

CUKRARNA

Installation : DELAVNICE

Project number : 406/16

Customer : SCAPELAB

Processed by : SCAPELAB

Date : 16.11.2016

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
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1 Luminaire data

1.1 Zumtobel, TECTON C LED7400-830 L2000 WB L... (42183304)

1.1.1 Data sheet

Manufacturer: Zumtobel

42183304 Surface-mounted suspended TECTON C LED7400-830 L2000 WB LDE WH [STD]

Linear, energy-efficient TECTON LED continuous-row luminaire with 64 highly efficient mid-power LEDs per segment. Total power: 50.7 W, DALI controllable luminaire with LED converter, makes environmental and financial sense. LED service life lasts 50000 h before luminous flux is reduced to 90% of the initial value. Chromaticity tolerance (initial MacAdam): 3. Luminaire efficacy: 144 lm/W. Luminaire luminous flux: 7320 lm. Luminaire with symmetric wide light distribution (wide beam). Colour rendering Ra > 80, colour temperature 3000 K. Split lens concept for reducing perceived glare. Overlapping PMMA lenses (shatter-resistant to IK07) achieve IP50 protection for LED and optic. All-in-one solution: lighting batten, lamp and reflector are combined in one product to produce a 100 % continuous ribbon of LED light without gaps. High-quality look in a design that matches the trunking. Dimming level for DC mode preset to 15 %. LED continuous-row luminaire of sheet steel, enamelled in polyester lacquer finish, white. 100% flexible, tool-free mechanical and electrical installation using CLIX-technology by means of two side-mounted rotary levers on the TECTON trunking. No ultraviolet or infrared radiation. ambient temperature: -20°C to +40°C Luminaire wired with halogen-free leads and contains no silicone. Please note: please talk to your adviser if you planning to use the luminaire in environments containing chemical pollutants. Dimensions: 1997 x 60 x 85 mm. Weight: 2.8 kg.

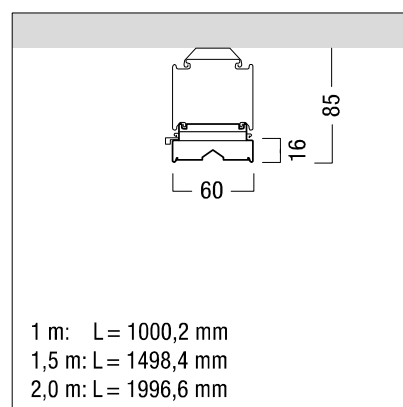
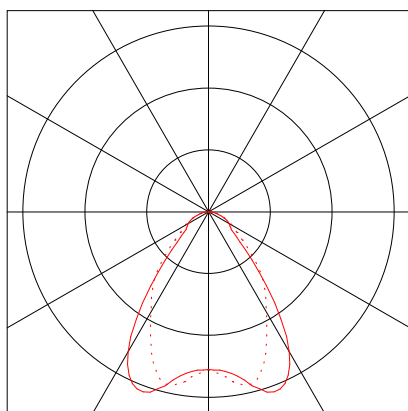
Luminaire data

Absolute Photometry
Luminaire efficacy : 144.38 lm/W
Classification : A50 ↓99.9% ↑0.1%
CIE Flux Codes : 69 91 98 100 100
UGR 4H 8H : 22.3 / 22.2
Power : 50.7 W
Luminous flux : 7320 lm

Equipped with

Quantity : 1
Designation : LED-Z42183304
Colour : Unknown
Colour reproduction : 80

Dimensions : 1997 mm x 60 mm x 85 mm
Height freestanding luminaire 500 mm



Object : CUKRARNA
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1 Luminaire data

1.2 Zumtobel, TECTON C LED3700-830 L1000 WB L... (42183290)

1.2.1 Data sheet

Manufacturer: Zumtobel

42183290 Surface-mounted suspended TECTON C LED3700-830 L1000 WB LDE WH [STD]

Linear, energy-efficient TECTON LED continuous-row luminaire with 64 highly efficient mid-power LEDs per segment. Total power: 26.8 W, DALI controllable luminaire with LED converter, makes environmental and financial sense. LED service life lasts 50000 h before luminous flux is reduced to 90% of the initial value. Chromaticity tolerance (initial MacAdam): 3. Luminaire efficacy: 137 lm/W. Luminaire luminous flux: 3660 lm. Luminaire with symmetric wide light distribution (wide beam). Colour rendering Ra > 80, colour temperature 3000 K. Split lens concept for reducing perceived glare. Overlapping PMMA lenses (shatter-resistant to IK07) achieve IP50 protection for LED and optic. All-in-one solution: lighting batten, lamp and reflector are combined in one product to produce a 100 % continuous ribbon of LED light without gaps. High-quality look in a design that matches the trunking. Dimming level for DC mode preset to 15 %. LED continuous-row luminaire of sheet steel, enamelled in polyester lacquer finish, white. 100% flexible, tool-free mechanical and electrical installation using CLIX-technology by means of two side-mounted rotary levers on the TECTON trunking. No ultraviolet or infrared radiation. ambient temperature: -20°C to +40°C Luminaire wired with halogen-free leads and contains no silicone. Please note: please talk to your adviser if you planning to use the luminaire in environments containing chemical pollutants. Dimensions: 1000 x 60 x 85 mm. Weight: 1.5 kg.

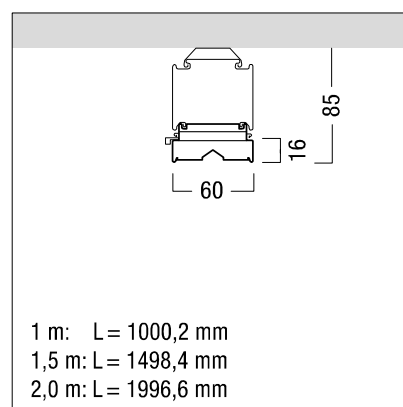
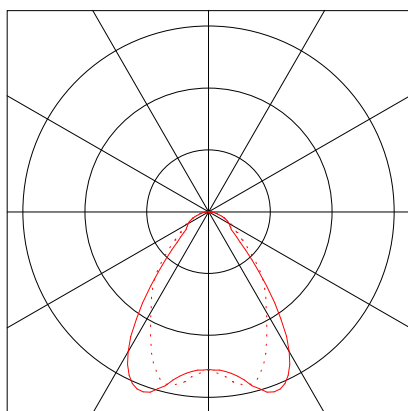
Luminaire data

Absolute Photometry
Luminaire efficacy : 136.57 lm/W
Classification : A50 ↓99.9% ↑0.1%
CIE Flux Codes : 69 91 98 100 100
UGR 4H 8H : 22.3 / 22.2
Power : 26.8 W
Luminous flux : 3660 lm

Dimensions : 1000 mm x 60 mm x 85 mm
Height freestanding luminaire 500 mm

Equipped with

Quantity : 1
Designation : LED-Z42183290
Colour : Unknown
Colour reproduction : 80



Object : CUKRARNA
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1 Luminaire data

1.3 ZUMTOBEL, ONLITE ERI (70446584 (STD - Standard))

1.3.1 Data sheet

Manufacturer: ZUMTOBEL

70446584 (STD - Standard)

ONLITE ERI

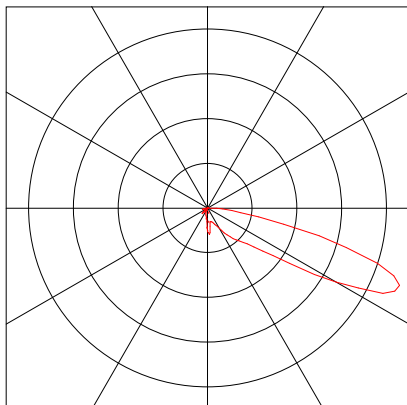
Luminaire data

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

1.4 Zumtobel, RESCLITE C ANTIPANIC TEC-GP NSI... (42183110)

1.4.1 Data sheet

Manufacturer: Zumtobel

42183110 Surface-mounted suspended RESCLITE C ANTIPANIC TEC-GP NSI WH [STD]

LED Safety luminaire for anti-panic lighting with min. 0.5 lx as specified in EN 1838; surface mounted and suspended; Luminaire for central emergency lighting supply for individual luminaire monitoring via Powerline, adjustable emergency lighting level; room height 2.2 to 5 m; high power LED, cool white; large die-cast aluminium heat sink ensures optimum thermal management; gear tray made of galvanised sheet steel; can be mounted in TECTON continuous-row system without tools; 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 mm²; luminaire total power: 5 W; power supply: 230V AC, 220V DC; rotary switch for mechanical address-setting; non-maintained and maintained mode possible, Maintained mode: -5°C to +25°C, Non-maintained mode: -5°C to +30°C; Dimensions: 498 x 60 x 75 mm; IP20; weight: 1.1 kg; Luminaire wired with halogen-free leads; max. line length from emergency power source to last luminaire: 300 m.

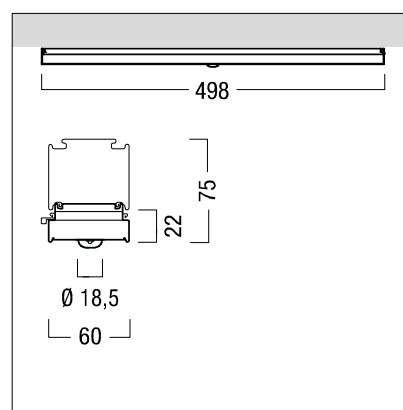
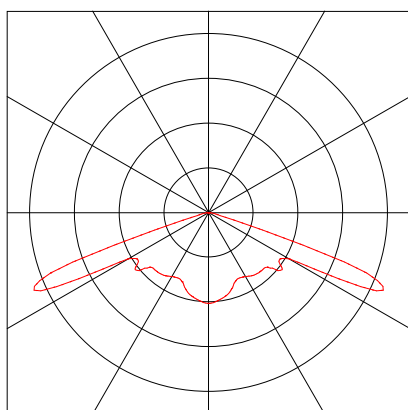
Luminaire data

Absolute Photometry
Luminaire efficacy : 39.6 lm/W
Classification : A20 ↓100.0% ↑0.0%
CIE Flux Codes : 27 57 99 100 100
UGR 4H 8H : 34.2 / 34.2
Power : 5 W
Luminous flux : 198 lm

Equipped with

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

Dimensions : 498 mm x 60 mm x 75 mm
Height freestanding luminaire 500 mm



Object : CUKRARNA
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1 Luminaire data

1.5 Zumtobel, RESCLITE C SPOT TEC-GP NSI WH [... (42183114)

1.5.1 Data sheet

Manufacturer: Zumtobel

42183114 Surface-mounted suspended RESCLITE C SPOT TEC-GP NSI WH [STD]

LED Safety luminaire for illuminating fire-fighting and first-aid equipment and danger spots with minimum output 5 lx; 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; gear tray made of roll-formed sheet steel in white polyester paint finish; can be mounted in TECTON continuous-row system without tools; 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 mm²; luminaire total power: 5 W; power supply: 230V AC, 220V DC; rotary switch for mechanical address-setting; non-maintained and maintained mode possible, Maintained mode: -5°C to +25°C, Non-maintained mode: -5°C to +30°C; Dimensions: 498 x 60 x 75 mm; IP20; weight: 1.03 kg; Luminaire wired with halogen-free leads; max. line length from emergency power source to last luminaire: 300 m.

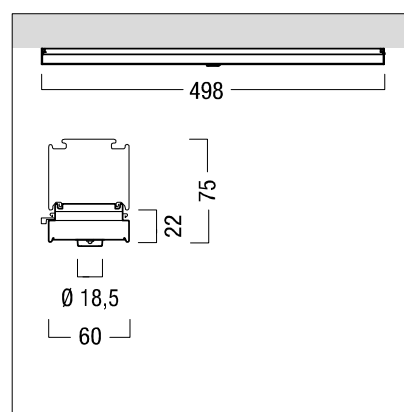
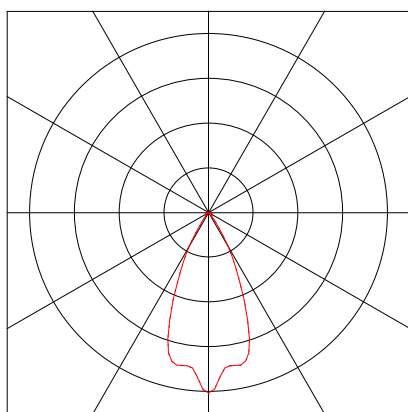
Luminaire data

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 : 12.8 / 12.8
Power : 5 W
Luminous flux : 193 lm

Equipped with

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

Dimensions : 498 mm x 60 mm x 75 mm
Height freestanding luminaire 500 mm

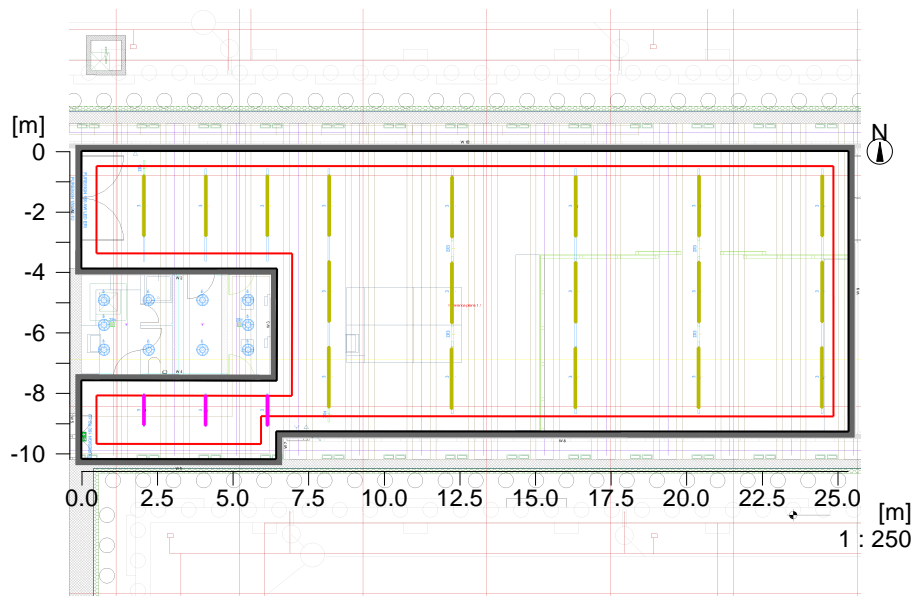


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2 01_splošna osvetlitev

2.1 Description, 01_splošna osvetlitev

2.1.1 Floor plan



Object : CUKRARNA
Installation : DELAVNICE
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2 01_splošna osvetlitev

2.1 Description, 01_splošna osvetlitev

2.1.1 Floor plan

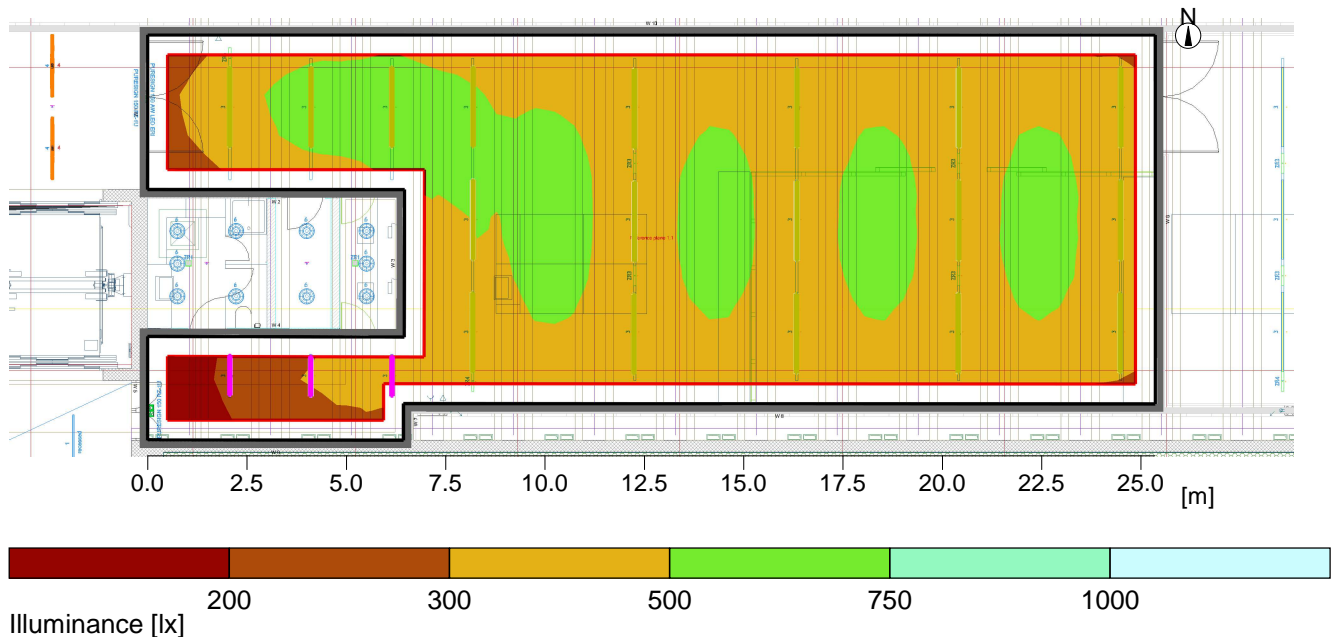
Wall	x	y	Length	Reflectance
1	106.32 m	200.74 m	3.88 m	50.0 %
2	112.79 m	200.74 m	6.47 m	50.0 %
3	112.78 m	197.03 m	3.70 m	50.0 %
4	106.32 m	197.05 m	6.46 m	50.0 %
5	106.32 m	194.45 m	2.60 m	50.0 %
6	112.76 m	194.45 m	6.44 m	50.0 %
7	112.76 m	195.36 m	0.92 m	50.0 %
8	131.67 m	195.35 m	18.91 m	50.0 %
9	131.67 m	204.62 m	9.26 m	50.0 %
10	106.33 m	204.62 m	25.34 m	50.0 %
Floor				20.0 %
Ceiling				70.0 %
Room height		5.66 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
 Height of luminaire plane
 Maintenance factor

Average indirect fraction
 4.86 m
 0.80

Total luminous flux of all lamps
 Total power
 Total power per area (216.67 m²)

142740 lm
 993.0 W
 4.58 W/m² (1.00 W/m²/100lx)

Evaluation area 1

Reference plane 1.1

Horizontal
 E_m 456 lx
 E_{min} 189 lx
 E_{min}/E_{av} (U_o) 0.41
 E_{min}/E_{max} (U_d) 0.30
 Position 0.75 m

Type No. \ Make

1	18	Zumtobel	
		Order No.	: 42183304
		Luminaire name	: TECTON C LED7400-830 L2000 WB LDE WH [STD]
		Equipment	: 1 x LED-Z42183304 51 W / 7320 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

2	3	Order No.	: 42183290
		Luminaire name	: TECTON C LED3700-830 L1000 WB LDE WH [STD]
		Equipment	: 1 x LED-Z42183290 27 W / 3660 lm

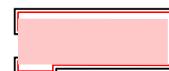
Object : CUKRARNA
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2 01_splošna osvetlitev

2.3 Calculation results, 01_splošna osvetlitev

2.3.1 Table, Reference plane 1.1 (E)

	377	432	459	459	460	438	386	308
[m]	442	504	534	540	536	511	453	353
22	441	502	532	539	534	510	453	354
	383	438	466	465	467	445	393	317
20	384	438	470	467	470	447	393	320
	434	494	523	529	525	501	446	351
18	448	511	542	548	544	520	462	362
	388	441	469	471	471	450	400	321
16	386	444	477	475	478	453	398	325
	420	478	507	512	508	486	434	342
14	450	515	546	552	549	524	465	366
	399	454	481	484	482	462	412	329
12	390	451	486	480	484	461	401	329
	414	469	496	499	494	473	423	336
10	470	534	561	562	556	531	474	374
	465	517	532	522	510	490	447	359
8	516	563	554	510	494	476	446	384
	565	589	539	462	435	435	446	385
6	616	[631]						388
	599	584						337
4	584	558						316
	538	509						287
2	460	437						246
	355	339						(189)
0	279	264						
	0	1	2	3	4	5	6	7 _{lml}



Height of the reference plane

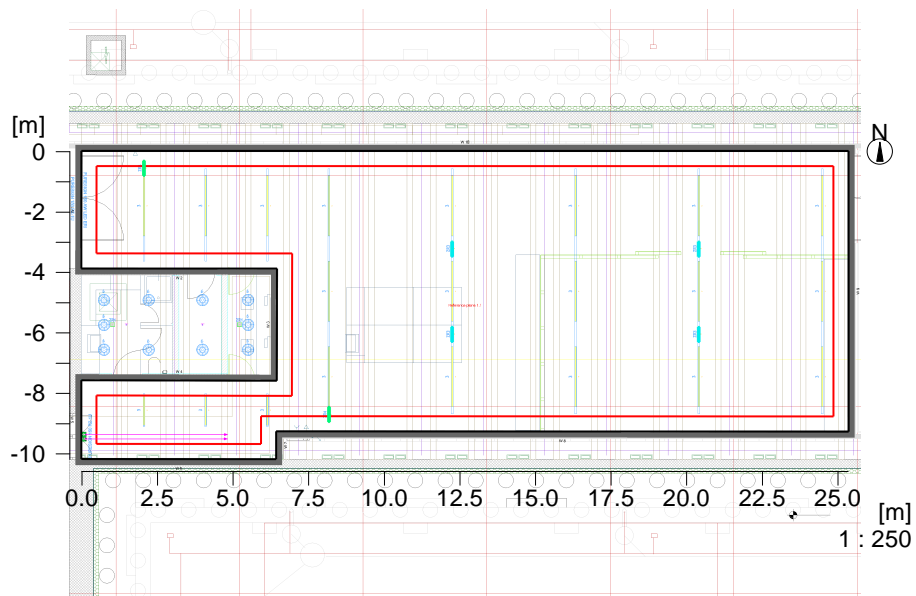
	: 0.75 m
Average illuminance	Eav : 456 lx
Minimum illuminance	Emin : 189 lx
Maximum illuminance	Emax : 631 lx
Uniformity Uo	Emin/Eav : 1 : 2.42 (0.41)
Diversity Ud	Emin/Emax : 1 : 3.34 (0.30)

Object : CUKRARNA
Installation : DELAVNICE
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3 02_varnostna osvetlitev

3.1 Description, 02_varnostna osvetlitev

3.1.1 Floor plan



Object : CUKRARNA
Installation : DELAVNICE
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Date : 16.11.2016

3 02_varnostna osvetlitev

3.1 Description, 02_varnostna osvetlitev

3.1.1 Floor plan

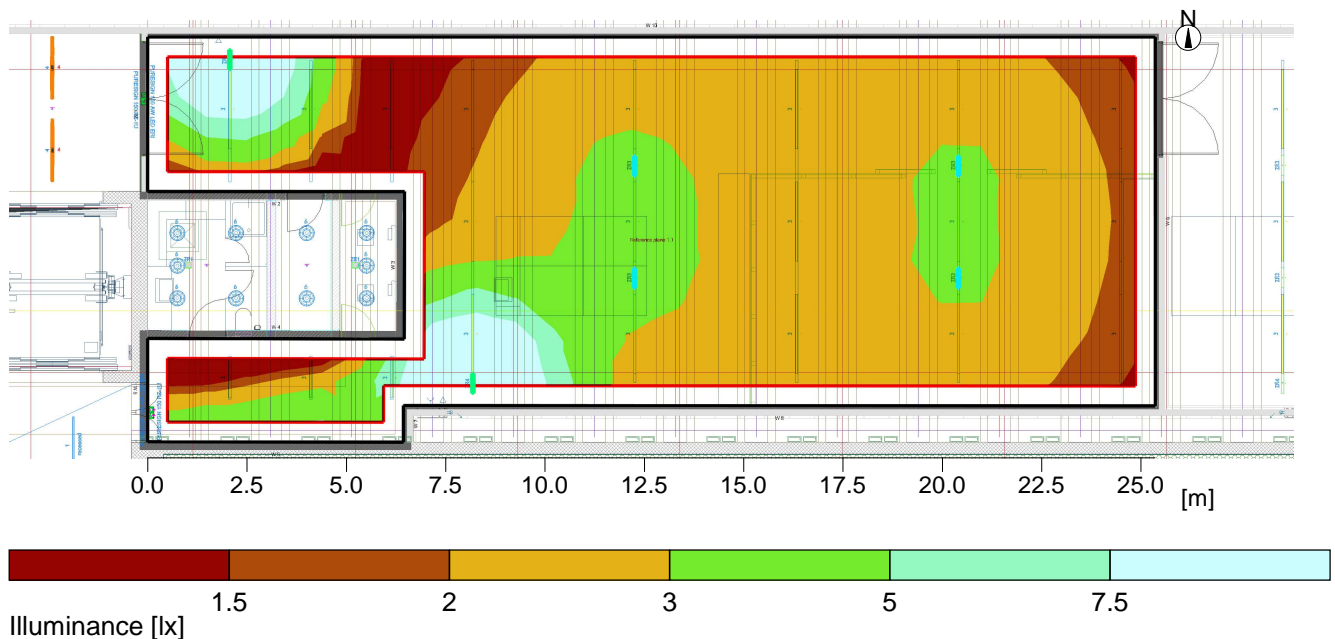
Wall	x	y	Length	Reflectance
1	106.32 m	200.74 m	3.88 m	50.0 %
2	112.79 m	200.74 m	6.47 m	50.0 %
3	112.78 m	197.03 m	3.70 m	50.0 %
4	106.32 m	197.05 m	6.46 m	50.0 %
5	106.32 m	194.45 m	2.60 m	50.0 %
6	112.76 m	194.45 m	6.44 m	50.0 %
7	112.76 m	195.36 m	0.92 m	50.0 %
8	131.67 m	195.35 m	18.91 m	50.0 %
9	131.67 m	204.62 m	9.26 m	50.0 %
10	106.33 m	204.62 m	25.34 m	50.0 %
Floor				20.0 %
Ceiling				70.0 %
Room height		5.66 m		
Height of reference plane		0.03 m		

Object : CUKRARNA
 Installation : DELAVNICE
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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 (216.67 m²)

1246 lm
 32.0 W
 0.15 W/m² (4.62 W/m²/100lx)

Evaluation area 1

Reference plane 1.1

Horizontal
 E_m 3.2 lx
 E_{min} 1.21 lx
 E_{min}/E_{av} (U_o) 0.38
 E_{min}/E_{max} (U_d) 0.09
 Position 0.03 m

Type No.\Make

Zumtobel
 4 4
 Order No. : 42183110
 Luminaire name : RESCLITE C ANTIPANIC TEC-GP NSI WH [STD]
 Equipment : 1 x LED-Z630 5 W / 198 lm

Object : CUKRARNA
Installation : DELAVNICE
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3 02_varnostna osvetlitev

3.2 Summary, 02_varnostna osvetlitev

3.2.1 Result overview, Evaluation area 1

5	2	Order No.	: 42183114
		Luminaire name	: RESCLITE C SPOT TEC-GP NSI WH [STD]
		Equipment	: 1 x LED-Z644 5 W / 193 lm

		ZUMTOBEL	
3	2	Order No.	: 70446584 (STD - Standard)
		Luminaire name	: ONLITE ERI
		Equipment	: 1 x LED-Z396 0C8W 1 W / 34 lm

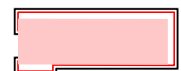
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3 02_varnostna osvetlitev

3.3 Calculation results, 02_varnostna osvetlitev

3.3.1 Table, Reference plane 1.1 (E)

	1.9	2	2.1	2.1	2.1	2	1.9	1.7
[m]	2.1	2.3	2.4	2.5	2.5	2.3	2.2	2
22	2.4	2.7	2.8	2.8	2.9	2.7	2.4	2.2
	2.5	3	3.1	3.1	3.1	3	2.6	2.3
20	2.5	3	3.2	3.2	3.2	3	2.6	2.3
	2.4	2.8	2.9	2.9	3	2.8	2.5	2.3
18	2.4	2.6	2.8	2.8	2.8	2.6	2.5	2.3
	2.4	2.5	2.6	2.7	2.7	2.6	2.4	2.2
16	2.4	2.5	2.6	2.7	2.6	2.5	2.4	2.2
	2.4	2.6	2.7	2.8	2.8	2.7	2.5	2.3
14	2.5	2.7	2.9	2.9	2.9	2.8	2.6	2.4
	2.5	3	3.2	3.2	3.2	3.1	2.7	2.5
12	2.6	3.1	3.3	3.3	3.4	3.3	2.9	2.6
	2.6	3	3.2	3.2	3.3	3.4	3.4	3.4
10	2.3	2.6	2.8	2.9	3	3.9	5.5	6.5
	2.1	2.3	2.4	2.6	3	5.1	9.7	11.4
8	1.8	1.9	2.1	2.2	2.9	5.9	11.1	[13.5]
	1.5	1.6	1.8	1.9	2.5	5	9.9	11.5
6	1.3	1.4						7.4
	1.4	(1.2)						3.8
4	3.3	1.9						2.6
	7.5	3.7						2.2
2	10.2	5.3						1.7
	10	5						1.3
0	6.4	3.2						
	0	1	2	3	4	5	6	7 _{lml}



Height of the reference plane

	: 0.03 m
Average illuminance	Eav : 3.2 lx
Minimum illuminance	Emin : 1.2 lx
Maximum illuminance	Emax : 13.5 lx
Uniformity Uo	Emin/Eav : 1 : 2.65 (0.38)
Diversity Ud	Emin/Emax : 1 : 11.14 (0.09)