

Classroom

Installation : Lighting

Project number : School - Malisheve

Customer : European Commission

Processed by : Urban Plus

Date : 29.03.2014

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.

1 Luminaire data

1.1 Siteco, Siteco® Rasterleuchte Plus (5LP21772C)

1.1.1 Data sheet

Manufacturer: Siteco



5LP21772C linear fluorescent luminaire-ceiling mounted Siteco® Rasterleuchte Plus

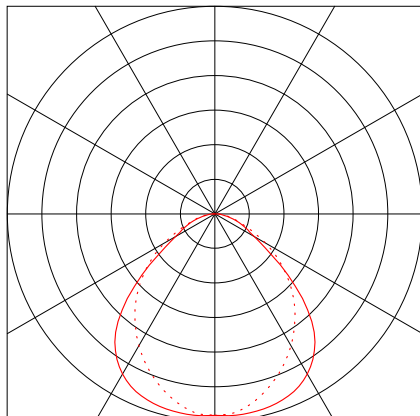
Siteco® louvre luminaire Plus, linear fluorescent luminaire, white, primary anti-glare with louvre, of aluminium, coated, white, light emission: direct distribution, primary light characteristic: symmetric, installation type: surface-mounted, for 2 x T26 36W, control gear: ECG, with terminal, 3-pole, max. 2.5mm², mains connection: 230V, AC, 50Hz, luminaire housing, of sheet steel, coil coated, pure white, length: 1.248 mm, width: 325 mm, height: 87mm, protection rating (complete): IP20, insulation class (complete): insulation class I (protective earthing), certification: CE, ENEC in preparation, protection symbol: F, permissible ambient temperature for indoor applications: <= +25°C, standard: EN 50419, packaging unit: 1 piece,

Luminaire data

Luminaire efficiency	: 67.9%
Luminaire efficacy	: 61.21 lm/W
Classification	: A50 ↓100.0% ↑0.0%
CIE Flux Codes	: 56 87 97 100 68
UGR 4H 8H (20%, 50%, 70%)	
C0 / C90	: 18.7 / 19.3
Control gear	: ECG
System power	: 71 W
Length	: 1247 mm
Width	: 309 mm
Height	: 87 mm

Equipped with

Quantity	: 2
Designation	: T26 36W/840 (OSRAM)
Power	: 36W
Colour	:
Luminous flux	: 3200 lm



1 Luminaire data

1.2 TRILUX, Atirion (Atirion D-L RAV 136 E)

1.2.1 Data sheet

Manufacturer: TRILUX



Atirion D-L RAV 136 E Ceiling surface mounting Atirion

Application areas

Education and training, offices, sales rooms, exhibition spaces, banks and ticket halls, and especially panel and shelf lighting.

Optical system

direct distribution. Wallwasher reflector for asymmetrical luminous intensity distribution. Reflector of high-purity aluminium, highly specular anodised.

Luminaire body

Sheet steel, powder-coated solvent-free. Construction height 75 mm. Colour white (···01). Flat profile design, underside angled at 55°. Luminaires in continuous line design. Please order end caps for individual luminaires or continuous lines separately.

Electrical version

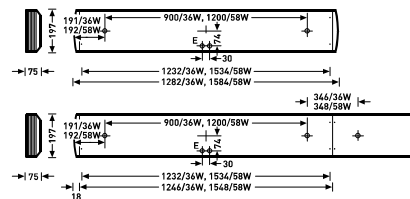
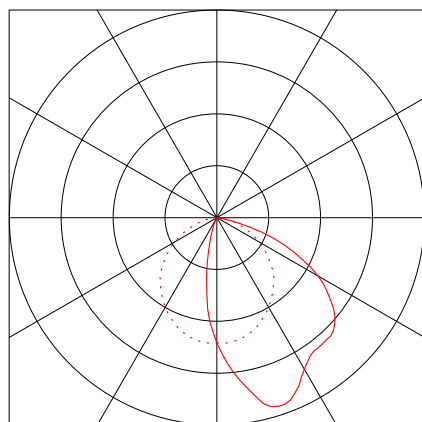
Protection rating IP20. For 1 fluorescent lamp 36 W. With electronic control gear.

Luminaire data

Luminaire efficiency	: 62.3755%
Luminaire efficacy	: 55.44 lm/W
Classification	: A40 ↓100.0% ↑0.0%
CIE Flux Codes	: 47 80 97 100 62
UGR 4H 8H (20%, 50%, 70%)	
C0 / C90	: 26.0 / 23.5
Control gear	: electronic ballast
System power	: 36 W
Length	: 1232 mm
Width	: 197 mm
Height	: 75 mm

Equipped with

Quantity	: 1
Designation	: 36 W
Power	: 36W
Colour	: nw
Luminous flux	: 3200 lm
Colour reproduction	: 1B

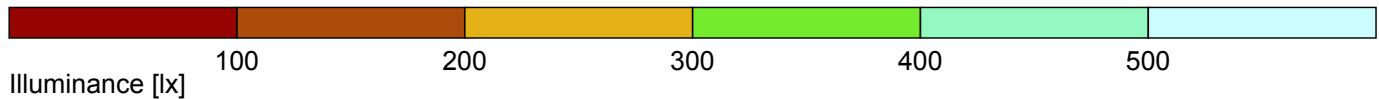
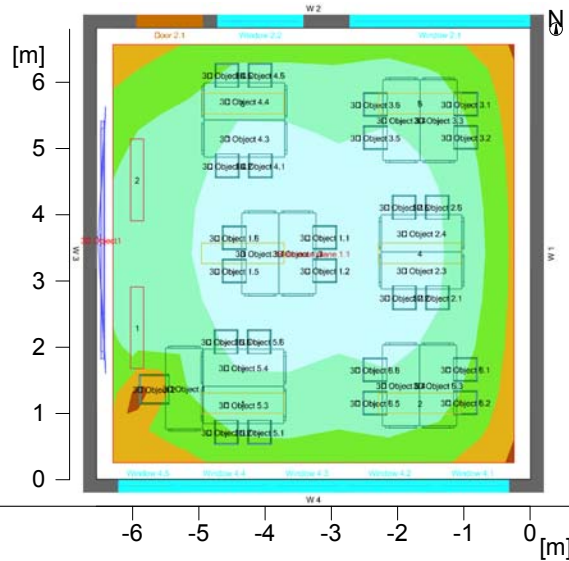


Object : Classroom
 Installation : Lighting
 Project number : School - Malisheve
 Date : 29.03.2014

2 Classroom

2.1 Summary, Classroom

2.1.1 Result overview, Evaluation area 1



General

Calculation algorithm used	Average indirect fraction
Height of luminaire plane	3.20 m
Maintenance factor	0.80
Total luminous flux of all lamps	44800 lm
Total power	498.0 W
Total power per area (44.55 m ²)	11.18 W/m ² (2.48 W/m ² /100lx)

Evaluation area 1

Reference plane 1.1

	Horizontal
Em	450 lx
Emin	158 lx
Emin/Eav (U ₀)	0.35
Emin/Emax (U _d)	0.28
Position	0.75 m

Type No.\Make

	Siteco	
1	6	Order No. : 5LP21772C
		Luminaire name : Siteco® Rasterleuchte Plus
		Equipment : 2 x T26 36W/840 (OSRAM) 36W / 3200 lm

Object : Classroom
Installation : Lighting
Project number : School - Malisheve
Date : 29.03.2014

2 Classroom

2.1 Summary, Classroom

2.1.1 Result overview, Evaluation area 1

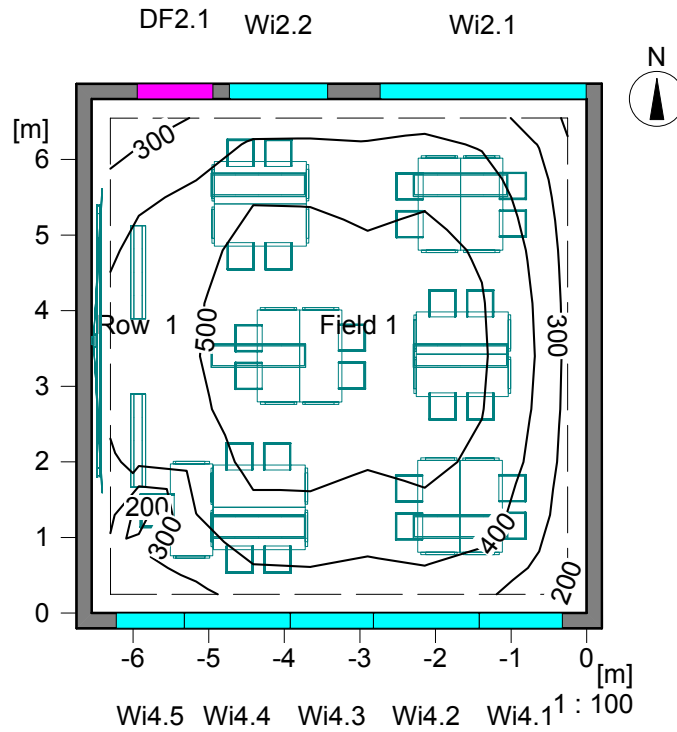
TRILUX

2	2	Order No.	: Atirion D-L RAV 136 E
		Luminaire name	: Atirion
		Equipment	: 1 x 36 W 36W / 3200 lm

2 Classroom

2.2 Calculation results, Classroom

2.2.1 Isolines representation, Reference plane 1.1 (E)



Illuminance [lx]

Height of the reference plane	:	0.75 m
Average illuminance	Eav	: 450 lx
Minimum illuminance	Emin	: 158 lx
Maximum illuminance	Emax	: 564 lx
Uniformity Uo	Emin/Eav	: 1 : 2.84 (0.35)
Diversity Ud	Emin/Emax	: 1 : 3.56 (0.28)

Object : Classroom
Installation : Lighting
Project number : School - Malisheve
Date : 29.03.2014

2.2 Calculation results, Classroom

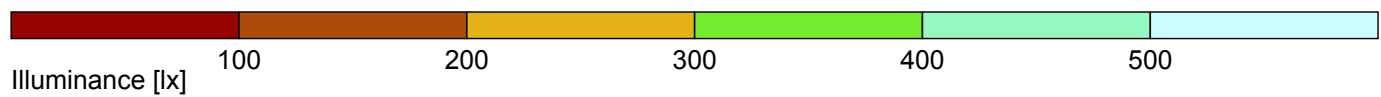
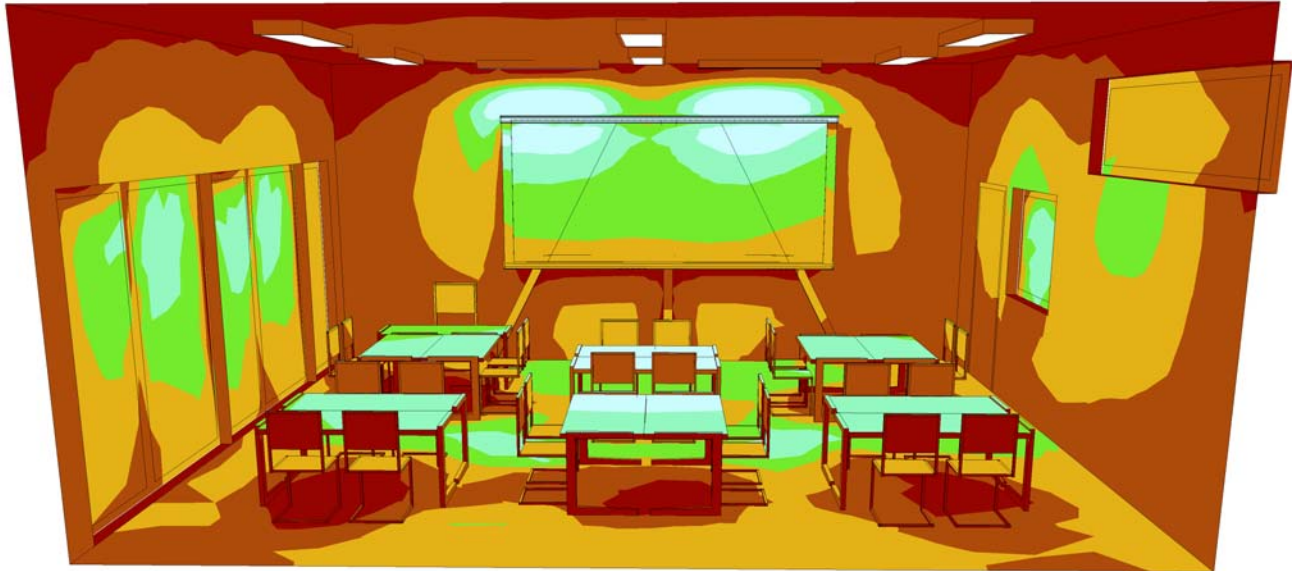
2.2.2 3D luminance, View 1



Luminance in the scene
Minimum: : 0 cd/m²
Maximum: : 208 cd/m²

2.2 Calculation results, Classroom

2.2.3 3D pseudo colours, View 2 (E)



Library

Installation : Lighting

Project number : School - Malisheve

Customer : EU

Processed by : Urban Plus

Date : 05.04.2014

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.

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1 Luminaire data

1.1 Siteco, Siteco® Rasterleuchte Plus (5LP21772C)

1.1.1 Data sheet

Manufacturer: Siteco



5LP21772C linear fluorescent luminaire-ceiling mounted Siteco® Rasterleuchte Plus

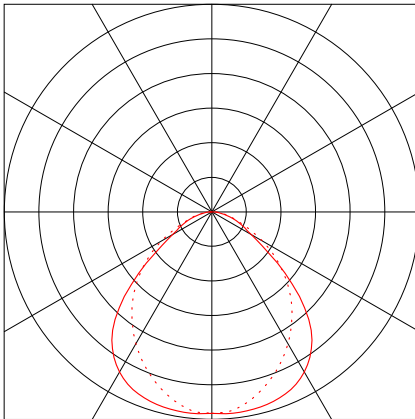
Siteco® louvre luminaire Plus, linear fluorescent luminaire, white, primary anti-glare with louvre, of aluminium, coated, white, light emission: direct distribution, primary light characteristic: symmetric, installation type: surface-mounted, for 2 x T26 36W, control gear: ECG with terminal, 3-pole, max. 2.5mm², mains connection: 230V, AC, 50Hz, luminaire housing, of sheet steel, coil coated, pure white, length: 1.248 mm, width: 325 mm, height: 87mm, protection rating (complete): IP20, insulation class (complete): insulation class I (protective earthing), certification: CE, ENEC in preparation, protection symbol: F, permissible ambient temperature for indoor applications: <= +25°C, standard: EN 50419, packaging unit: 1 piece,

Luminaire data

Luminaire efficiency	: 67.9%
Luminaire efficacy	: 61.21 lm/W
Classification	: A50 ↓100.0% ↑0.0%
CIE Flux Codes	: 56 87 97 100 68
UGR 4H 8H (20%, 50%, 70%)	
C0 / C90	: 18.7 / 19.3
Control gear	: ECG
System power	: 71 W
Length	: 1247 mm
Width	: 309 mm
Height	: 87 mm

Equipped with

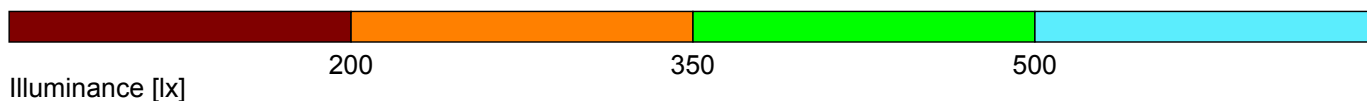
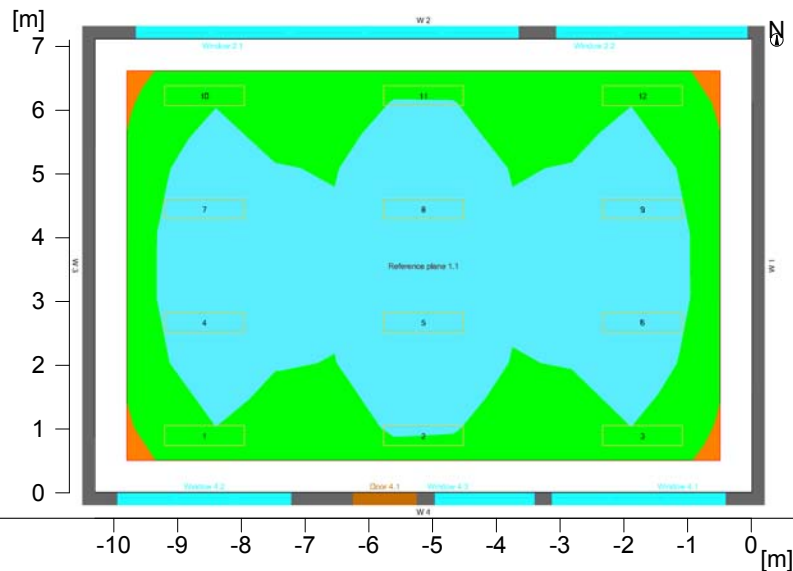
Quantity	: 2
Designation	: T26 36W/840 (OSRAM)
Power	: 36W
Colour	:
Luminous flux	: 3200 lm



2 Library

2.1 Summary, Library

2.1.1 Result overview, Evaluation area 1



General

Calculation algorithm used	Average indirect fraction
Height of luminaire plane	3.20 m
Maintenance factor	0.80
Total luminous flux of all lamps	76800 lm
Total power	852.0 W
Total power per area (73.12 m ²)	11.65 W/m ² (2.27 W/m ² /100lx)

Evaluation area 1

Reference plane 1.1

	Horizontal
Em	513 lx
Emin	410 lx
Emin/Eav (U ₀)	0.80
Emin/Emax (U _d)	0.66
UGR (3.6H 5.3H)	<=19.0
Position	0.75 m

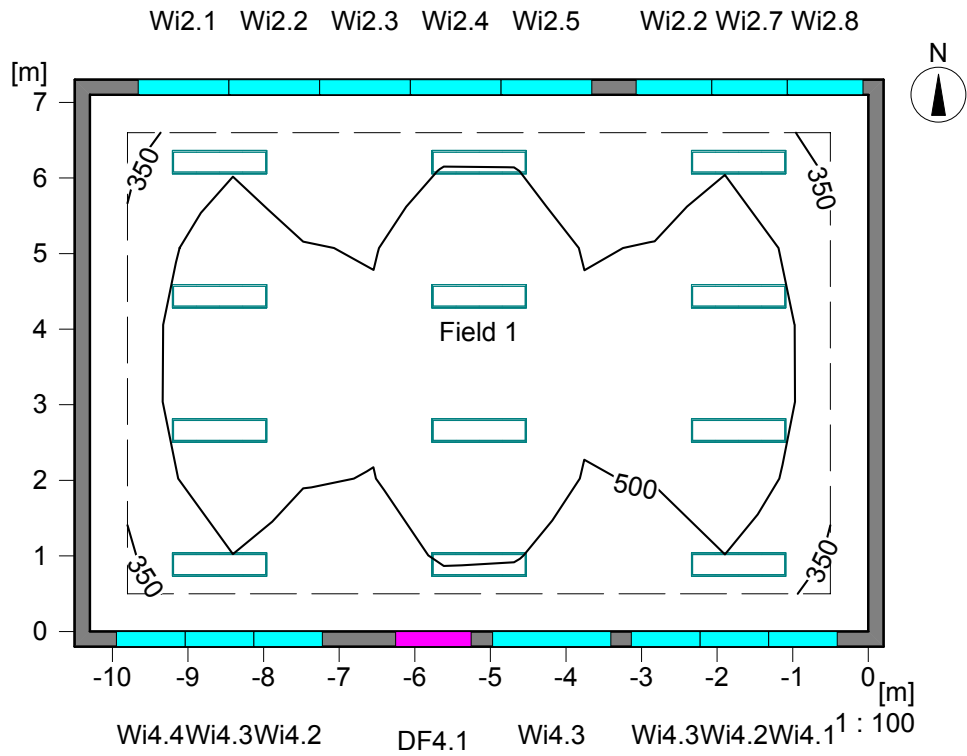
Type No.\Make

	Siteco	
1	Order No.	: 5LP21772C
12	Luminaire name	: Siteco® Rasterleuchte Plus
	Equipment	: 2 x T26 36W/840 (OSRAM) 36W / 3200 lm

2 Library

2.2 Calculation results, Library

2.2.1 Isolines representation, Reference plane 1.1 (E)



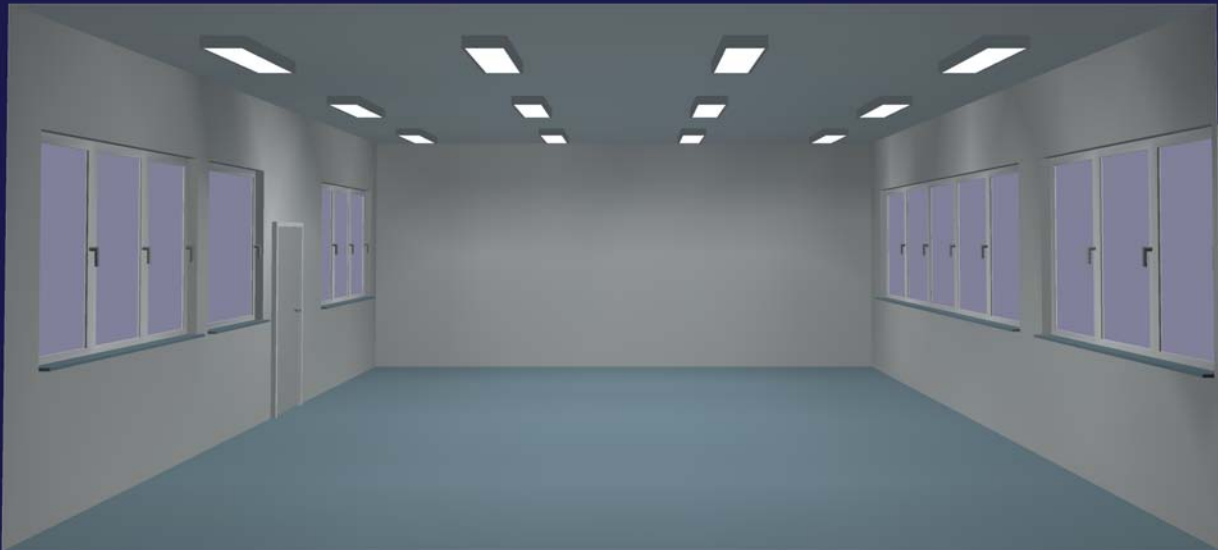
Illuminance [lx]

Height of the reference plane	:	0.75 m
Average illuminance	Eav	: 513 lx
Minimum illuminance	Emin	: 410 lx
Maximum illuminance	Emax	: 618 lx
Uniformity U _o	Emin/Eav	: 1 : 1.25 (0.80)
Diversity U _d	Emin/Emax	: 1 : 1.51 (0.66)

Object : Library
Installation : Lighting
Project number : School - Malisheve
Date : 05.04.2014

2.2 Calculation results, Library

2.2.2 3D luminance, View from the right

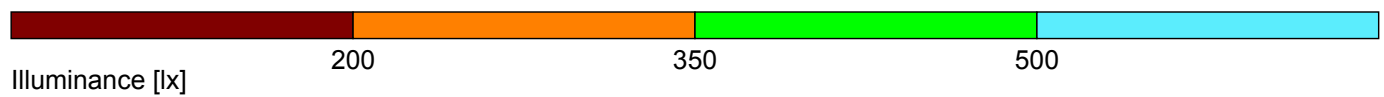
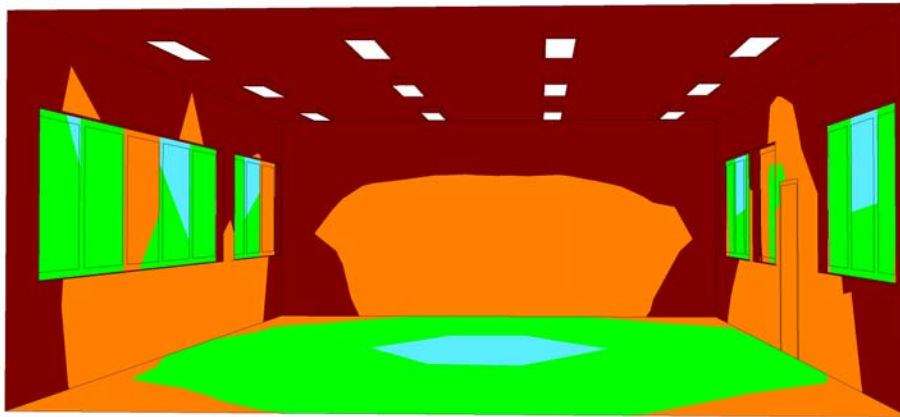


Luminance in the scene

Minimum: : 0 cd/m²
Maximum: : 93.9 cd/m²

2.2 Calculation results, Library

2.2.3 3D pseudo colours, View 3 (E)



Multipurpose Area

Installation : Lighting

Project number : School - Malisheve

Customer : EU

Processed by : Urban Plus

Date : 05.04.2014

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Guarantee claims for luminaire data are excluded.

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1 Luminaire data

1.1 Siteco, Lunis[®] C (5LR21471VA6302)

1.1.1 Data sheet

Manufacturer: Siteco



5LR21471VA6302 downlight-ceiling mounted Lunis[®] C

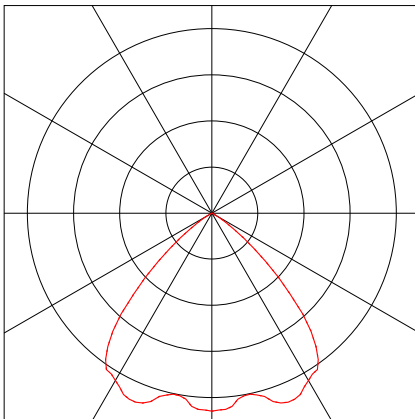
Lunis[®] C, downlight, light control with reflector, of ultra-pure aluminium (Al 99.98%), highly specular, light emission: direct distribution, 1 x TC-TEL 26/32W, control gear: ECG Multiwatt, with terminal, 3-pole, max. 2.5mm², mains connection: 230V, AC, 50Hz, control gear: emergency light element, stand-by operation, battery: NiCd, 2,5 Ah, with terminal, 1-pole, max. 2.5mm², mains connection: 230V, AC, 50Hz, luminaire housing, cylindrical, of sheet steel, coated, pure white (RAL 9010), diameter: 250 mm, protection rating (complete): IP20, insulation class (complete): insulation class I (protective earthing), certification: CE, protection symbol: F, permissible ambient temperature for indoor applications: <= +25°C, standard: EN 50419,

Luminaire data

Luminaire efficiency	: 82.6%
Luminaire efficacy	: 53.1 lm/W
Classification	: A60 ↓100.0% ↑0.0%
CIE Flux Codes	: 77 100 100 100 83
UGR 4H 8H (20%, 50%, 70%)	
C0 / C90	: 18.9 / 18.9
Control gear	: ECG
System power	: 28 W
Diameter	: 250 mm
Height	: 215 mm

Equipped with

Quantity	: 1
Designation	: TC-TELI 26W/840 (Amalgam)
Power	: 26W
Colour	:
Luminous flux	: 1800 lm



1 Luminaire data

1.2 Siteco, Siteco® Rasterleuchte Plus (5LP21772C)

1.2.1 Data sheet

Manufacturer: Siteco



5LP21772C linear fluorescent luminaire-ceiling mounted Siteco® Rasterleuchte Plus

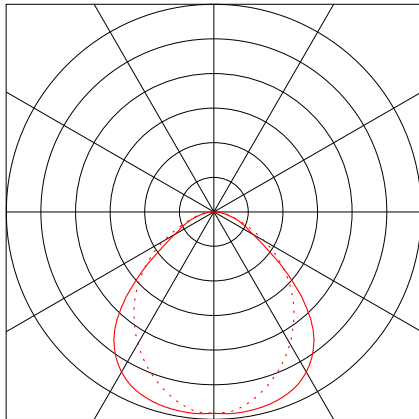
Siteco® louvre luminaire Plus, linear fluorescent luminaire, white, primary anti-glare with louvre, of aluminium, coated, white, light emission: direct distribution, primary light characteristic: symmetric, installation type: surface-mounted, for 2 x T26 36W, control gear: ECG with terminal, 3-pole, max. 2.5mm², mains connection: 230V, AC, 50Hz, luminaire housing, of sheet steel, coil coated, pure white, length: 1.248 mm, width: 325 mm, height: 87mm, protection rating (complete): IP20, insulation class (complete): insulation class I (protective earthing), certification: CE, ENEC in preparation, protection symbol: F, permissible ambient temperature for indoor applications: <= +25°C, standard: EN 50419, packaging unit: 1 piece,

Luminaire data

Luminaire efficiency	: 67.9%
Luminaire efficacy	: 61.21 lm/W
Classification	: A50 ↓100.0% ↑0.0%
CIE Flux Codes	: 56 87 97 100 68
UGR 4H 8H (20%, 50%, 70%)	
C0 / C90	: 18.7 / 19.3
Control gear	: ECG
System power	: 71 W
Length	: 1247 mm
Width	: 309 mm
Height	: 87 mm

Equipped with

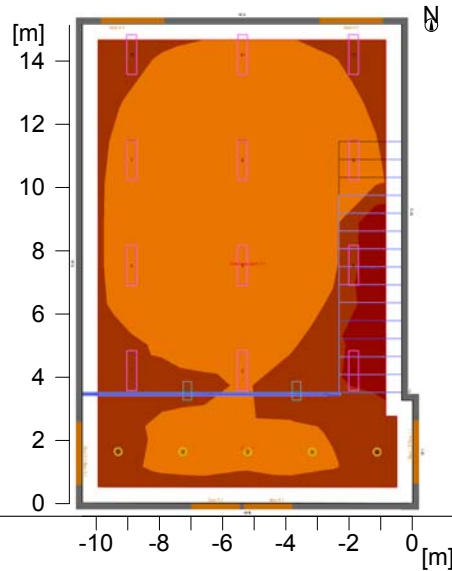
Quantity	: 2
Designation	: T26 36W/840 (OSRAM)
Power	: 36W
Colour	:
Luminous flux	: 3200 lm



2 Main Hall

2.1 Summary, Main Hall

2.1.1 Result overview, Evaluation area 1



General

Calculation algorithm used	Average indirect fraction
Maintenance factor	0.80
Total luminous flux of all lamps	94800 lm
Total power	1132.0 W
Total power per area (153.96 m ²)	7.35 W/m ² (3.54 W/m ² /100lx)

Evaluation area 1

Reference plane 1.1

	Horizontal
Em	208 lx
Emin	15 lx
Emin/Eav (U ₀)	0.07
Emin/Emax (U _d)	0.06
Position	0.75 m (rot: 0°/0.05°)

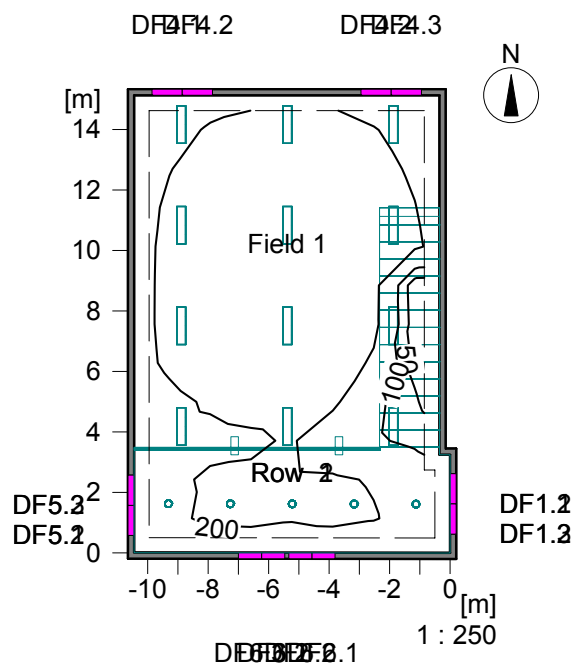
Type No.\Make

	Siteco	
1	10	Order No. : 5LR21471VA6302
		Luminaire name : Lunis@ C
		Equipment : 1 x TC-TELI 26W/840 (Amalgam) (OSRAM) 26W / 1800 lm
2	12	Order No. : 5LP21772C
		Luminaire name : Siteco@ Rasterleuchte Plus
		Equipment : 2 x T26 36W/840 (OSRAM) 36W / 3200 lm

2 Main Hall

2.2 Calculation results, Main Hall

2.2.1 Isolines representation, Reference plane 1.1 (E)



Illuminance [lx]

Average illuminance	Eav	: 208 lx
Minimum illuminance	Emin	: 15 lx
Maximum illuminance	E _{max}	: 270 lx
Uniformity U _o	E _{min} /E _{av}	: 1 : 13.83 (0.07)
Diversity U _d	E _{min} /E _{max}	: 1 : 18.00 (0.06)

2.2 Calculation results, Main Hall

2.2.2 3D luminance, View 1



Luminance in the scene

Minimum: : 0 cd/m²
Maximum: : 87.9 cd/m²

2.2 Calculation results, Main Hall

2.2.3 3D pseudo colours, View 2 (E)

