

## Qendra Kultures Viti

Installation : PHOTOMETRIC CALCULATION

Project number : #1

Customer :

Processed by :

Date : 16.06.2019

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.

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**RELUX®**  
light simulation tools

**OSRAM, APOLLON® (0MQ111D24W1)**

## Data sheet

**Manufacturer: OSRAM**

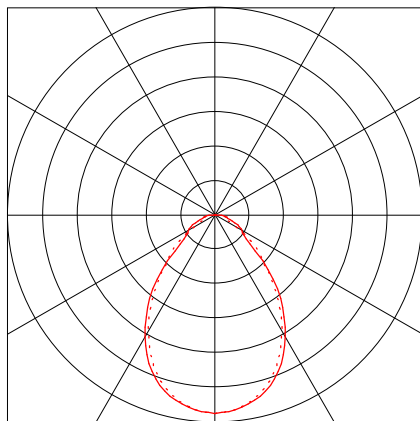
APOLLON®, linear luminaire, primary optical cover: micro prismatic cover, of PMMA, CAT 2 ( $L \leq 3000 \text{cd/m}^2$ ), light emission: direct distribution, primary light characteristic: symmetric, installation type: lay-in mounting, LED, luminous flux: 4.020 lm, luminous efficacy: 111lm/W, light colour: 840, colour temperature: 4000K, control gear: ECG DALI, with terminal, 5-pole, mains connection: 220..240V, AC, 50/60Hz, rated input power: 36W, housing, luminaire housing, of ABS, traffic white (RAL 9016), module: M625, length: 622 mm, width: 622 mm, height: 36mm, baseplate, of sheet steel, protection rating (complete): IP20, protection rating (lamp compartment, on room side): IP40, insulation class (complete): insulation class II (safety insulation), certification: CE, ENEC in preparation, impact resistance: IK02, packaging unit: 1 piece

## Luminaire data

Luminaires efficiency	: 100% (A50) ↓ 100.0% ↑ 0.0%
CIE Flux Codes	: 65 88 97 100 100
Control gear	: ECG DALI
System power	: 36.3 W
Length	: 625 mm
Width	: 625 mm

### Equipped with

Number of	:	1
Designation	:	LED 4000K / CRI >= 80
Power	:	36 W
Colour	:	4000K
Luminous flux	:	4020 lm



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**RELUX®**  
light simulation tools

**OSRAM, ECOPACK® LED (0LJ311730830)**

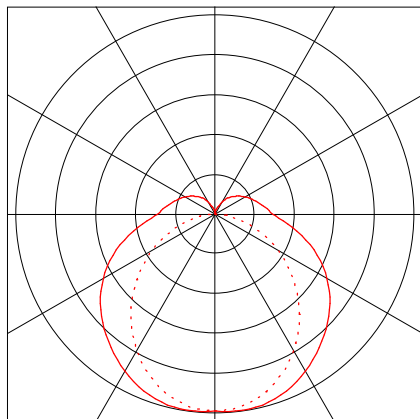
## Data sheet

**Manufacturer: OSRAM**

ECOPACK® LED, diffuser luminaire, primary optical cover: cover, of PC, opal, light emission: direct distribution, primary light characteristic: symmetric, installation type: surface-mounted, LED, luminous flux: 4.000 lm, luminous efficacy: 111lm/W, light colour: 830, colour temperature: 3000K, control gear: ECG, mains connection: 220..240V, AC, 50/60Hz, rated input power: 36W, housing, of aluminium, anodised, length: 1.200 mm, end cap, of PC, white, protection rating (complete): IP20, insulation class (complete): insulation class I (protective earthing), certification: CE, permissible ambient temperature for indoor applications: -20..+40°C

Luminaires efficiency	:	100% (B31)
		↓ 84.7% ↑ 15.3%
CIE Flux Codes	:	40 70 89 85 100
Control gear	:	ECG
System power	:	36 W
Length	:	1200 mm
Width	:	60 mm
Height	:	70 mm

Number of	:	1
Designation	:	LED 3000K / CRI >= 80
Power	:	36 W
Colour	:	3000K
Luminous flux	:	4000 lm



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**RELUX®**  
light simulation tools

## OSRAM, Lunis R® (2LR61061TA11AF)

## Data sheet

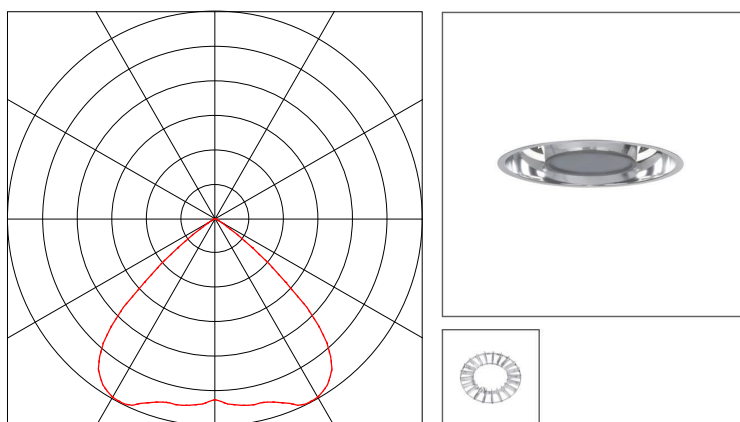
**Manufacturer: OSRAM**

Lunis R®, downlight, light control with reflector, of ultra-pure aluminium (Al 99.98%), perforated, highly specular.  
 light emission: direct distribution, 1 x T16-R 55W, control gear: ECG dimmable(1..10V), with terminal, 3+2-pole,  
 max. 2.5mm², mains connection: 230V, AC, 50Hz, diameter: 398 mm, central ring, graphite (RAL 7037), central  
 module, blanking cover, of sheet steel, perforated, metallic grey (RAL 9006), protection rating (complete): IP20,  
 insulation class (complete): insulation class I (protective earthing), certification: CE, ENEC 10, VDE, protection  
 symbol: F, permissible ambient temperature for indoor applications: ≤ +25°C, standard: EN 50419c

optical accessories, for Lunis R®, C-louvre, of plastic, aluminium vaporised, highly specular, CAT 2 (L≤ 1000cd/m²)

Luminaires efficiency	: 60.5% (A60) ↓ 100.0% ↑ 0.0%
CIE Flux Codes	: 74 99 100 100 61
Control gear	: ECG (1..10V)
System power	: 60 W
Diameter	: 398 mm

Number of	:	1
Designation	:	T16-RI 55W/840 (Amalgam)
Power	:	55 W
Colour	:	4000K
Luminous flux	:	4400 lm



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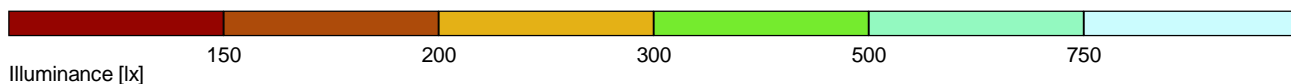
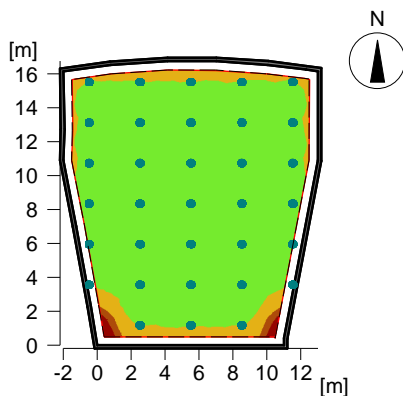
Object : Qendra Kultures Viti  
 Installation : PHOTOMETRIC CALCULATION  
 Project number : #1  
 Date : 16.06.2019

## Room 1

### Summary, Room 1

#### Result overview, Reference plane 1

Field 1



#### General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.75 m
Height of luminaire plane	2.80 m
Maintenance factor	0.80
Total luminous flux of all lamps	145200 lm
Total power	1980 W
Total power per area (225.35 m²)	8.79 W/m² (2.64 W/m²/100lx)

#### Illuminance

Average illuminance	Eav	332 lx
Minimum illuminance	Emin	123 lx
Maximum illuminance	Emax	385 lx
Uniformity g1	Emin/Em	1:2.69 (0.37)
Uniformity g2	Emin/Emax	1:3.12 (0.32)

#### Type No.\Make

3	33	<b>OSRAM</b>	
		Order No.	: 2LR61061TA11AF/5LR94681CE
		Luminaire name	: Lunis R®
		Equipment	: 1 x T16-RI 55W/840 (Amalgam) (PHILIPS) 55 W / 4400 lm



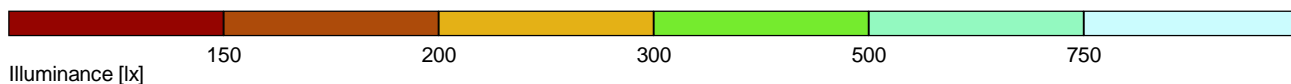
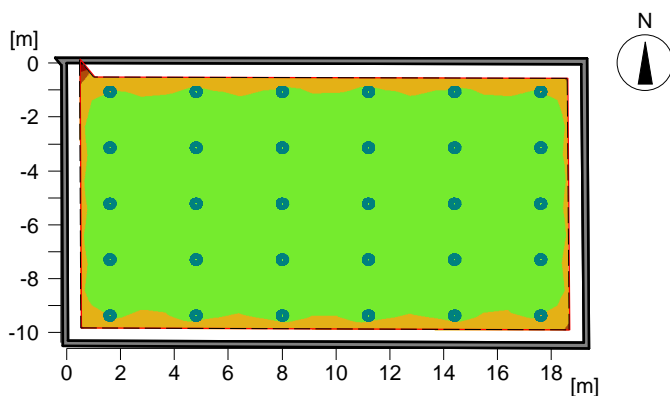
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## Skena

### Summary, Skena

#### Result overview, Reference plane 1

Field 1



#### General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.75 m
Height of luminaire plane	2.80 m
Maintenance factor	0.80
Total luminous flux of all lamps	132000 lm
Total power	1800 W
Total power per area (197.34 m <sup>2</sup> )	9.12 W/m <sup>2</sup> (2.60 W/m <sup>2</sup> /100lx)

#### Illuminance

Average illuminance	Eav	351 lx
Minimum illuminance	Emin	266 lx
Maximum illuminance	Emax	408 lx
Uniformity g1	Emin/Em	1:1.32 (0.76)
Uniformity g2	Emin/Emax	1:1.54 (0.65)

#### Type No. \ Make

3	30	<b>OSRAM</b>	
		Order No.	: 2LR61061TA11AF/5LR94681CE
		Luminaire name	: Lunis R®
		Equipment	: 1 x T16-RI 55W/840 (Amalgam) (PHILIPS) 55 W / 4400 lm

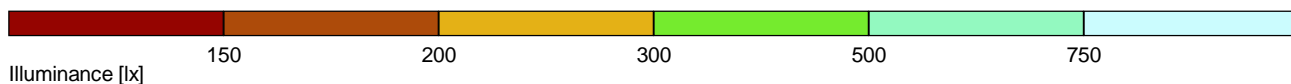
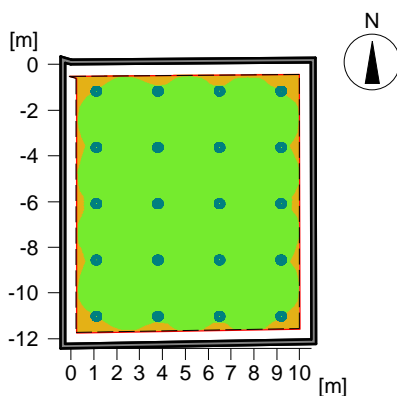
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## Ekspozita

### Summary, Ekspozita

#### Result overview, Reference plane 1

Field 1




#### General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.75 m
Height of luminaire plane	2.80 m
Maintenance factor	0.80
Total luminous flux of all lamps	88000 lm
Total power	1200 W
Total power per area (131.20 m <sup>2</sup> )	9.15 W/m <sup>2</sup> (2.61 W/m <sup>2</sup> /100lx)

#### Illuminance

Average illuminance	Eav	350 lx
Minimum illuminance	Emin	249 lx
Maximum illuminance	Emax	390 lx
Uniformity g1	Emin/Em	1:1.4 (0.71)
Uniformity g2	Emin/Emax	1:1.56 (0.64)

#### Type No.\Make

3		20	<b>OSRAM</b>	
			Order No.	: 2LR61061TA11AF/5LR94681CE
			Luminaire name	: Lunis R®
			Equipment	: 1 x T16-RI 55W/840 (Amalgam) (PHILIPS) 55 W / 4400 lm

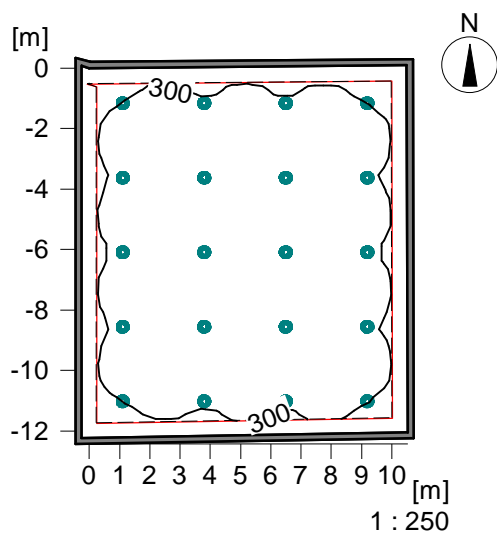
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## Ekspozita

### Calculation results, Ekspozita

#### Isolines representation, Reference plane 1 (E)

Field 1



Illuminance [lx]

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Height of the reference plane	: 0.75 m
Average illuminance	Eav : 350 lx
Minimum illuminance	Emin : 249 lx
Maximum illuminance	Emax : 390 lx
Uniformity g1	Emin/Eav : 1 : 1.40 (0.71)
Uniformity g2	Emin/Emax : 1 : 1.56 (0.64)



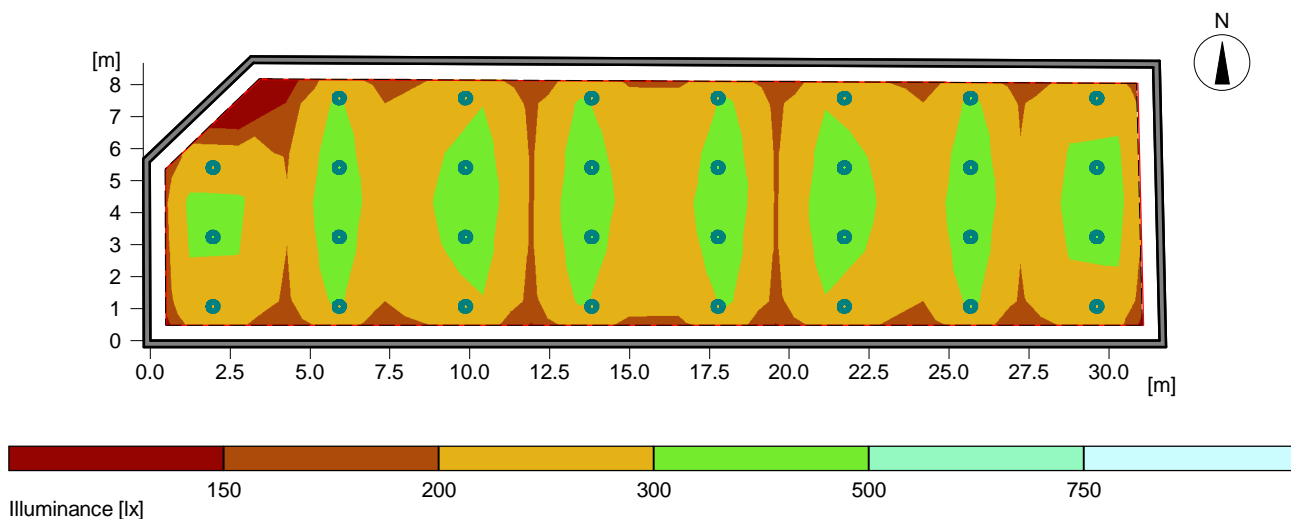
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## Room 4

### Summary, Room 4

#### Result overview, Reference plane 1

Field 1



#### General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.75 m
Height of luminaire plane	2.80 m
Maintenance factor	0.80
Total luminous flux of all lamps	136400 lm
Total power	1860 W
Total power per area (266.96 m²)	6.97 W/m² (2.59 W/m²/100lx)

#### Illuminance

Average illuminance	Eav	269 lx
Minimum illuminance	Emin	68 lx
Maximum illuminance	Emax	386 lx
Uniformity g1	Emin/Em	1:3.95 (0.25)
Uniformity g2	Emin/Emax	1:5.65 (0.18)

#### Type No.\Make

3	31	<b>OSRAM</b>
		Order No. : 2LR61061TA11AF/5LR94681CE
		Luminaire name : Lunis R®
		Equipment : 1 x T16-RI 55W/840 (Amalgam) (PHILIPS) 55 W / 4400 lm

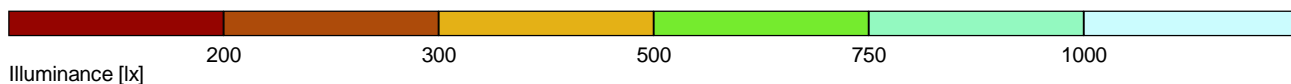
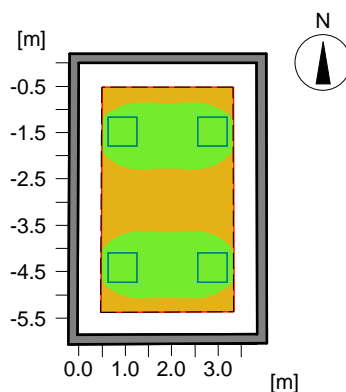
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 Date : 16.06.2019

## Salla

### Summary, Salla

#### Result overview, Reference plane 1

Field 1



#### General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.75 m
Height of luminaire plane	2.80 m
Maintenance factor	0.80
Total luminous flux of all lamps	16080 lm
Total power	145.2 W
Total power per area (22.59 m²)	6.43 W/m² (1.27 W/m²/100lx)

#### Illuminance

Average illuminance	Eav	507 lx
Minimum illuminance	Emin	375 lx
Maximum illuminance	Emax	619 lx
Uniformity g1	Emin/Em	1:1.35 (0.74)
Uniformity g2	Emin/Emax	1:1.65 (0.61)

#### Type No.\Make

1	4	<b>OSRAM</b>
		Order No. : 0MQ111D24W1
		Luminaire name : APOLLON®
		Equipment : 1 x LED 4000K / CRI >= 80 36 W / 4020 lm

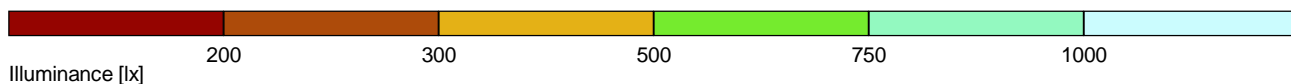
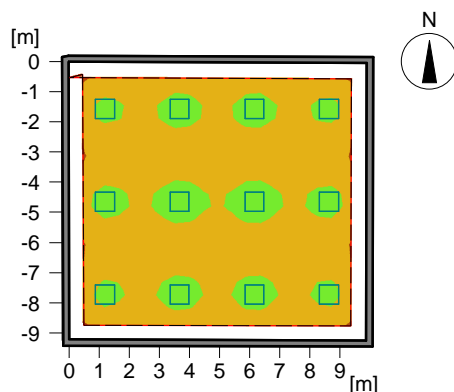
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## Salla e siminareve

### Summary, Salla e siminareve

#### Result overview, Reference plane 1

Field 1



#### General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.75 m
Height of luminaire plane	2.80 m
Maintenance factor	0.80
Total luminous flux of all lamps	48240 lm
Total power	435.6 W
Total power per area (91.19 m²)	4.78 W/m² (1.10 W/m²/100lx)

#### Illuminance

Average illuminance	Eav	436 lx
Minimum illuminance	Emin	314 lx
Maximum illuminance	Emax	594 lx
Uniformity g1	Emin/Em	1:1.39 (0.72)
Uniformity g2	Emin/Emax	1:1.89 (0.53)

#### Type No.\Make

1	12	<b>OSRAM</b>	
		Order No.	: 0MQ111D24W1
		Luminaire name	: APOLLON®
		Equipment	: 1 x LED 4000K / CRI >= 80 36 W / 4020 lm

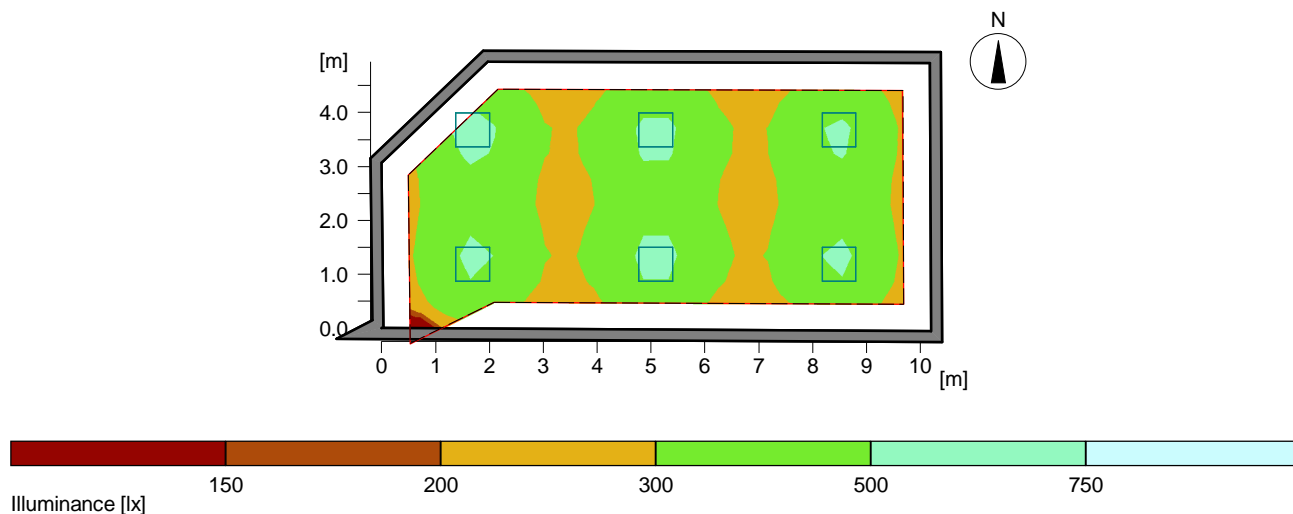
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## Zyre

### Summary, Zyre

#### Result overview, Reference plane 1

Field 1



#### General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.75 m
Height of luminaire plane	2.80 m
Maintenance factor	0.80
Total luminous flux of all lamps	24120 lm
Total power	217.8 W
Total power per area (48.63 m²)	4.48 W/m² (1.17 W/m²/100lx)

#### Illuminance

Average illuminance	Eav	381 lx
Minimum illuminance	Emin	0 lx
Maximum illuminance	Emax	542 lx
Uniformity g1	Emin/Em	1:--- (---)
Uniformity g2	Emin/Emax	1:--- (---)

#### Type No.\Make

1	6	<b>OSRAM</b>
		Order No. : 0MQ111D24W1
		Luminaire name : APOLLON®
		Equipment : 1 x LED 4000K / CRI >= 80 36 W / 4020 lm

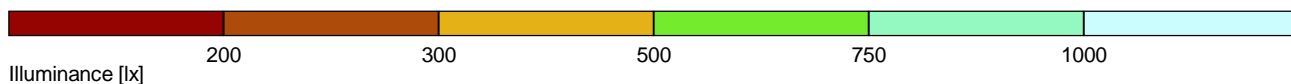
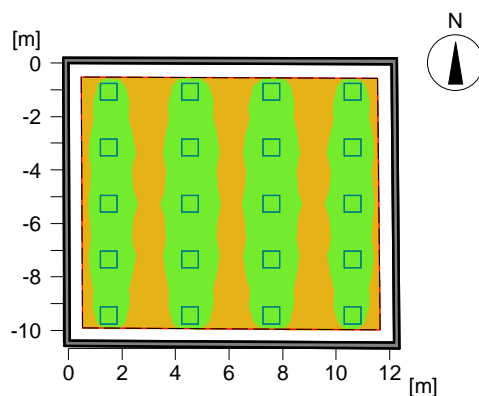
Object : Qendra Kultures Viti  
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## Bibloteka

### Summary, Bibloteka

#### Result overview, Reference plane 1

Field 1



#### General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.75 m
Height of luminaire plane	2.80 m
Maintenance factor	0.80
Total luminous flux of all lamps	80400 lm
Total power	726 W
Total power per area (125.76 m²)	5.77 W/m² (1.09 W/m²/100lx)

#### Illuminance

Average illuminance	Eav	529 lx
Minimum illuminance	Emin	375 lx
Maximum illuminance	Emax	686 lx
Uniformity g1	Emin/Em	1:1.41 (0.71)
Uniformity g2	Emin/Emax	1:1.83 (0.55)

#### Type No.\Make

1	20	<b>OSRAM</b>
		Order No. : 0MQ111D24W1
		Luminaire name : APOLLON®
		Equipment : 1 x LED 4000K / CRI >= 80 36 W / 4020 lm

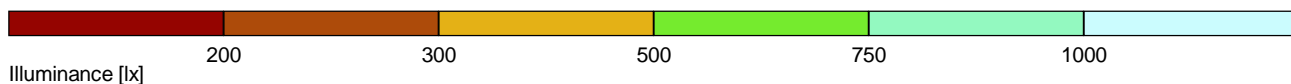
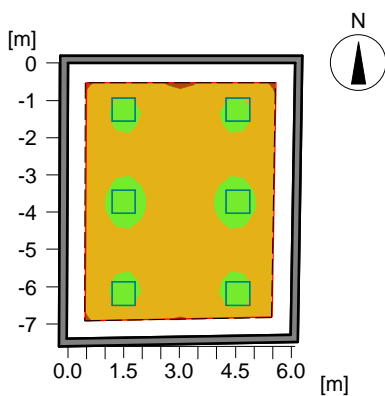
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Date : 16.06.2019

## Zyre

### Summary, Zyre

#### Result overview, Reference plane 1

Field 1



#### General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.75 m
Height of luminaire plane	2.80 m
Maintenance factor	0.80
Total luminous flux of all lamps	24120 lm
Total power	217.8 W
Total power per area (44.50 m <sup>2</sup> )	4.89 W/m <sup>2</sup> (1.15 W/m <sup>2</sup> /100lx)

#### Illuminance

Average illuminance	Eav	426 lx
Minimum illuminance	Emin	299 lx
Maximum illuminance	Emax	568 lx
Uniformity g1	Emin/Em	1:1.43 (0.7)
Uniformity g2	Emin/Emax	1:1.9 (0.53)

#### Type No.\Make

1	6	<b>OSRAM</b>	
		Order No.	: 0MQ111D24W1
		Luminaire name	: APOLLON®
		Equipment	: 1 x LED 4000K / CRI >= 80 36 W / 4020 lm

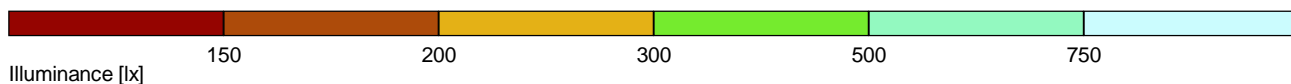
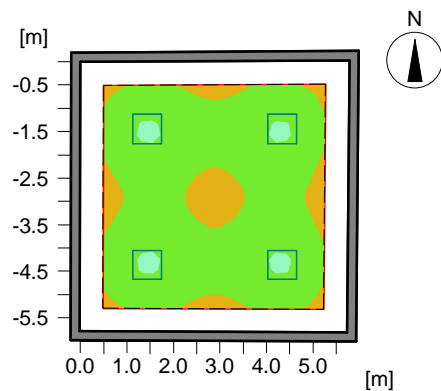
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## Zyre

### Summary, Zyre

#### Result overview, Reference plane 1

Field 1



#### General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.75 m
Height of luminaire plane	2.80 m
Maintenance factor	0.80
Total luminous flux of all lamps	16080 lm
Total power	145.2 W
Total power per area (33.51 m²)	4.33 W/m² (1.16 W/m²/100lx)

#### Illuminance

Average illuminance	Eav	374 lx
Minimum illuminance	Emin	232 lx
Maximum illuminance	Emax	515 lx
Uniformity g1	Emin/Em	1:1.61 (0.62)
Uniformity g2	Emin/Emax	1:2.22 (0.45)

#### Type No.\Make

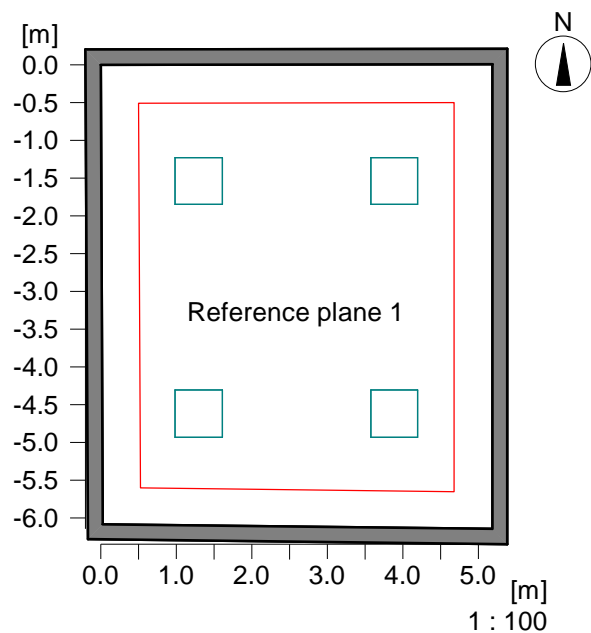
1	4	<b>OSRAM</b>
		Order No. : 0MQ111D24W1
		Luminaire name : APOLLON®
		Equipment : 1 x LED 4000K / CRI >= 80 36 W / 4020 lm

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## Zyre

### Description, Zyre

#### Floor plan



Wall	x	y	Length	Reflectance	Structural elements
1	187.95 m	8.22 m	6.08 m	50.0 %	Pi : Pillar
2	193.10 m	8.16 m	5.15 m	50.0 %	Tr : Partition
3	193.10 m	14.31 m	6.15 m	50.0 %	Wo : Real working surface
4	187.92 m	14.30 m	5.18 m	50.0 %	m : Virtual measuring area
Floor				20.0 %	S : Skylight
Ceiling				70.0 %	W : Picture
Room height		2.80 m			Wi : Window
Height of reference plane		0.75 m			DF : Door
					F : Furniture



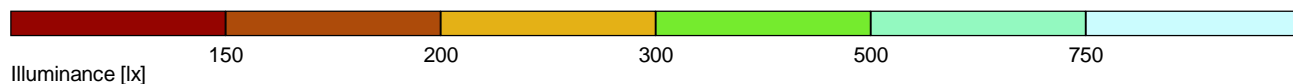
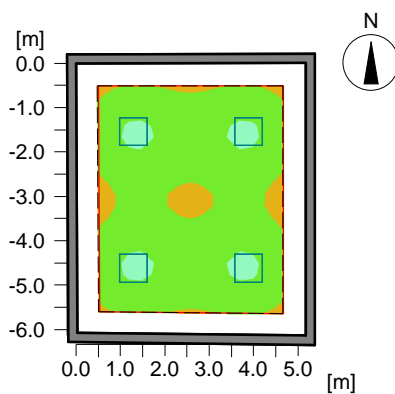
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## Zyre

### Summary, Zyre

#### Result overview, Reference plane 1

Field 1



#### General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.75 m
Height of luminaire plane	2.80 m
Maintenance factor	0.80
Total luminous flux of all lamps	16080 lm
Total power	145.2 W
Total power per area (31.59 m²)	4.60 W/m² (1.17 W/m²/100lx)

#### Illuminance

Average illuminance	Eav	394 lx
Minimum illuminance	Emin	265 lx
Maximum illuminance	Emax	524 lx
Uniformity g1	Emin/Em	1:1.49 (0.67)
Uniformity g2	Emin/Emax	1:1.98 (0.51)

#### Type No.\Make

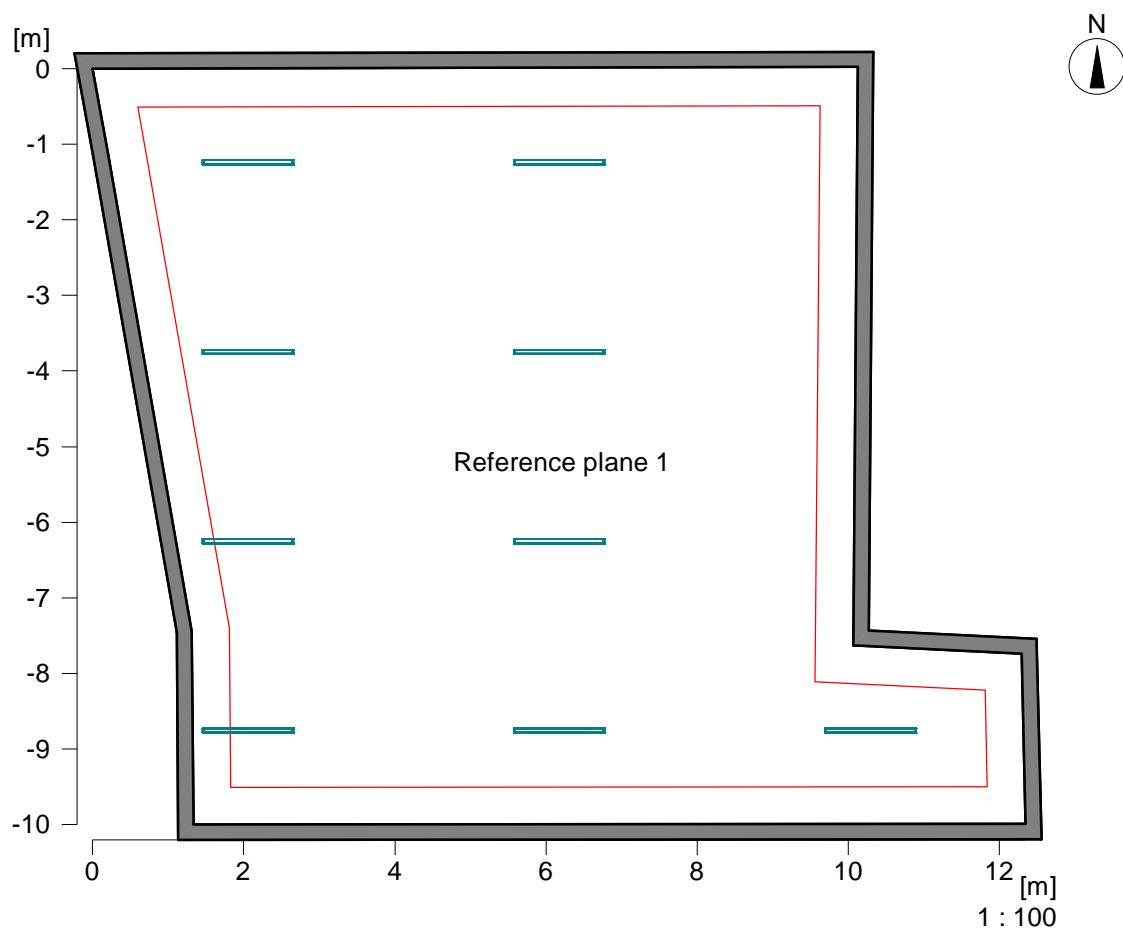
1	4	<b>OSRAM</b>
		Order No. : 0MQ111D24W1
		Luminaire name : APOLLON®
		Equipment : 1 x LED 4000K / CRI >= 80 36 W / 4020 lm

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## Ngrohje klimatizim

### Description, Ngrohje klimatizim

#### Floor plan



#### Structural elements

Pi : Pillar  
Tr : Partition  
Wo : Real working surface  
m : Virtual measuring area  
S : Skylight  
W : Picture  
Wi : Window  
DF : Door  
F : Furniture

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## Ngrohje klimatizim

### Description, Ngrohje klimatizim

#### Floor plan

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Wall	x	y	Length	Reflectance
1	176.87 m	25.44 m	1.13 m	50.0 %
2	177.98 m	19.11 m	6.43 m	50.0 %
3	178.00 m	16.55 m	2.56 m	50.0 %
4	189.01 m	16.56 m	11.01 m	50.0 %
5	188.96 m	18.82 m	2.26 m	50.0 %
6	186.73 m	18.93 m	2.23 m	50.0 %
7	186.79 m	26.57 m	7.65 m	50.0 %
8	176.67 m	26.55 m	10.13 m	50.0 %
Floor				20.0 %
Ceiling				70.0 %
Room height		2.80 m		
Height of reference plane		0.75 m		

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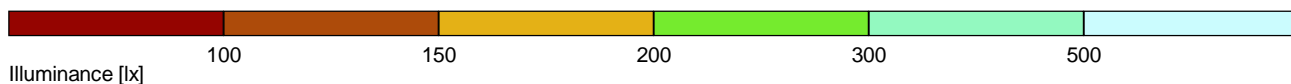
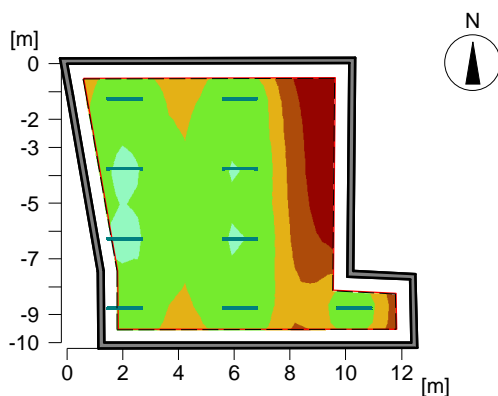
Object : Qendra Kultures Viti  
 Installation : PHOTOMETRIC CALCULATION  
 Project number : #1  
 Date : 16.06.2019

## Ngrohje klimatizim

### Summary, Ngrohje klimatizim

#### Result overview, Reference plane 1

Field 1



#### General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.75 m
Height of luminaire plane	2.80 m
Maintenance factor	0.80
Total luminous flux of all lamps	36000 lm
Total power	324 W
Total power per area (97.89 m²)	3.31 W/m² (1.52 W/m²/100lx)

#### Illuminance

Average illuminance	Eav	217 lx
Minimum illuminance	Emin	56 lx
Maximum illuminance	Emax	329 lx
Uniformity g1	Emin/Em	1:3.88 (0.26)
Uniformity g2	Emin/Emax	1:5.89 (0.17)

#### Type No. \Make

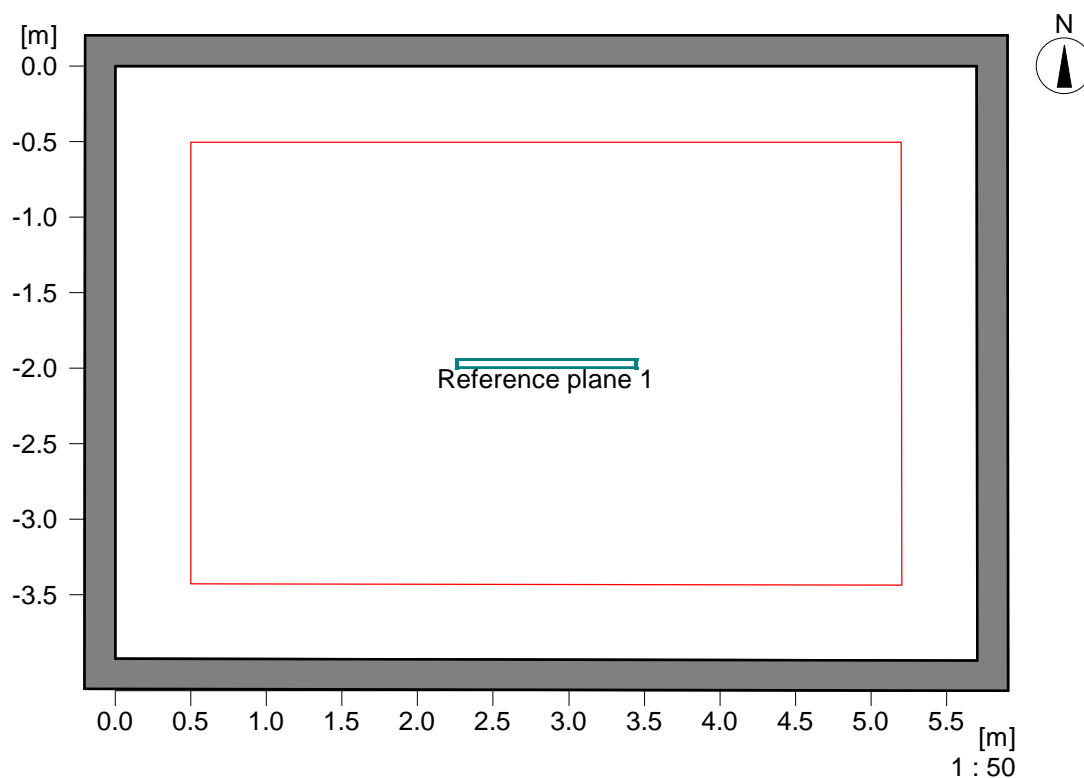
2	9	<b>OSRAM</b>
		Order No. : 0LJ311730830
		Luminaire name : ECOPACK® LED
		Equipment : 1 x LED 3000K / CRI >= 80 36 W / 4000 lm

Object : Qendra Kultures Viti  
 Installation : PHOTOMETRIC CALCULATION  
 Project number : #1  
 Date : 16.06.2019

## Depo

### Description, Depo

#### Floor plan



Wall	x	y	Length	Reflectance	Structural elements
1	177.79 m	41.79 m	3.92 m	50.0 %	Pi : Pillar
2	183.50 m	41.78 m	5.71 m	50.0 %	Tr : Partition
3	183.50 m	45.71 m	3.93 m	50.0 %	Wo : Real working surface
4	177.80 m	45.71 m	5.70 m	50.0 %	m : Virtual measuring area
Floor				20.0 %	S : Skylight
Ceiling				70.0 %	W : Picture
Room height		2.80 m			Wi : Window
Height of reference plane		0.75 m			DF : Door
					F : Furniture

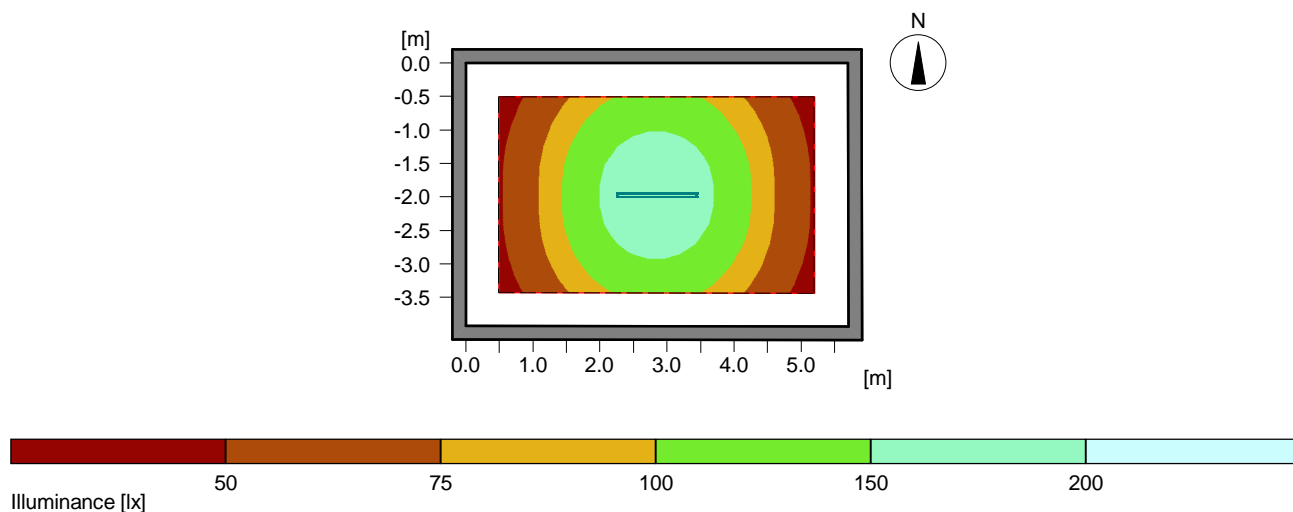
Object : Qendra Kultures Viti  
Installation : PHOTOMETRIC CALCULATION  
Project number : #1  
Date : 16.06.2019

## Depo

### Summary, Depo

#### Result overview, Reference plane 1

Field 1



#### General

Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.75 m
Height of luminaire plane	2.80 m
Maintenance factor	0.80
Total luminous flux of all lamps	4000 lm
Total power	36 W
Total power per area (22.40 m²)	1.61 W/m² (1.51 W/m²/100lx)

#### Illuminance

Average illuminance	Eav	106 lx
Minimum illuminance	Emin	45 lx
Maximum illuminance	Emax	196 lx
Uniformity g1	Emin/Em	1:2.38 (0.42)
Uniformity g2	Emin/Emax	1:4.4 (0.23)

#### Type No.\Make

		<b>OSRAM</b>	
2	1	Order No.	: 0LJ311730830
		Luminaire name	: ECOPACK® LED
		Equipment	: 1 x LED 3000K / CRI >= 80 36 W / 4000 lm

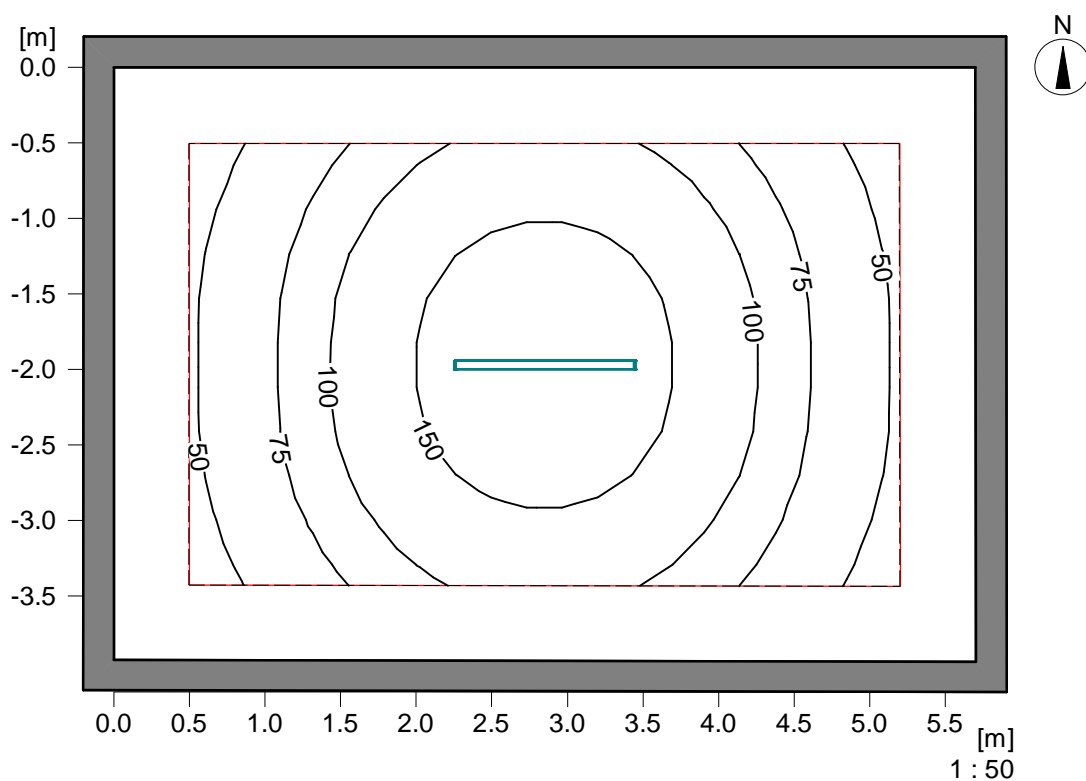
Object : Qendra Kultures Viti  
Installation : PHOTOMETRIC CALCULATION  
Project number : #1  
Date : 16.06.2019

## Depo

### Calculation results, Depo

#### Isolines representation, Reference plane 1 (E)

Field 1



Illuminance [lx]

Height of the reference plane	: 0.75 m
Average illuminance	Eav : 106 lx
Minimum illuminance	Emin : 45 lx
Maximum illuminance	Emax : 196 lx
Uniformity g1	Emin/Eav : 1 : 2.38 (0.42)
Uniformity g2	Emin/Emax : 1 : 4.40 (0.23)