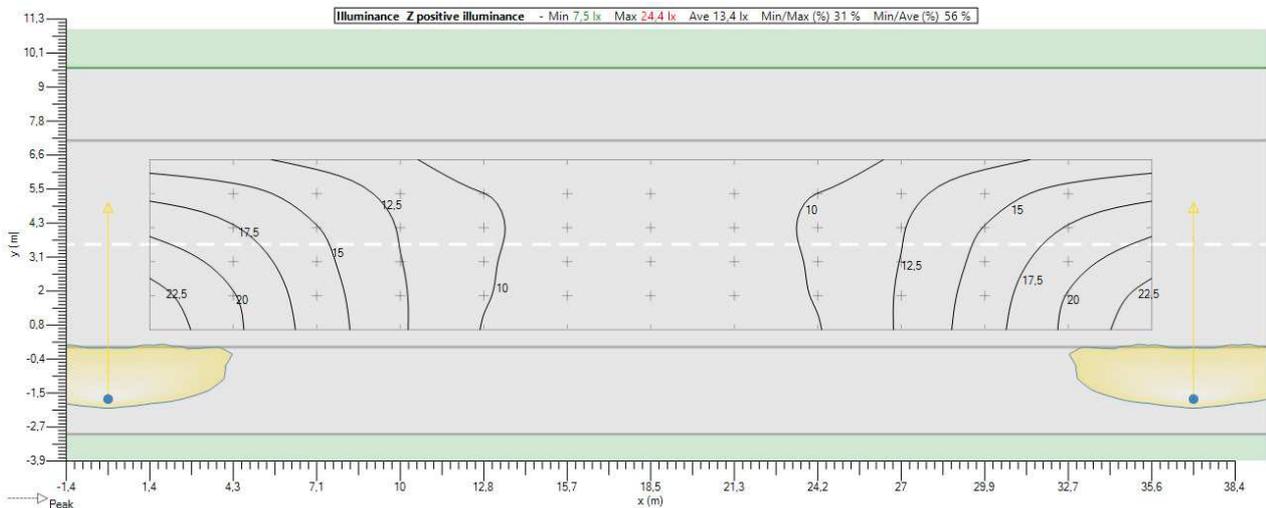


### 4.6. Silnice (IL) - Z positive

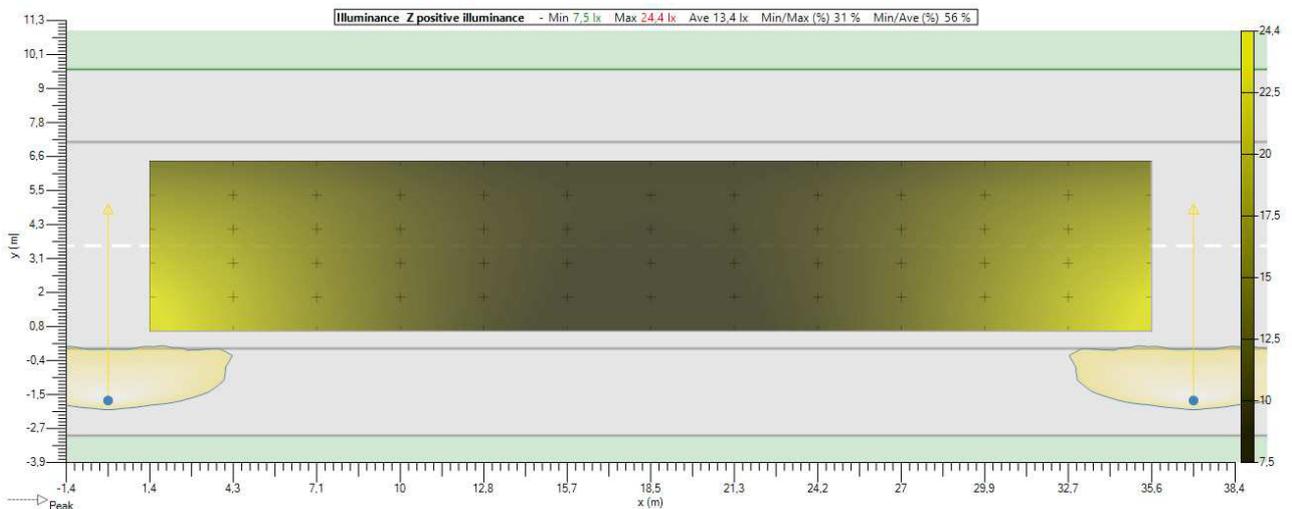
#### Values



#### Isolevel

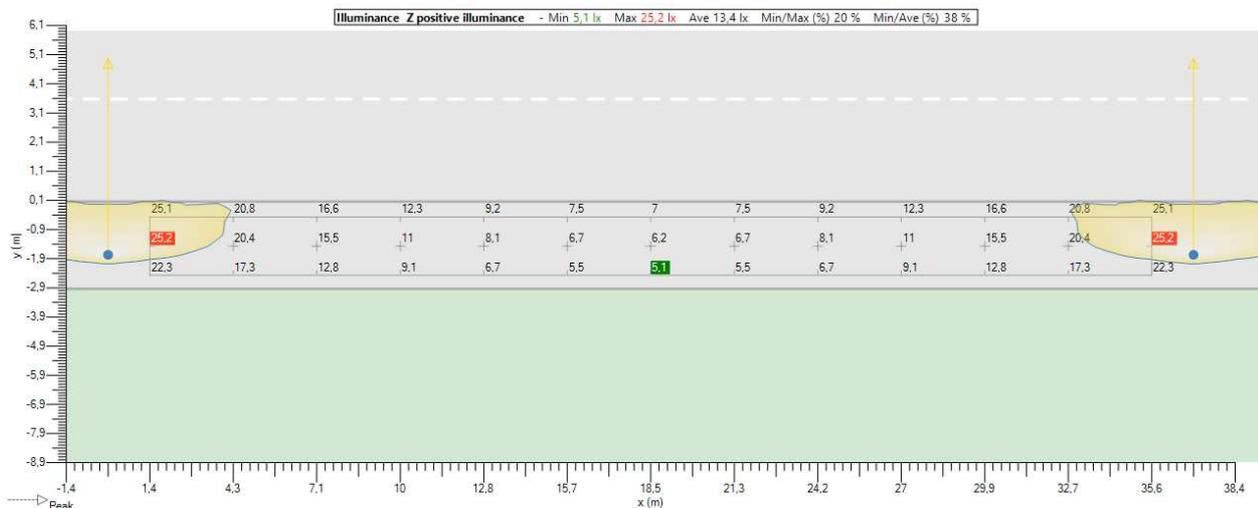


#### Shading

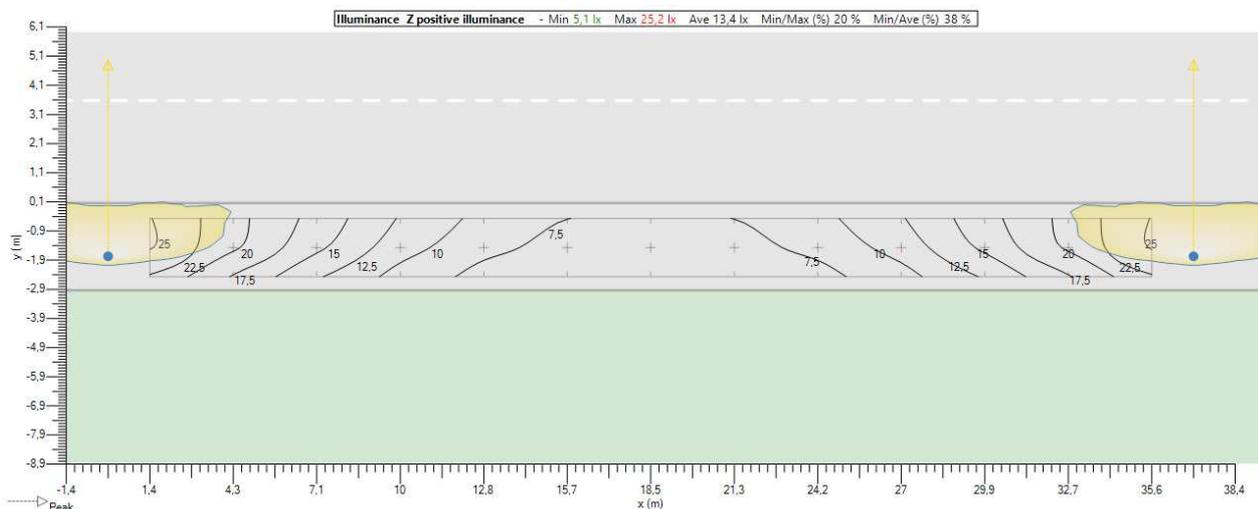


### 4.7. Chodník (IL) - Z positive

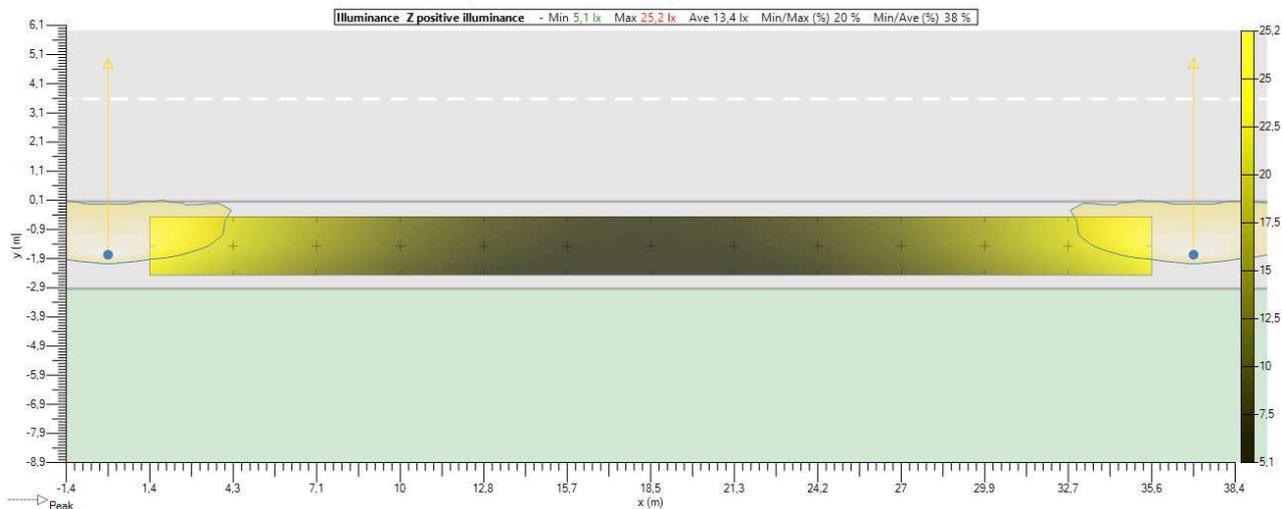
#### Values



#### Isolevel

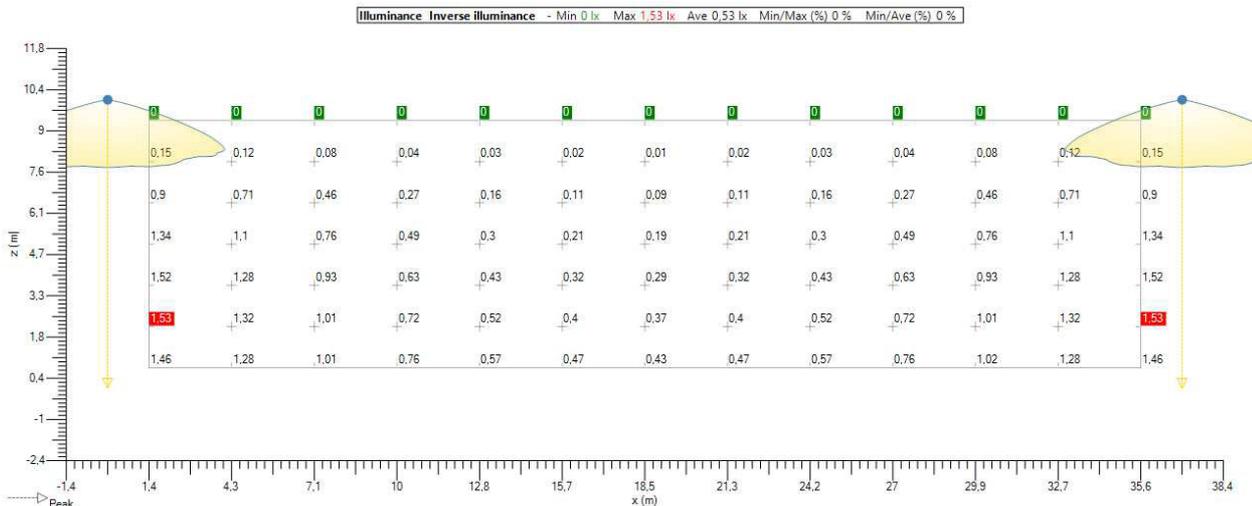


#### Shading

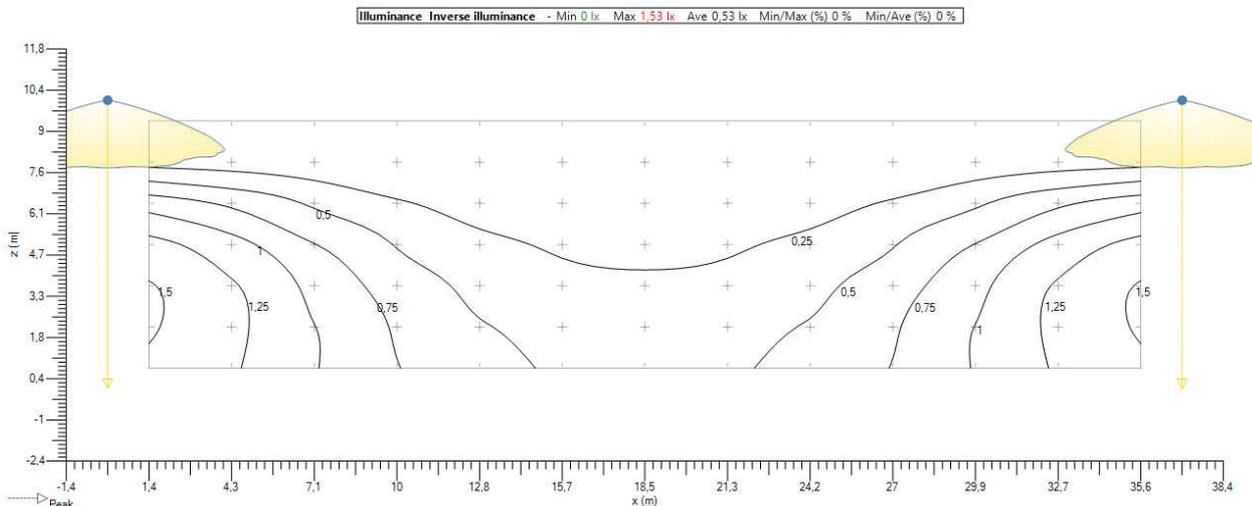


### 4.8. Fasáda 2 (IL) - Inverse

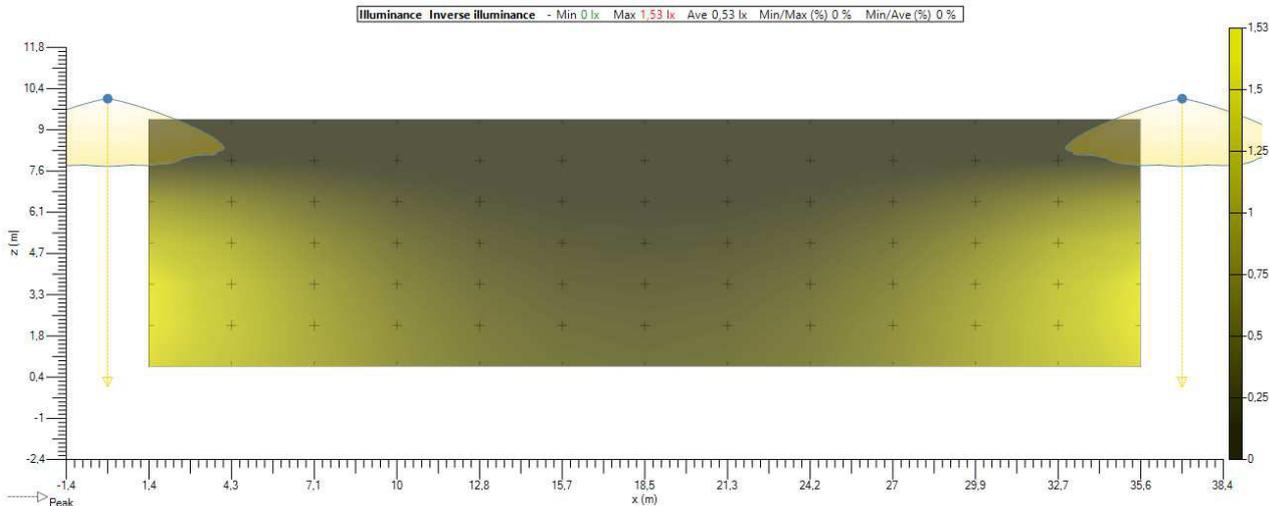
#### Values



#### Isolevel



#### Shading



## 5. Grids

### 5.1. Fasáda 1 (IL)

#### General

Type Grid rectangular XZ  
 Enabled   
 Colour ■

#### Geometry

Origin X 1,42 m Y 18,50 m Z 0,71 m  
 Rotation X 0,0° Y 0,0° Z 0,0°  
 Dimension Count X 13 Count Z 7  
 Spacing X 2,85 m Spacing Z 1,43 m  
 Size X 34,15 m Size Z 8,57 m

### 5.2. Stání (IL)

#### General

Type Grid rectangular XY  
 Enabled   
 Colour ■

#### Geometry

Origin X 1,42 m Y 7,42 m Z 0,00 m  
 Rotation X 0,0° Y 0,0° Z 0,0°  
 Dimension Count X 13 Count Y 3  
 Spacing X 2,85 m Spacing Y 0,83 m  
 Size X 34,15 m Size Y 1,67 m

### 5.3. Silnice (LU)

#### General

Type Grid rectangular XY  
 Enabled   
 Colour ■

#### Geometry

Origin X 1,42 m Y 0,58 m Z 0,00 m  
 Rotation X 0,0° Y 0,0° Z 0,0°  
 Dimension Count X 13 Count Y 6  
 Spacing X 2,85 m Spacing Y 1,17 m  
 Size X 34,15 m Size Y 5,83 m

### 5.4. Silnice (IL)

#### General

Type Grid rectangular XY  
 Enabled   
 Colour ■

#### Geometry

Origin X 1,42 m Y 0,58 m Z 0,00 m  
 Rotation X 0,0° Y 0,0° Z 0,0°  
 Dimension Count X 13 Count Y 6  
 Spacing X 2,85 m Spacing Y 1,17 m  
 Size X 34,15 m Size Y 5,83 m

### 5.5. Chodník (IL)

#### General

#### Geometry

|   |                  |                         |                         |                 |
|---|------------------|-------------------------|-------------------------|-----------------|
| <b>Type</b> Grid rectangular XY   | <b>Origin</b>    | <b>X</b> 1,42 m         | <b>Y</b> -2,50 m        | <b>Z</b> 0,10 m |
| <b>Enabled</b> <input checked="" type="checkbox"/>  | <b>Rotation</b>  | <b>X</b> 0,0 °          | <b>Y</b> 0,0 °          | <b>Z</b> 0,0 °  |
| <b>Colour</b>  | <b>Dimension</b> | <b>Count X</b> 13       | <b>Count Y</b> 3        |                 |
|   |                  | <b>Spacing X</b> 2,85 m | <b>Spacing Y</b> 1,00 m |                 |
|   |                  | <b>Size X</b> 34,15 m   | <b>Size Y</b> 2,00 m    |                 |

## 5.6. Fasáda 2 (IL)

### General

|   |
|---|
| <b>Type</b> Grid rectangular XZ   |
| <b>Enabled</b> <input checked="" type="checkbox"/>  |
| <b>Colour</b>  |

### Geometry

|                  |                         |                         |                 |
|------------------|-------------------------|-------------------------|-----------------|
| <b>Origin</b>    | <b>X</b> 1,42 m         | <b>Y</b> -13,00 m       | <b>Z</b> 0,71 m |
| <b>Rotation</b>  | <b>X</b> 0,0 °          | <b>Y</b> 0,0 °          | <b>Z</b> 0,0 °  |
| <b>Dimension</b> | <b>Count X</b> 13       | <b>Count Z</b> 7        |                 |
|                  | <b>Spacing X</b> 2,85 m | <b>Spacing Z</b> 1,43 m |                 |
|                  | <b>Size X</b> 34,15 m   | <b>Size Z</b> 8,57 m    |                 |

## 6. Observer

### 6.1. Silnice (TI 1)

#### General

Type Observer linear

En.

Colour

Directions 0,0

Calculation TI - Grid

Grid Silnice (LU)

#### Geometry

Origin X -23,38 m Y 1,75 m Z 1,50 m

Rotation X 0,0 ° Y 0,0 ° Z 0,0 °

Dimension Count 13 Spacing 2,85 m Size 34,15 m

### 6.2. Silnice (TI 2)

#### General

Type Observer linear

En.

Colour

Directions 0,0

Calculation TI - Grid

Grid Silnice (LU)

#### Geometry

Origin X -23,38 m Y 5,25 m Z 1,50 m

Rotation X 0,0 ° Y 0,0 ° Z 0,0 °

Dimension Count 13 Spacing 2,85 m Size 34,15 m