

# CUKRARNA

Installation : PISARNE - 1.NADSTROPJE

Project number : 420/16

Customer : SCAPELAB

Processed by : SCAPELAB

Date : 10.10.2016

The following values are based on exact calculations on calibrated lamps, luminaires and their arrangement. In practice, gradual divergences can occur.

Guarantee claims for luminaire data are excluded.

Relux and the luminaire manufacturers accept no liability for consequential damage and damage which is occasioned to the user or to third parties.

Object : CUKRARNA  
Installation : PISARNE - 1.NADSTROPJE  
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## 1 Luminaire data

### 1.1 Zumtobel, SLOIN slim SL LED4800-840 L3004... (42183928)

#### 1.1.1 Data sheet

**Manufacturer: Zumtobel**

#### **42183928 Surface-Suspended-Recessed SLOIN slim SL LED4800-840 L3004 PCO [STD]**

LED light line with LED converter; LED service life lasts 50000 h before luminous flux is reduced to 85% of the initial value. Chromaticity tolerance (initial MacAdam): 3. Luminaire luminous flux: 4752 lm, Luminaire efficacy: 65 lm/W. Colour rendering Ra > 80, colour temperature 4000 K. Luminaire made of Aluminium. Luminaire with completely uniform appearance due to Polycarbonate (PC) cover. Light distribution with UGR < 22 in accordance with EN 12464-2011. Luminaire consists of housing and continuous optic of Polycarbonate (PC). Includes gear tray, wiring, and end-cap set. Luminaire wired with halogen-free leads. Degree of protection: IP40 below (IP20 above). Dimensions: 3004 x 45 x 64 mm weight: 7.6 kg

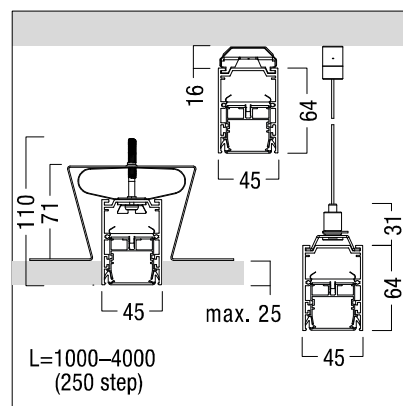
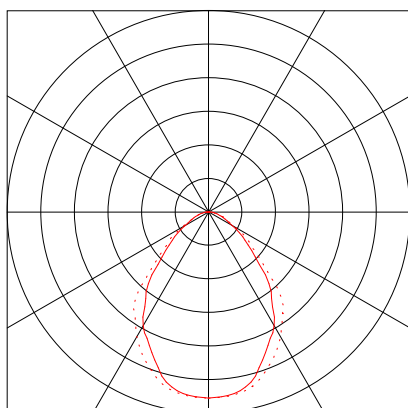
#### **Luminaire data**

Absolute Photometry  
Luminaire efficacy : 64.65 lm/W  
Classification : A50 ↓100.0% ↑0.0%  
CIE Flux Codes : 66 91 99 100 100  
UGR 4H 8H : 20.7 / 21.3  
Power : 73.5 W  
Luminous flux : 4752 lm

#### **Equipped with**

Quantity : 1  
Designation : LED-Z42183928  
Colour : Unknown  
Colour reproduction : 80

Dimensions : 3004 mm x 45 mm x 64 mm  
Height freestanding luminaire 500 mm



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## 1 Luminaire data

### 1.2 ZUMTOBEL, ONLITE ERI (70446584 (STD - Standard))

#### 1.2.1 Data sheet

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**Manufacturer: ZUMTOBEL**

**70446584 (STD - Standard)**

**ONLITE ERI**

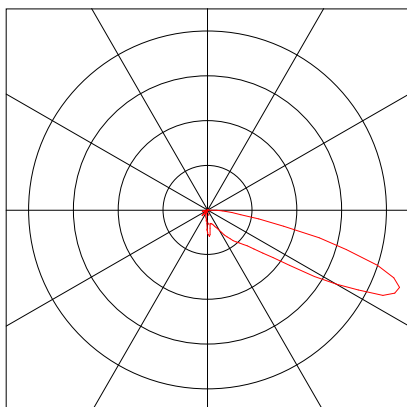
#### **Luminaire data**

Luminaire efficiency : 100%  
Luminaire efficacy : 34 lm/W  
Classification : A10 ↓99.6% ↑0.4%  
CIE Flux Codes : 23 48 87 100 100  
UGR 4H 8H : 47.8 / 20.8  
Power : 1 W  
Luminous flux : 34 lm

#### **Equipped with**

Quantity : 1  
Designation : LED-Z396  
0C8W  
Colour :  
Luminous flux : 34 lm

Dimensions : 15 mm x 15 mm x 2 mm



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## 1 Luminaire data

### 1.3 Zumtobel, LINETIK-S D/I LED8000-840 SC WH... (42184483)

#### 1.3.1 Data sheet

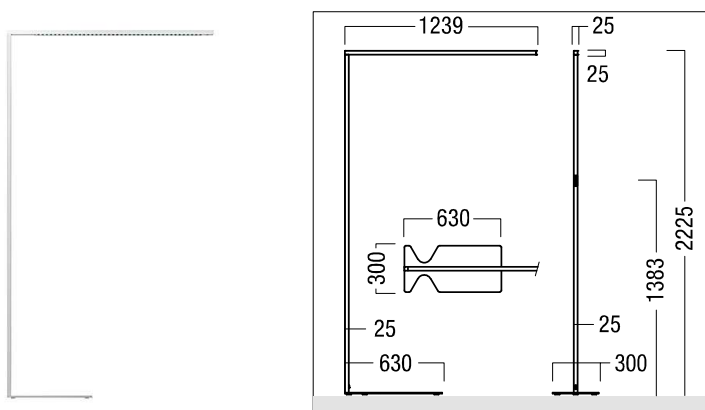
Manufacturer: Zumtobel

#### 42184483 free standing LINETIK-S D/I LED8000-840 SC WH SR2 IL [IND\_DIR]

Purist LED freestanding luminaire in white for single or dual task areas with separate control of direct/indirect light. LED converter in external converter box on the connection cable, black ("in-line"). Total power: 69 W, Luminaire with intelligent sensControl presence control and brightness sensor with LED converter; LED service life lasts 50000 h before luminous flux is reduced to 80% of the initial value. Chromaticity tolerance (initial MacAdam): 3. Luminaire luminous flux: 8000 lm, Luminaire efficacy: 116 lm/W. Colour rendering Ra > 80, colour temperature 4000 K. Indirect/direct beam pattern in 71:29 ratio. Asymmetric direct light distribution for high uniformity. Light control directly via asymmetric reflectors of high-quality composite material evenly vacuum-coated in highest-grade highly specular aluminium. Indirect light control via special optic with wide, uniform light distribution. Luminaire head and luminaire stand with cross-section of only 25 x 25 mm. Flat steel base for good stability and space-saving positioning with office furniture. Head and stand of Aluminium. Luminaire powder coated in white. Control panel is ergonomically integrated into the luminaire stand. With integrated, individually settable brightness and motion sensor. Luminaire head dimensions: 1239 x 25 x 25 mm. Luminaire stand dimensions: 2182 x 25 x 25 mm. Base dimensions: 630 x 300 x 18 mm. Dimensions of external converter box: 521 x 40 x 40 mm. Height/luminaire: 2225 mm (upper edge of luminaire). 2.5m cable, 0.75mm<sup>2</sup> cross-section, with safety plug acc. to DIN 49441 Form R2. Luminaire components packed separately. Luminaire wired with halogen-free leads. Supply line not halogen-free. Weight: 16.5 kg

Luminaire arrangement for:  
 42184483

	Position			Rotation		
	x[m]	y[m]	z[m]	Z[°]	C0[°]	C90[°]
Partial Light Element 1/69W LED-... :	0.000	0.000	0.000	0	0	0
Partial Light Element 1/52W LED-... :	0.000	0.000	0.000	0	0	0
Partial Light Element 1/17W LED-... :	0.000	0.000	0.000	0	0	0



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## 1 Luminaire data

### 1.3 Zumtobel, LINETIK-S D/I LED8000-840 SC WH... (42184483)

#### 1.3.1 Data sheet

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#### LEO1\_I\_D Partial Light Element 1/69W LED-Z42184513 DI

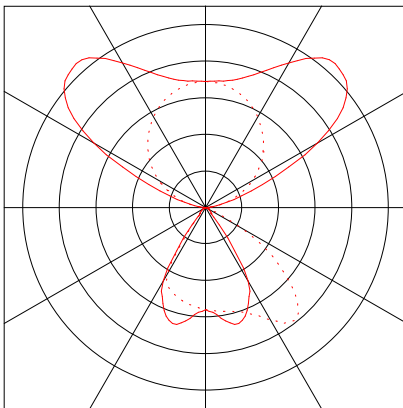
##### Luminaire data

Absolute Photometry  
Luminaire efficacy : 115.94 lm/W  
Classification : D63 ↓ 26.0% ↑ 74.0%  
CIE Flux Codes : 78 97 100 26 100  
UGR 4H 8H : 12.6 / <10.0  
Power : 69 W  
Luminous flux : 8000 lm

Dimensions : 1000 mm x 13 mm x 0.0 mm

##### Equipped with

Quantity : 1  
Designation :  
  
Colour : Unknown  
Colour reproduction : 80



#### LEO2\_I Partial Light Element 1/52W LED-Z42184513 Indir

##### Luminaire data

Absolute Photometry  
Luminaire efficacy : 113.46 lm/W  
Classification : E03 ↓ 0.0% ↑ 100.0%  
CIE Flux Codes : 0 0 0 0 100  
UGR 4H 8H : - / -  
Power : 52 W  
Luminous flux : 5900 lm

Dimensions : 1000 mm x 13 mm x 0.0 mm

##### Equipped with

Quantity : 1  
Designation :  
  
Colour : Unknown  
Colour reproduction : 80

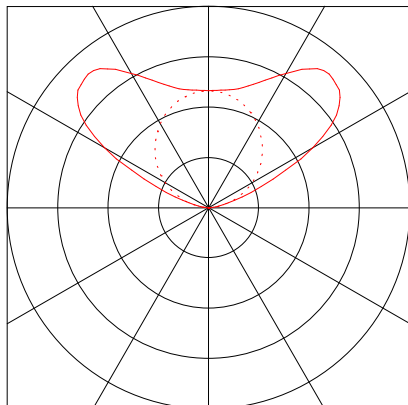
Object : CUKRARNA  
Installation : PISARNE - 1.NADSTROPJE  
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## 1 Luminaire data

### 1.3 Zumtobel, LINETIK-S D/I LED8000-840 SC WH... (42184483)

#### 1.3.1 Data sheet

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#### LEO3\_D Partial Light Element 1/17W LED-Z42184513 Dir

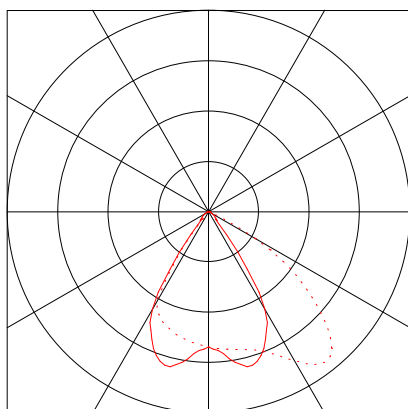
##### Luminaire data

Absolute Photometry  
Luminaire efficacy : 123.78 lm/W  
Classification : A60 ↓ 100.0% ↑ 0.0%  
CIE Flux Codes : 77 97 100 100 100  
UGR 4H 8H : 19.8 / 16.7  
Power : 17 W  
Luminous flux : 2104.2 lm

##### Equipped with

Quantity : 1  
Designation :  
  
Colour : Unknown  
Colour reproduction : 80

Dimensions : 1000 mm x 13 mm x 0.0 mm



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## 1 Luminaire data

### 1.4 Zumtobel, RESCLITE C ANTIPANIC AD NPS WH ... (42180813)

#### 1.4.1 Data sheet

**Manufacturer: Zumtobel**

#### **42180813 surface mounted RESCLITE C ANTIPANIC AD NPS WH [STD]**

LED Safety luminaire for anti-panic lighting with min. 0.5 lx as specified in EN 1838; surface mounted; Luminaire for central emergency lighting supply without monitoring; room height 2.2 to 5 m; high power LED, cool white; large die-cast aluminium heat sink ensures optimum thermal management, lens made of polycarbonate (PC); luminaire housing made of die-cast aluminium in powder coated white finish, RAL 9016; luminaire can be installed quickly without tools; tool-free maintenance; through-wiring plug-in terminals for wire cross-sections up to 2.5 mm<sup>2</sup>; luminaire total power: 5 W; power supply: 230V AC, 220V DC; degree of protection: IP40, class of protection: SC1; non-maintained and maintained mode possible, Maintained mode: -20°C to +30°C, Non-maintained mode: -20°C to +35°C; Dimensions: 146 x 146 x 37 mm; weight: 0.55 kg; Luminaire wired with halogen-free leads

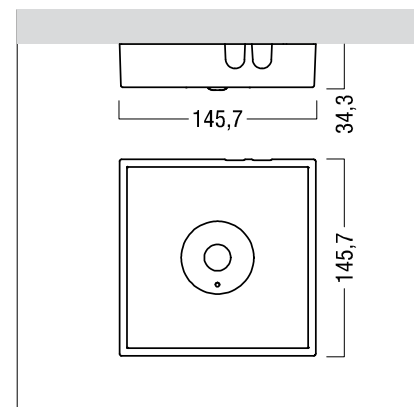
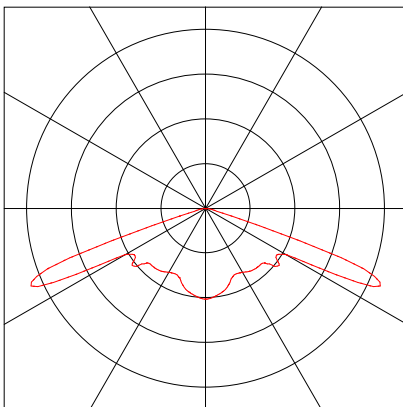
#### **Luminaire data**

Absolute Photometry  
Luminaire efficacy : 39.6 lm/W  
Classification : A20 ↓100.0% ↑0.0%  
CIE Flux Codes : 27 57 99 100 100  
UGR 4H 8H : 27.9 / 27.9  
Power : 5 W  
Luminous flux : 198 lm

#### **Equipped with**

Quantity : 1  
Designation : LED-Z630  
Colour : Unknown  
Colour reproduction :

Dimensions : 146 mm x 146 mm x 37 mm



Object : CUKRARNA  
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## 1 Luminaire data

### 1.5 Zumtobel, RESCLITE C SPOT AD NSI WH [STD] (42180420)

#### 1.5.1 Data sheet

Manufacturer: Zumtobel

#### 42180420 surface mounted RESCLITE C SPOT AD NSI WH [STD]

LED Safety luminaire for illuminating fire-fighting and first-aid equipment and danger spots with minimum output 5 lx; surface mounted; Luminaire for central emergency lighting supply for individual luminaire monitoring via Powerline, adjustable emergency lighting level; room height 2.2 to 7 m; high power LED, cool white; large die-cast aluminium heat sink ensures optimum thermal management; lens made of polycarbonate (PC); luminaire housing made of die-cast aluminium in powder coated white finish, RAL 9016; gear tray made of galvanised sheet steel; housing can be installed quickly on gear tray without tools; tool-free maintenance; through-wiring plug-in terminals for wire cross-sections up to 2.5 mm<sup>2</sup>; side cable-entry possible; luminaire total power: 5 W; power supply: 230V AC, 220V DC; rotary switch for mechanical address-setting; degree of protection: IP40, class of protection: SC1; non-maintained and maintained mode possible, Maintained mode: -5°C to +25°C, Non-maintained mode: -5°C to +30°C; Dimensions: 146 x 146 x 37 mm; weight: 0.55 kg; Luminaire wired with halogen-free leads; max. line length from emergency power source to last luminaire: 300 m.

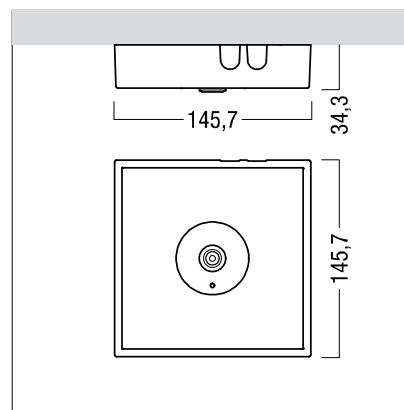
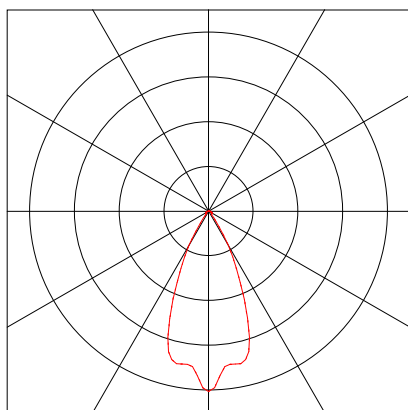
#### Luminaire data

Absolute Photometry  
Luminaire efficacy : 38.6 lm/W  
Classification : A70 ↓100.0% ↑0.0%  
CIE Flux Codes : 89 95 98 100 100  
UGR 4H 8H : 13.7 / 13.7  
Power : 5 W  
Luminous flux : 193 lm

#### Equipped with

Quantity : 1  
Designation : LED-Z644  
Colour : Unknown  
Colour reproduction :

Dimensions : 146 mm x 146 mm x 37 mm



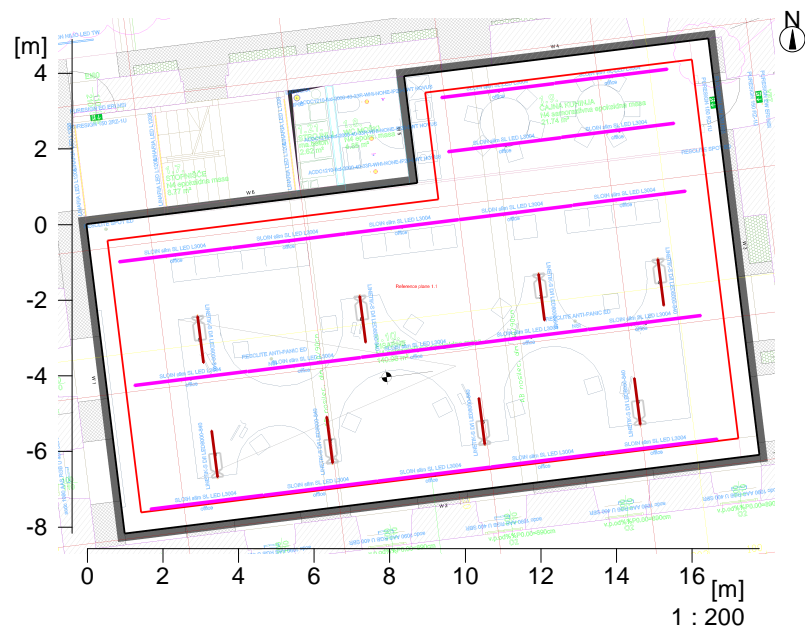


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2 01\_splošna osvetlitev

2.1 Description, 01\_splošna osvetlitev

2.1.1 Floor plan



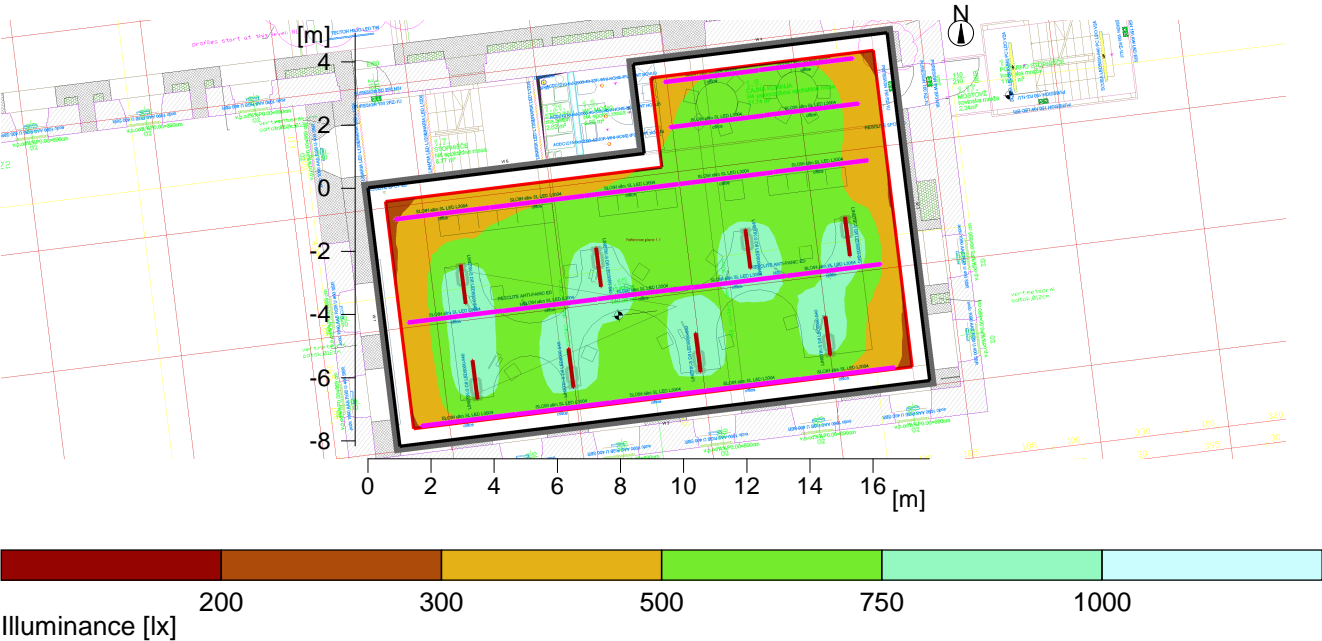
Wall	x	y	Length	Reflectance
1	168.65 m	113.60 m	8.23 m	50.0 %
2	185.42 m	115.68 m	16.90 m	50.0 %
3	184.07 m	126.67 m	11.07 m	50.0 %
4	176.03 m	125.67 m	8.10 m	50.0 %
5	176.38 m	122.85 m	2.84 m	50.0 %
6	167.64 m	121.77 m	8.81 m	50.0 %
Floor				20.0 %
Ceiling				70.0 %
Room height		4.00 m		
Height of reference plane		0.75 m		

Object : CUKRARNA  
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2 01\_splošna osvetlitev

2.2 Summary, 01\_splošna osvetlitev

2.2.1 Result overview, Evaluation area 1



General

Calculation algorithm used	Average indirect fraction
Maintenance factor	0.80
Total luminous flux of all lamps	154288 lm
Total power	1948.5 W
Total power per area (162.10 m²)	12.02 W/m² (1.97 W/m²/100lx)

Evaluation area 1

Reference plane 1.1

Em	Horizontal
Emin	609 lx
Emin/Eav (Uo)	241 lx
Emin/Emax (Ud)	0.40
Position	0.24
	0.75 m

Type No.\Make

1	19	<b>Zumtobel</b>
		Order No. : 42183928
		Luminaire name : SLOIN slim SL LED4800-840 L3004 PCO [STD]
		Equipment : 1 x LED-Z42183928 74 W / 4752 lm

Object : CUKRARNA  
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## 2 01\_splošna osvetlitev

### 2.2 Summary, 01\_splošna osvetlitev

#### 2.2.1 Result overview, Evaluation area 1

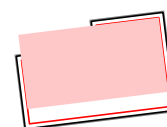
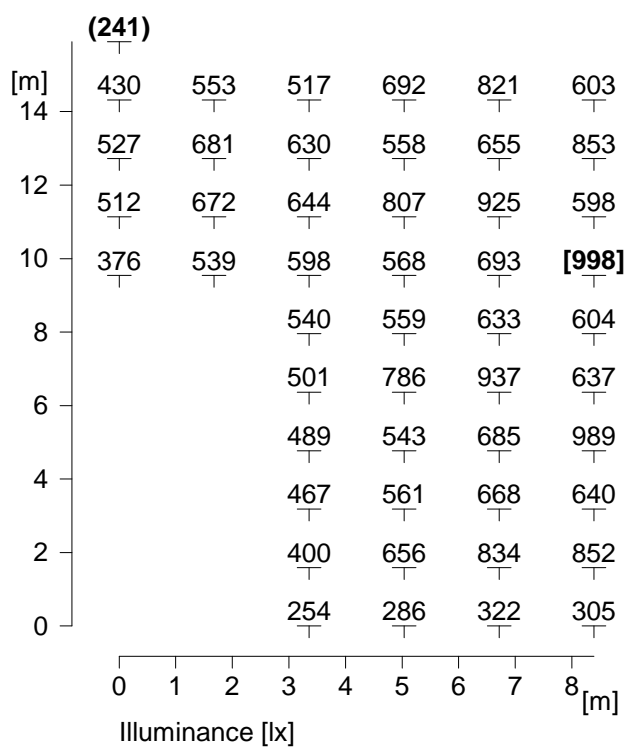
3	8	Order No.	: 42184483
		Luminaire name	: LINETIK-S D/I LED8000-840 SC WH SR2 IL [IND_DIR]
		with	: 1 x LEO1_I_D
		Equipment	: 1 x LED-Z42184513 DI 69 W / 8000 lm
		with	: 1 x LEO2_I
		Equipment	: 1 x LED-Z42184513 Indir 52 W / 5900 lm
		with	: 1 x LEO3_D
		Equipment	: 1 x LED-Z42184513 Dir 17 W / 2100 lm

Object : CUKRARNA  
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## 2 01\_splošna osvetlitev

### 2.3 Calculation results, 01\_splošna osvetlitev

#### 2.3.1 Table, Reference plane 1.1 (E)



Height of the reference plane

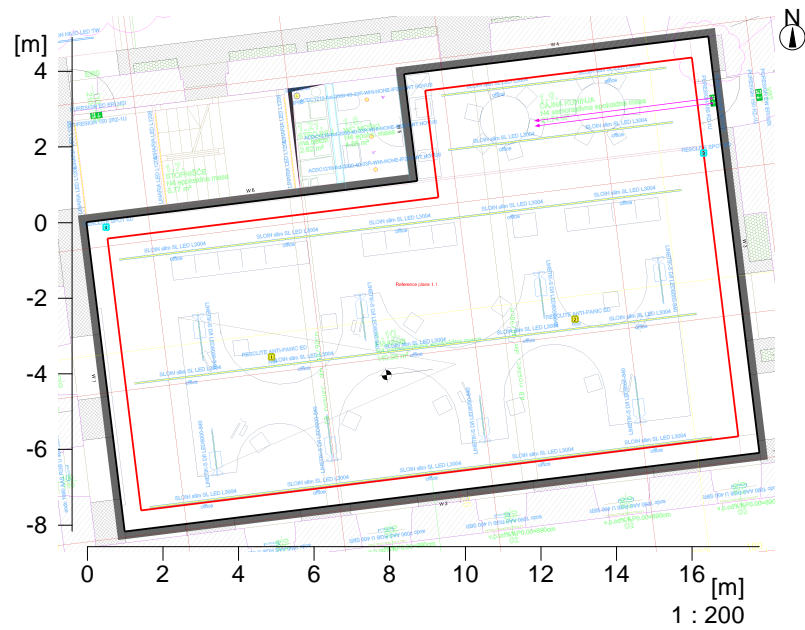
Average illuminance	Eav	: 0.75 m
Minimum illuminance	Emin	: 609 lx
Maximum illuminance	Emax	: 241 lx
Uniformity Uo	Emin/Eav	: 998 lx
Diversity Ud	Emin/Emax	: 1 : 2.53 (0.40)
		: 1 : 4.14 (0.24)

Object : CUKRARNA  
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3 02\_varnostna osvetlitev

3.1 Description, 02\_varnostna osvetlitev

3.1.1 Floor plan



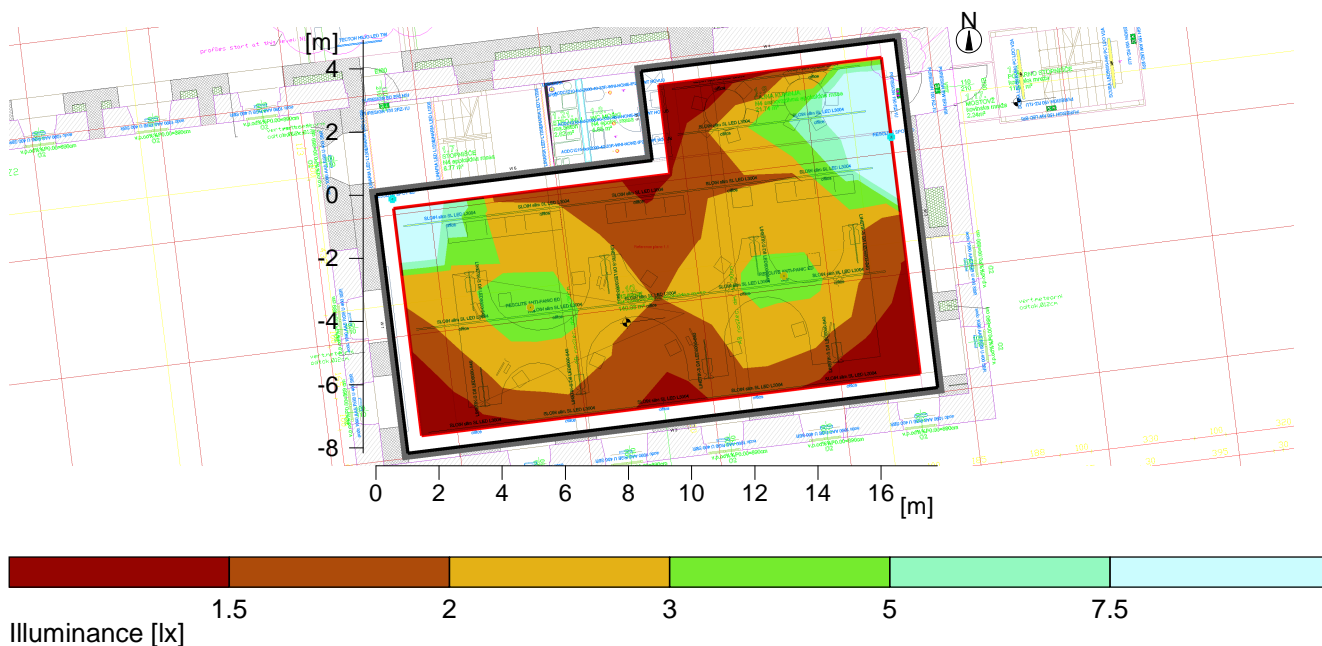
Wall	x	y	Length	Reflectance
1	168.65 m	113.60 m	8.23 m	50.0 %
2	185.42 m	115.68 m	16.90 m	50.0 %
3	184.07 m	126.67 m	11.07 m	50.0 %
4	176.03 m	125.67 m	8.10 m	50.0 %
5	176.38 m	122.85 m	2.84 m	50.0 %
6	167.64 m	121.77 m	8.81 m	50.0 %
Floor				20.0 %
Ceiling				70.0 %
Room height		4.00 m		
Height of reference plane		0.75 m		

Object : CUKRARNA  
 Installation : PISARNE - 1.NADSTROPJE  
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### 3 02\_varnostna osvetlitev

#### 3.2 Summary, 02\_varnostna osvetlitev

##### 3.2.1 Result overview, Evaluation area 1



#### General

Calculation algorithm used  
 Maintenance factor

Average indirect fraction  
 0.80

Total luminous flux of all lamps  
 Total power  
 Total power per area (162.10 m<sup>2</sup>)

850 lm  
 22.0 W  
 0.14 W/m<sup>2</sup> (4.80 W/m<sup>2</sup>/100lx)

#### Evaluation area 1

#### Reference plane 1.1

Horizontal  
 E<sub>m</sub> 2.83 lx  
 E<sub>min</sub> 1.01 lx  
 E<sub>min</sub>/E<sub>av</sub> (U<sub>o</sub>) 0.36  
 E<sub>min</sub>/E<sub>max</sub> (U<sub>d</sub>) 0.05  
 Position 0.75 m

#### Type No.\Make


4	2	<b>Zumtobel</b>	
		Order No.	: 42180813
		Luminaire name	: RESCLITE C ANTIPANIC AD NPS WH [STD]
		Equipment	: 1 x LED-Z630 5 W / 198 lm


Object : CUKRARNA  
Installation : PISARNE - 1.NADSTROPJE  
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Date : 10.10.2016

### 3 02\_varnostna osvetlitev

#### 3.2 Summary, 02\_varnostna osvetlitev

##### 3.2.1 Result overview, Evaluation area 1

5	2	Order No.	: 42180420
		Luminaire name	: RESCLITE C SPOT AD NSI WH [STD]
		Equipment	: 1 x LED-Z644 5 W / 193 lm

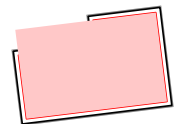
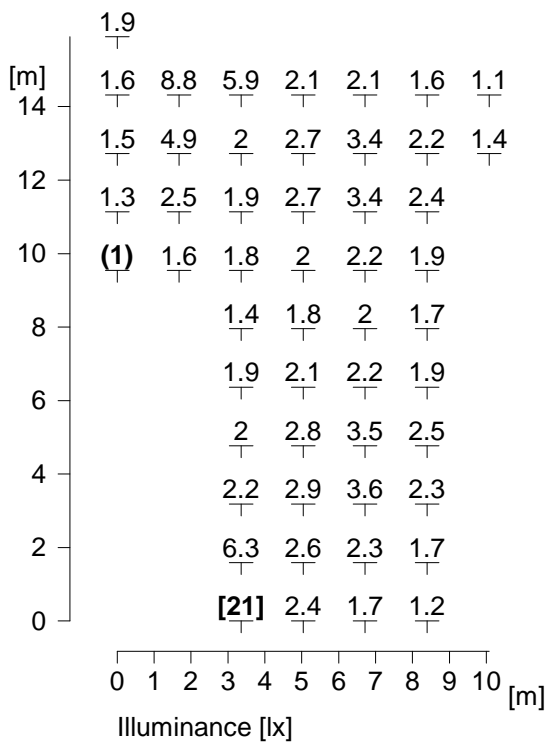
		<b>ZUMTOBEL</b>	
2	2	Order No.	: 70446584 (STD - Standard)
		Luminaire name	: ONLITE ERI
		Equipment	: 1 x LED-Z396 0C8W 1 W / 34 lm

Object : CUKRARNA  
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Date : 10.10.2016

### 3 02\_varnostna osvetlitev

#### 3.3 Calculation results, 02\_varnostna osvetlitev

##### 3.3.1 Table, Reference plane 1.1 (E)



Height of the reference plane

Average illuminance	Eav	: 0.75 m
Minimum illuminance	Emin	: 2.8 lx
Maximum illuminance	Emax	: 1 lx
Uniformity Uo	Emin/Eav	: 21 lx
Diversity Ud	Emin/Emax	: 1 : 2.80 (0.36)
		: 1 : 20.79 (0.05)