

CUKRARNA

Installation : GALERIJA

Project number : 421/16

Customer : SCAPELAB

Processed by : SCAPELAB

Date : 17.11.2016

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
Installation : GALERIJA
Project number : 421/16
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1 Luminaire data

1.1 ZUMTOBEL, TECTON HILIO TW 930-60 § 40... (D36758AA.Idt)

1.1.1 Data sheet

Manufacturer: ZUMTOBEL

D36758AA.Idt TECTON HILIO TW 930-60 § 4000K - LCAI 75W 250mA TW Ip - P=62.6W /
T=3960K / x=0.3776 / y=0.3614 / phi=5927.3lm

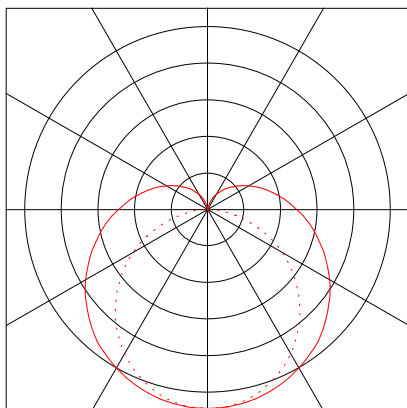
Luminaire data

Luminaire efficiency : 100%
Luminaire efficacy : 94.68 lm/W
Classification : B31 ↓81.8% ↑18.2%
CIE Flux Codes : 37 65 86 82 100
UGR 4H 8H : 26.4 / 24.1
Power : 62.6 W
Luminous flux : 5927 lm

Equipped with

Quantity : 1
Designation : LED
Colour : Unknown
Luminous flux : 5927 lm

Dimensions : 1395 mm x 115 mm x 75 mm



Object : CUKRARNA
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1 Luminaire data

1.2 Zumtobel, SUP2 M 1/LED550-930 FL LDO WH [... (42184349)

1.2.1 Data sheet

Manufacturer: Zumtobel

42184349 Surface-mounted suspended SUP2 M 1/LED550-930 FL LDO WH [STD]

LED spotlight module with one LED spotlight unit, "midi" construction size; equipped with lens system for high quality accent lighting in museums and exhibitions spaces; combination of LED PCBs, lens and film creates uniform light distribution with high intensity and soft transitions, without stray light from the light cone; Luminaire with low voltage adapter for Zumtobel SUPERSYSTEM II (48 V) low voltage track; adapter is fixed without tools and contains electronics converting the constant voltage (48V) to constant current; lamp(s): 1/8.2W, Colour rendering Ra > 90, colour temperature 3000 K; Luminaire or spotlight with FLOOD light distribution; colour tolerance: SDCM 2 initial, LED PCBs premium-selected; Luminaire luminous flux: 499 lm, Luminaire efficacy: 61 lm/W; service life: 50000h for luminous flux at 90% of initial value; dimming of illuminance, Slave luminaire for DALI control (DALI only); lamp unit can rotate through 360° and tilt through 90°; lamp unit of die-cast aluminium, coated white; optic consists of glass lens and film of plastic; front ring is for glare reduction and accommodating films; total power: 8.2 W; dimensions: 166x45x94 mm; weight: 0.19 kg;

Note: Film can be replaced to achieve other light distribution patterns; ring louvre or the extended anti-glare cylinder can be exchanged for the front ring.

Luminaire data

Absolute Photometry

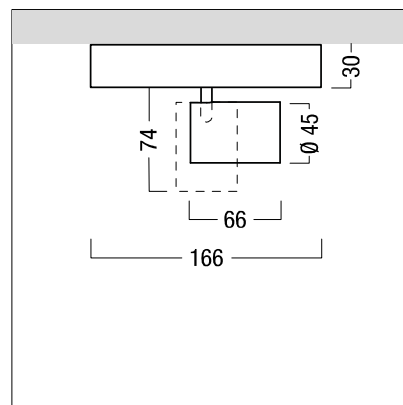
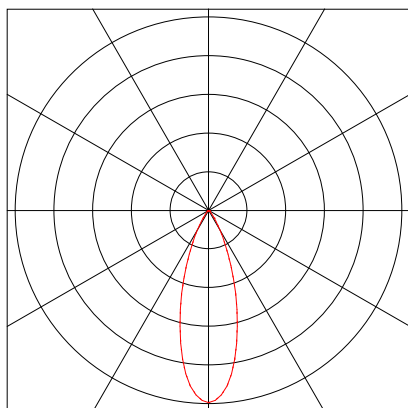
Luminaire efficacy : 60.85 lm/W
Classification : A80 ↓100.0% ↑0.0%
CIE Flux Codes : 97 100 100 100 100
UGR 4H 8H : 14.7 / 14.7
Power : 8.2 W
Luminous flux : 499 lm

Equipped with

Quantity : 1
Designation :

Colour :
Colour reproduction : 90

Dimensions : 166 mm x 45 mm x 94 mm
Height freestanding luminaire 500 mm



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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

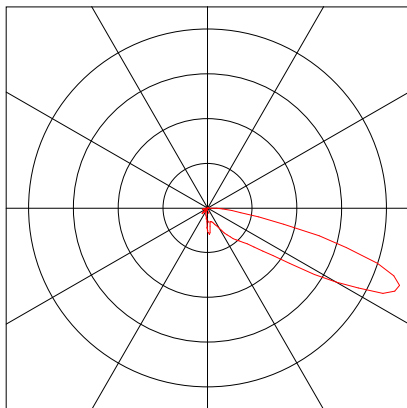
Luminaire data

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 SPOT ED NSI WH [STD] (42180428)

1.4.1 Data sheet

Manufacturer: Zumtobel

42180428 ceiling recessed RESCLITE C SPOT ED NSI WH [STD]

LED Safety luminaire for illuminating fire-fighting and first-aid equipment and danger spots with minimum output 5 lx; ceiling recessed; 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 box for installation in ceiling recess made of PC; lens made of polycarbonate (PC); luminaire housing made of die-cast aluminium in powder coated white finish, RAL 9016; 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 mm²; ball-proof design; 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: Ø85 x 28 mm; IP40; weight: 0.26 kg; Luminaire wired with halogen-free leads; max. line length from emergency power source to last luminaire: 300 m.; suitable for recessed installation in concrete casting surround (please order separately).

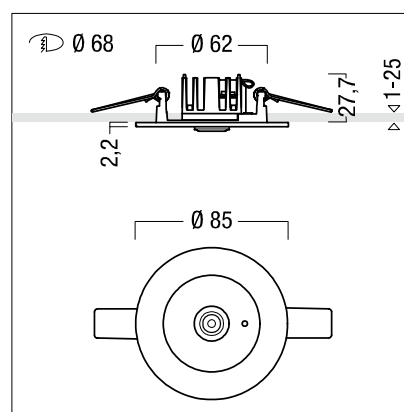
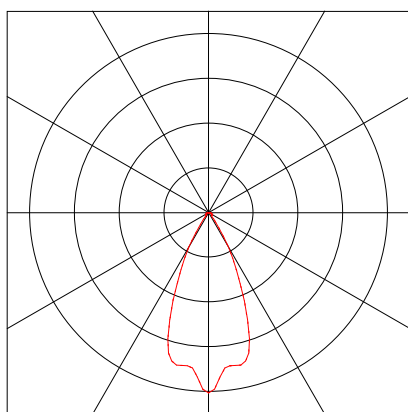
Luminaire data

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 : 15.1 / 15.1
Power : 5 W
Luminous flux : 193 lm

Equipped with

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

Dimensions : Ø85 mm x 2 mm



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1 Luminaire data

1.5 Zumtobel, RESCLITE C ANTIPANIC ED NSI WH ... (42180412)

1.5.1 Data sheet

Manufacturer: Zumtobel

42180412 ceiling recessed RESCLITE C ANTIPANIC ED NSI WH [STD]

LED Safety luminaire for anti-panic lighting with min. 0.5 lx as specified in EN 1838; ceiling recessed; 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 box for installation in ceiling recess made of PC; 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; ball-proof design; luminaire total power: 5 W; power supply: 230V AC; 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: Ø85 x 28 mm; IP40; weight: 0.26 kg; Luminaire wired with halogen-free leads; max. line length from emergency power source to last luminaire: 300 m.; suitable for recessed installation in concrete casting surround (please order separately).

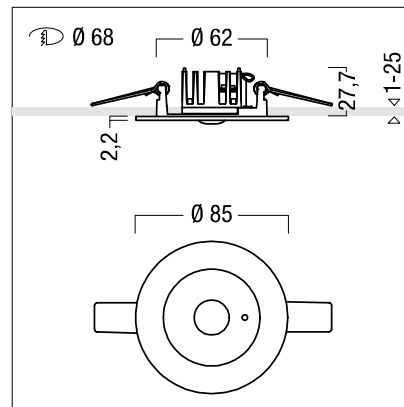
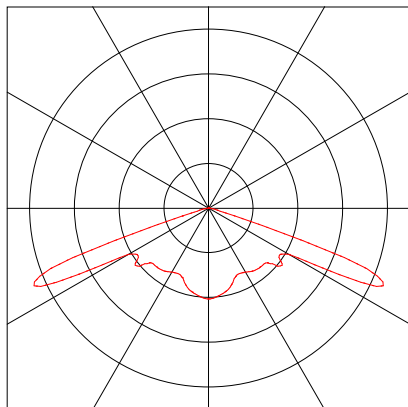
Luminaire data

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 : 29.2 / 29.2
Power : 5 W
Luminous flux : 198 lm

Equipped with

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

Dimensions : Ø85 mm x 2 mm



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1 Luminaire data

1.6 Zumtobel, RESCLITE C ESCAPE ED NSI WH [STD] (42180396)

1.6.1 Data sheet

Manufacturer: Zumtobel

42180396 ceiling recessed RESCLITE C ESCAPE ED NSI WH [STD]

LED Safety luminaire for escape-route illumination; with minimum of 1lx; ceiling recessed; 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 box for installation in wall recess made of PC; reflector and 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: Ø85 x 46 mm; IP40; weight: 0.26 kg; Luminaire wired with halogen-free leads; max. line length from emergency power source to last luminaire: 300 m.; suitable for recessed installation in concrete casting surround (please order separately).

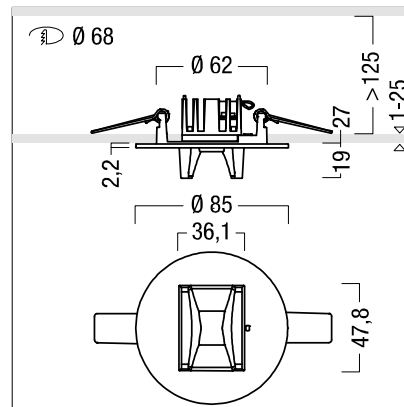
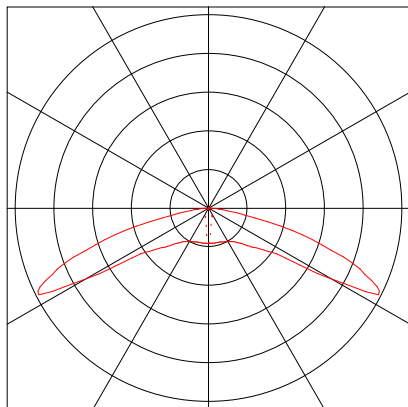
Luminaire data

Absolute Photometry
Luminaire efficacy : 34.6 lm/W
Classification : A10 ↓99.4% ↑0.6%
CIE Flux Codes : 27 48 92 99 100
UGR 4H 8H : 41.0 / 17.5
Power : 5 W
Luminous flux : 173 lm

Equipped with

Quantity : 1
Designation : LED-Z37
Colour : Unknown
Colour reproduction :

Dimensions : Ø85 mm x 19 mm

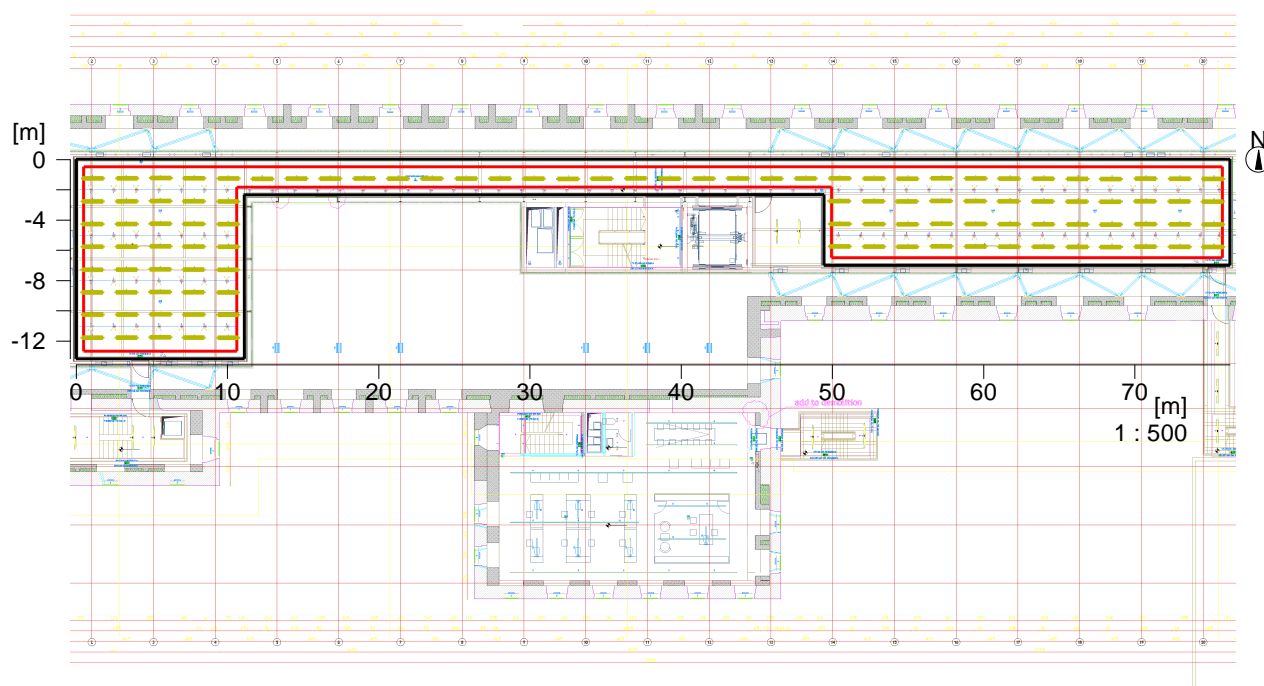


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2 01_splošna osvetlitev

2.1 Description, 01_splošna osvetlitev

2.1.1 Floor plan



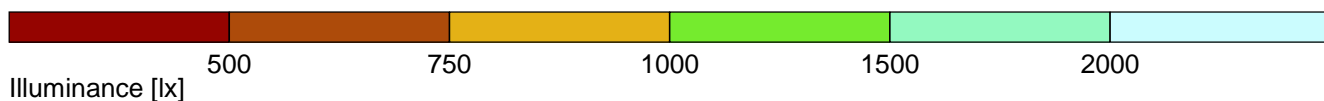
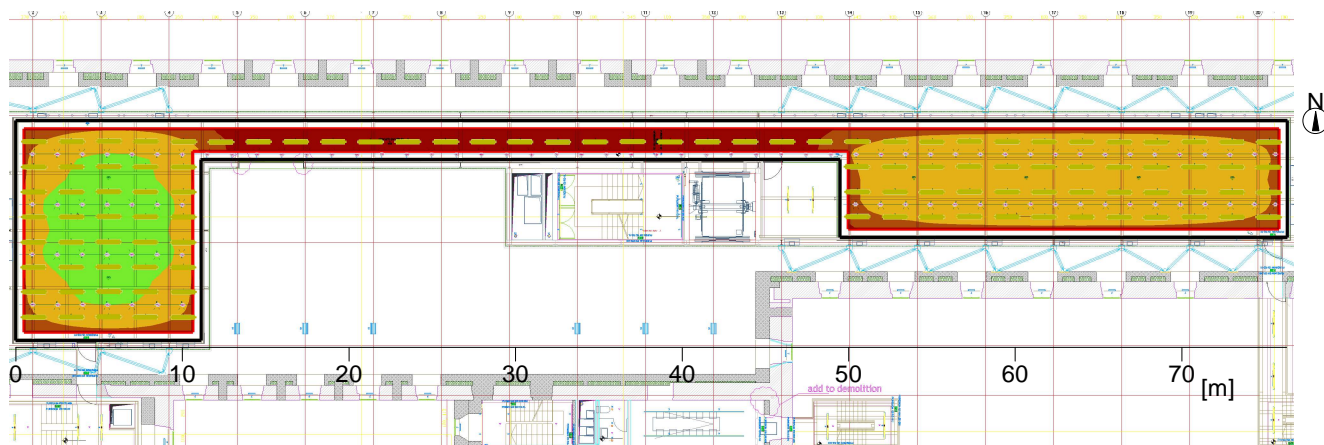
Wall	x	y	Length	Reflectance
1	38.28 m	27.94 m	13.17 m	50.0 %
2	49.41 m	27.94 m	11.13 m	50.0 %
3	49.40 m	38.77 m	10.83 m	50.0 %
4	87.74 m	38.78 m	38.33 m	50.0 %
5	87.73 m	34.12 m	4.67 m	50.0 %
6	114.57 m	34.12 m	26.84 m	50.0 %
7	114.57 m	41.12 m	7.00 m	50.0 %
8	38.28 m	41.12 m	76.29 m	50.0 %
Floor				20.0 %
Ceiling				70.0 %
Room height		4.50 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
 Maintenance factor

Average indirect fraction
 0.80

Total luminous flux of all lamps
 Total power
 Total power per area (424.29 m²)

667245 lm
 7311.0 W
 17.23 W/m² (2.07 W/m²/100lx)

Evaluation area 1

Reference plane 1.1

Horizontal
 Em 833 lx
 Emin 369 lx
 Emin/Eav (Uo) 0.44
 Emin/Emax (Ud) 0.32
 Position 0.75 m

Type No.\Make

ZUMTOBEL	
1	Order No. : D36758AA.Idt
105	Luminaire name : TECTON HILIO TW 930-60 § 4000K - LCAI 75W 250mA TW Ip
	- P=62.6W / T=
	Equipment : 1 x LED 62.6 W / 5927 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	90	Zumtobel	
		Order No.	: 42184349
		Luminaire name	: SUP2 M 1/LED550-930 FL LDO WH [STD]
		Equipment	: 1 x LED_SU2-M_499_930 8 W / 499 lm

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2 01_splošna osvetlitev

2.3 Calculation results, 01_splošna osvetlitev

2.3.1 Table, Reference plane 1.1 (E)

	635	655	657	
	786	810	814	786
	838	873	876	839
	869	906	908	868
	886	924	926	887
70	898	936	938	900
	906	946	948	908
	913	953	955	914
	916	957	960	919
	919	958	961	920
	920	958	960	917
	920	957	959	917
	919	957	959	917
60	917	955	959	918
	916	953	955	915
	911	948	950	910
	908	944	945	902
	903	939	940	898
	897	932	932	888
	882	917	914	866
	859	891	887	832
	817	843	829	776
50	751	724	703	665
	613			
	488			
	451			
	439			
	430			
	423			
	419			



Part1

Height of the reference plane

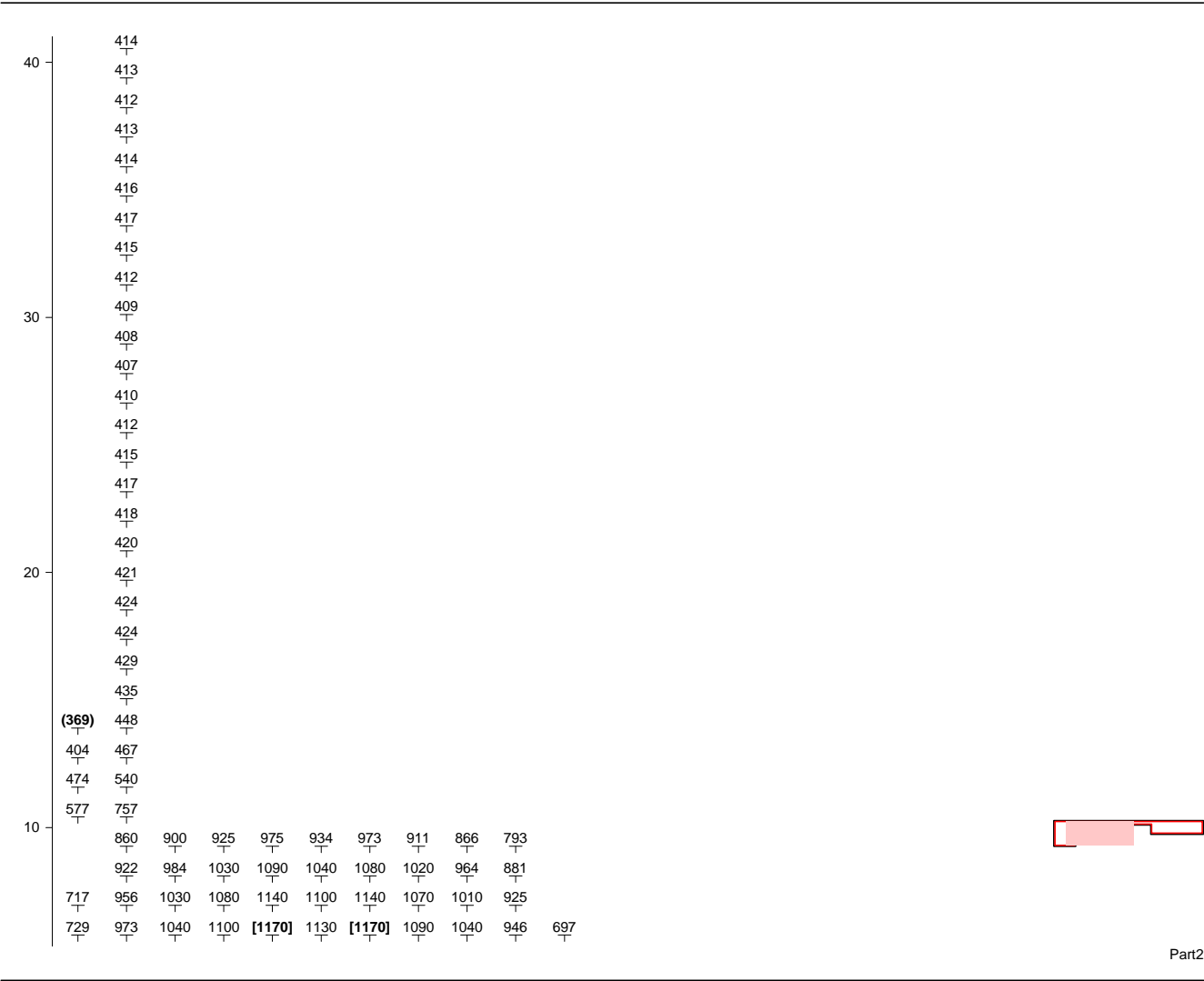
		: 0.75 m
Average illuminance	Eav	: 833 lx
Minimum illuminance	Emin	: 369 lx
Maximum illuminance	Emax	: 1170 lx
Uniformity Uo	Emin/Eav	: 1 : 2.25 (0.44)
Diversity Ud	Emin/Emax	: 1 : 3.17 (0.32)

Object : CUKRARNA
Installation : GALERIJA
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2 01_splošna osvetlitev

2.3 Calculation results, 01_splošna osvetlitev

2.3.1 Table, Reference plane 1.1 (E)

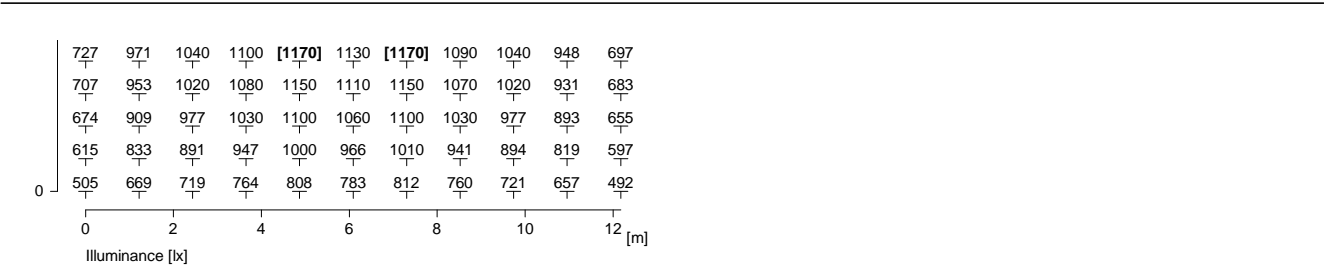


Object : CUKRARNA
Installation : GALERIJA
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2 01_splošna osvetlitev

2.3 Calculation results, 01_splošna osvetlitev

2.3.1 Table, Reference plane 1.1 (E)

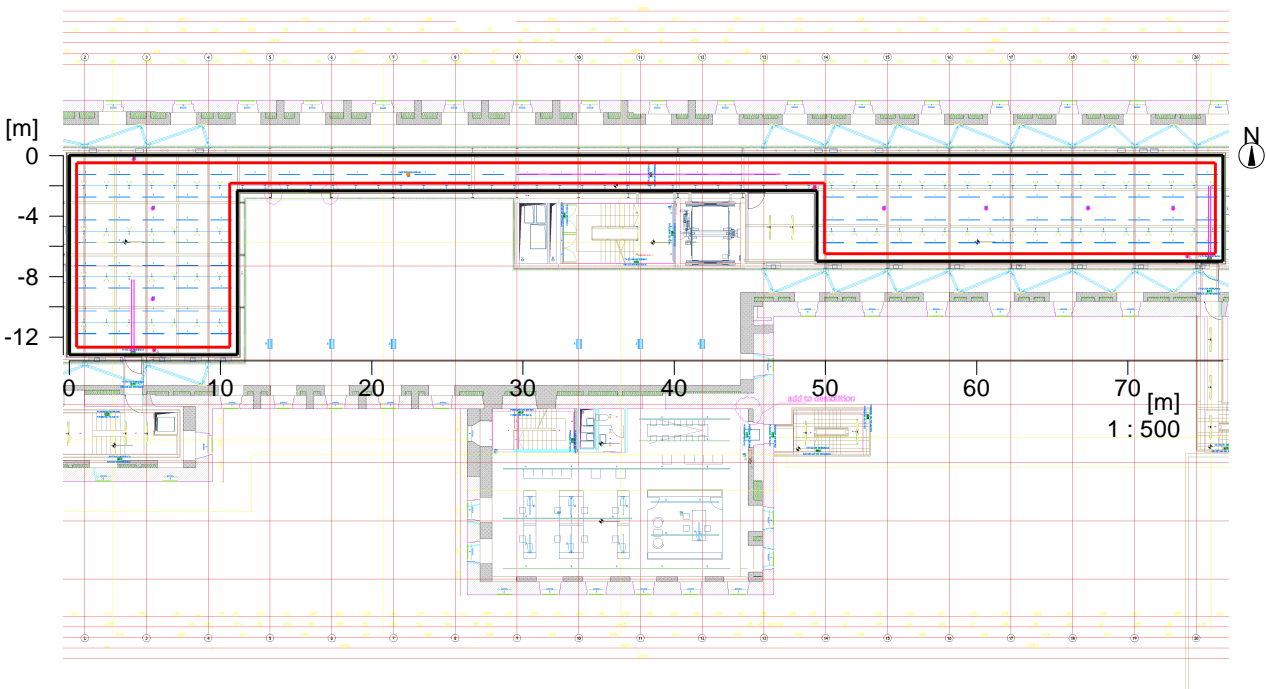


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Installation : GALERIJA
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3 02_varnostna osvetlitev

3.1 Description, 02_varnostna osvetlitev

3.1.1 Floor plan



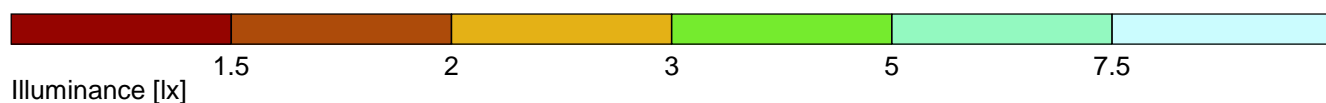
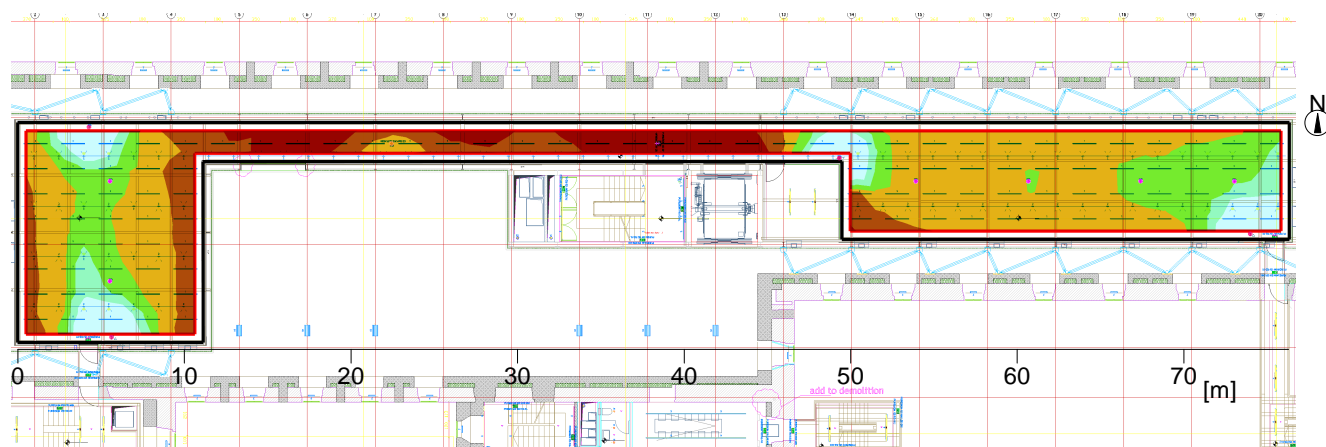
Wall	x	y	Length	Reflectance
1	38.28 m	27.94 m	13.17 m	70.0 %
2	49.41 m	27.94 m	11.13 m	70.0 %
3	49.40 m	38.77 m	10.83 m	70.0 %
4	87.74 m	38.78 m	38.33 m	70.0 %
5	87.73 m	34.12 m	4.67 m	70.0 %
6	114.57 m	34.12 m	26.84 m	70.0 %
7	114.57 m	41.12 m	7.00 m	70.0 %
8	38.28 m	41.12 m	76.29 m	70.0 %
Floor				20.0 %
Ceiling				70.0 %
Room height		4.50 m		
Height of reference plane		0.03 m		

Object : CUKRARNA
 Installation : GALERIJA
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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 (424.29 m²)

2337 lm
 61.0 W
 0.14 W/m² (4.27 W/m²/100lx)

Evaluation area 1

Reference plane 1.1

Horizontal
 E_m 3.37 lx
 E_{min} 1 lx
 E_{min}/E_{av} (U_o) 0.30
 E_{min}/E_{max} (U_d) 0.07
 Position 0.03 m

Type No.\Make




3	6	ZUMTOBEL	
		Order No.	: 70446584 (STD - Standard)
		Luminaire name	: ONLITE ERI
		Equipment	: 1 x LED-Z396 0C8W 1 W / 34 lm

Object : CUKRARNA
Installation : GALERIJA
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3 02_varnostna osvetlitev

3.2 Summary, 02_varnostna osvetlitev

3.2.1 Result overview, Evaluation area 1

		Zumtobel	
4	4	Order No.	: 42180428
		Luminaire name	: RESCLITE C SPOT ED NSI WH [STD]
		Equipment	: 1 x LED-Z644 5 W / 193 lm
5	6	Order No.	: 42180412
		Luminaire name	: RESCLITE C ANTIPANIC ED NSI WH [STD]
		Equipment	: 1 x LED-Z630 5 W / 198 lm
6	1	Order No.	: 42180396
		Luminaire name	: RESCLITE C ESCAPE ED NSI WH [STD]
		Equipment	: 1 x LED-Z37 5 W / 173 lm

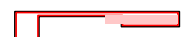
Object : CUKRARNA
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3 02_varnostna osvetlitev

3.3 Calculation results, 02_varnostna osvetlitev

3.3.1 Table, Reference plane 1.1 (E)

	5.6	6.8	6.7	9.3
	4.5	5.1	6.3	12.1
	3.3	4	5.8	12.1
	3.3	3.9	4.6	7.2
	3.2	3.4	3.6	3.9
70	3.1	3.3	3.4	3.2
	2.9	3.2	3.2	3
	2.9	3.4	3.4	2.9
	2.8	3.2	3.2	2.7
	2.7	2.8	2.8	2.7
	2.7	2.8	2.8	2.7
	2.7	2.8	2.8	2.7
	2.7	2.9	2.9	2.6
60	2.6	3.1	3	2.6
	2.5	2.9	2.8	2.5
	2.5	2.6	2.5	2.4
	2.4	2.5	2.5	2.3
	2.4	2.5	2.4	2.3
	2.4	2.7	2.7	2.3
	2.4	2.8	2.7	2.2
	2.6	2.7	2.4	2.1
50	5.2	4.8	2.8	1.9
	11.8	10.7	1.8	1.7
	12.9			
	10.5			
	3.7			
	1.7			
	1.4			
	1.2			
	1.1			



Part1

Height of the reference plane

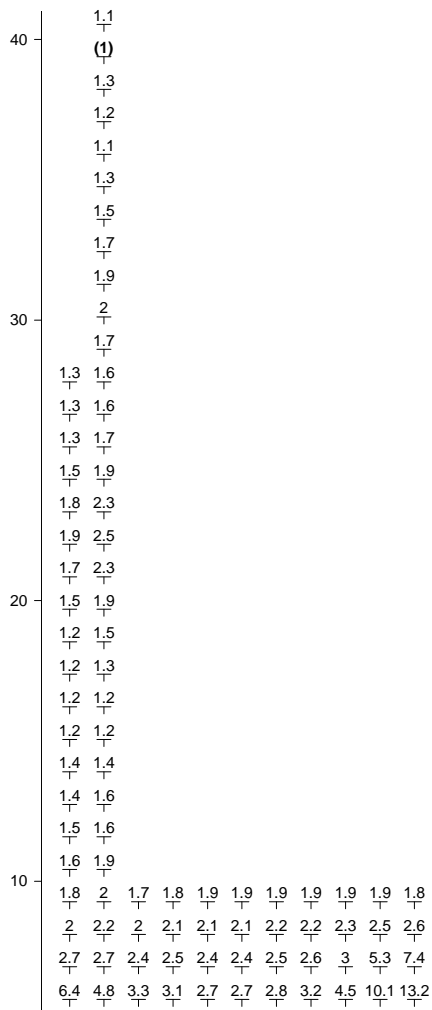
		: 0.03 m
Average illuminance	Eav	: 3.4 lx
Minimum illuminance	Emin	: 1 lx
Maximum illuminance	Emax	: 14 lx
Uniformity Uo	Emin/Eav	: 1 : 3.36 (0.30)
Diversity Ud	Emin/Emax	: 1 : 13.94 (0.07)

Object : CUKRARNA
Installation : GALERIJA
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3 02_varnostna osvetlitev

3.3 Calculation results, 02_varnostna osvetlitev

3.3.1 Table, Reference plane 1.1 (E)



Part2

Object : CUKRARNA
Installation : GALERIJA
Project number : 421/16
Date : 17.11.2016

3 02_varnostna osvetlitev

3.3 Calculation results, 02_varnostna osvetlitev

3.3.1 Table, Reference plane 1.1 (E)



Part3