

Ranna tee valgustusarvutus

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Ranna tee · Alternative 1

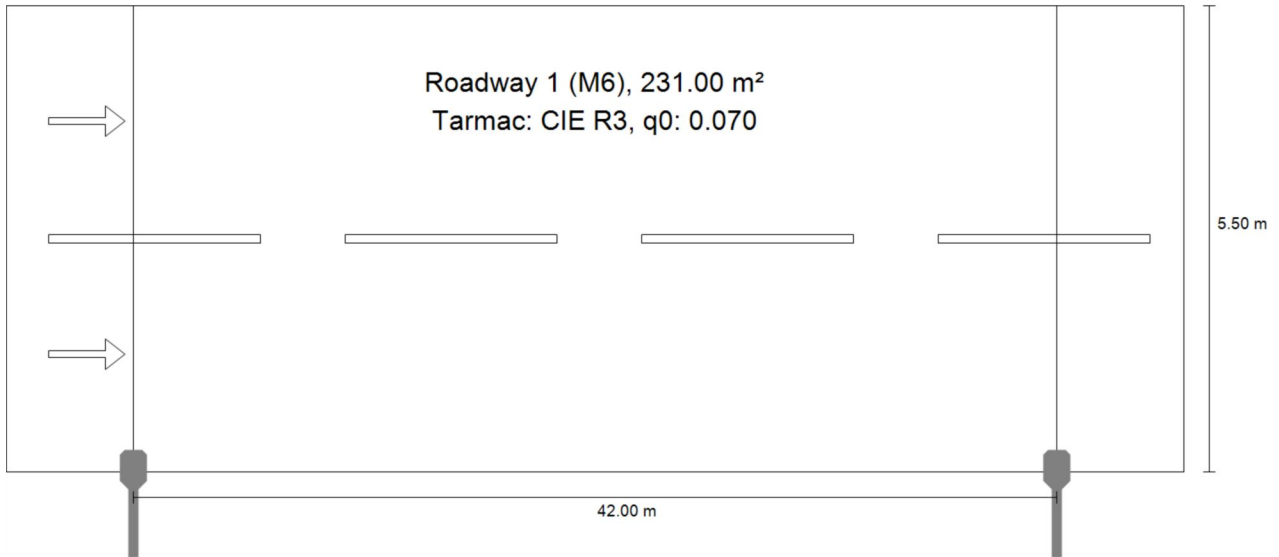
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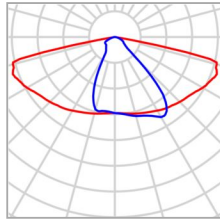
Ranna tee

Summary (according to EN 13201:2015)



Ranna tee

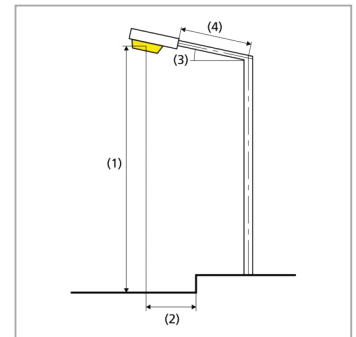
Summary (according to EN 13201:2015)



Manufacturer	Philips	P	18.4 W
Article name	BGP281 T25 DN10 /730	Φ_{Lamp}	2700 lm
Fitting	1x LED27-4S/730	$\Phi_{\text{Luminaire}}$	2424 lm
		η	89.79 %

BGP281 T25 DN10 /730 (single side bottom)

Pole distance	42.000 m
(1) Light spot height	8.000 m
(2) Light point overhang	0.000 m
(3) Boom inclination	0.0°
(4) Boom length	1.000 m
Annual operating hours	4000 h: 100.0 %, 18.4 W
Wattage / route	441.6 W/km
ULR / ULOR	0.00 / 0.00
Max. luminous intensities Any direction forming the specified angle from the downward vertical, with the luminaire installed for use.	$\geq 70^\circ$: 633 cd/klm $\geq 80^\circ$: 136 cd/klm $\geq 90^\circ$: 0.00 cd/klm
Luminous intensity class The luminous intensity values in [cd/klm] for calculation of the luminous intensity class refer to the luminaire luminous flux according to EN 13201:2015.	G*2
Glare index class	D.6
MF	0.80



Ranna tee

Summary (according to EN 13201:2015)

Results for valuation fields

A maintenance factor of 0.80 was used for calculating for the installation.

	Symbol	Calculated	Target	Check
Roadway 1 (M6)	L_{av}	0.30 cd/m ²	≥ 0.30 cd/m ²	✓
	U_o	0.44	≥ 0.35	✓
	U_l	0.70	≥ 0.40	✓
	TI	12 %	≤ 20 %	✓
	R_{EI}	0.54	≥ 0.30	✓

Results for energy efficiency indicators

	Symbol	Calculated	Energy Consumption
Ranna tee	D_p	0.020 W/lx*m ²	-
BGP281 T25 DN10 /730 (single side bottom)	D_e	0.3 kWh/m ² yr	73.6 kWh/yr

Ranna tee

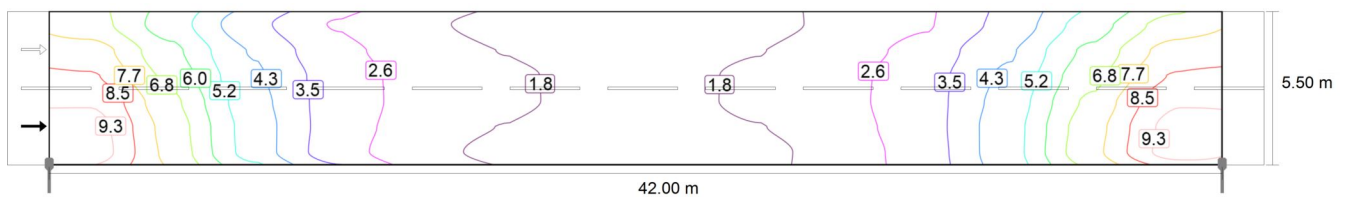
Roadway 1 (M6)

Results for valuation field

	Symbol	Calculated	Target	Check
Roadway 1 (M6)	L_{av}	0.30 cd/m ²	≥ 0.30 cd/m ²	✓
	U_o	0.44	≥ 0.35	✓
	U_l	0.70	≥ 0.40	✓
	TI	12 %	≤ 20 %	✓
	R_{El}	0.54	≥ 0.30	✓

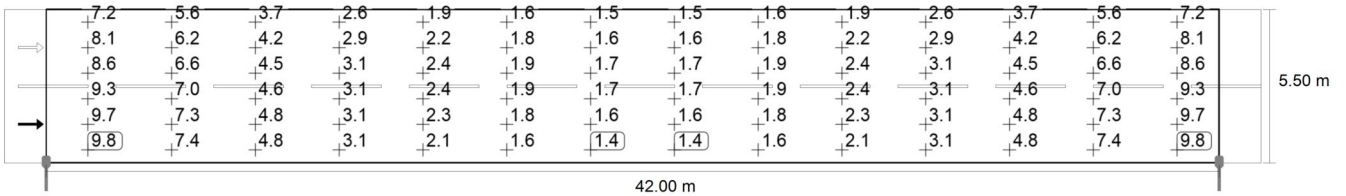
Results for observer

	Symbol	Calculated	Target	Check
Observer 1 Position: -60.000 m, 1.375 m, 1.500 m	L_{av}	0.30 cd/m ²	≥ 0.30 cd/m ²	✓
	U_o	0.44	≥ 0.35	✓
	U_l	0.70	≥ 0.40	✓
	TI	12 %	≤ 20 %	✓
Observer 2 Position: -60.000 m, 4.125 m, 1.500 m	L_{av}	0.32 cd/m ²	≥ 0.30 cd/m ²	✓
	U_o	0.46	≥ 0.35	✓
	U_l	0.74	≥ 0.40	✓
	TI	8 %	≤ 20 %	✓



Maintenance value, horizontal illuminance [lx] (Iso-illuminance curves)

Ranna tee Roadway 1 (M6)

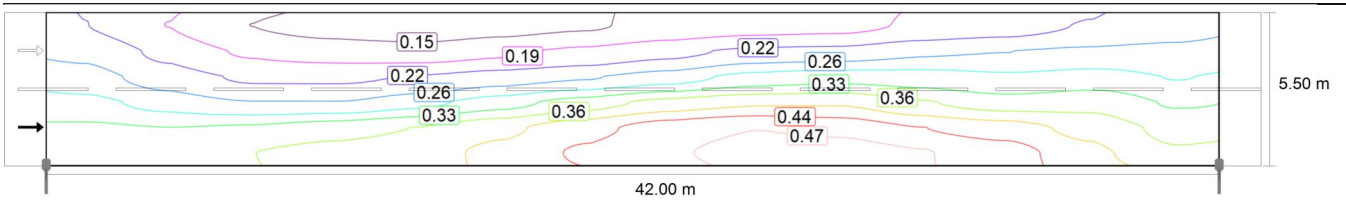


Maintenance value, horizontal illuminance [lx] (Value grid)

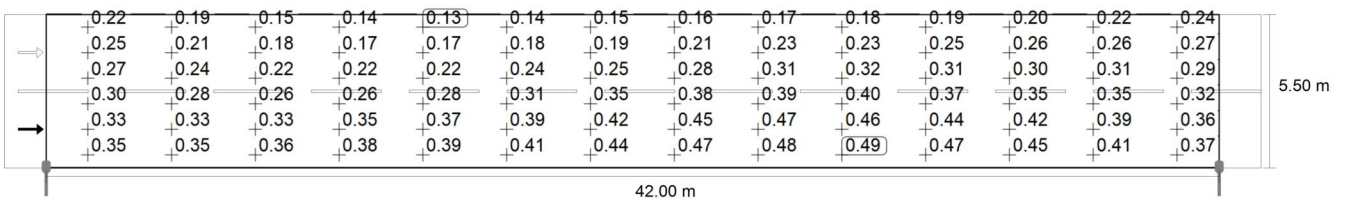
m	1.500	4.500	7.500	10.500	13.500	16.500	19.500	22.500	25.500	28.500	31.500	34.500	37.500	40.500
5.042	7.24	5.59	3.73	2.58	1.94	1.61	1.48	1.48	1.61	1.94	2.58	3.73	5.59	7.24
4.125	8.05	6.20	4.24	2.93	2.20	1.79	1.61	1.61	1.79	2.20	2.93	4.24	6.20	8.05
3.208	8.60	6.60	4.47	3.13	2.37	1.91	1.70	1.70	1.91	2.37	3.13	4.47	6.60	8.60
2.292	9.28	7.03	4.64	3.14	2.39	1.93	1.69	1.69	1.93	2.39	3.14	4.64	7.03	9.28
1.375	9.68	7.34	4.79	3.12	2.27	1.78	1.57	1.57	1.78	2.27	3.12	4.79	7.34	9.68
0.458	9.76	7.44	4.80	3.06	2.12	1.60	1.39	1.39	1.60	2.12	3.06	4.80	7.44	9.76

Maintenance value, horizontal illuminance [lx] (Value chart)

	E_{av}	E_{min}	E_{max}	g_1	g_2
Maintenance value, horizontal illuminance	4.07 lx	1.39 lx	9.76 lx	0.34	0.14



Observer 1: Maintenance value, luminance with dry roadway [cd/m^2] (Iso-illuminance curves)



Observer 1: Maintenance value, luminance with dry roadway [cd/m^2] (Value grid)

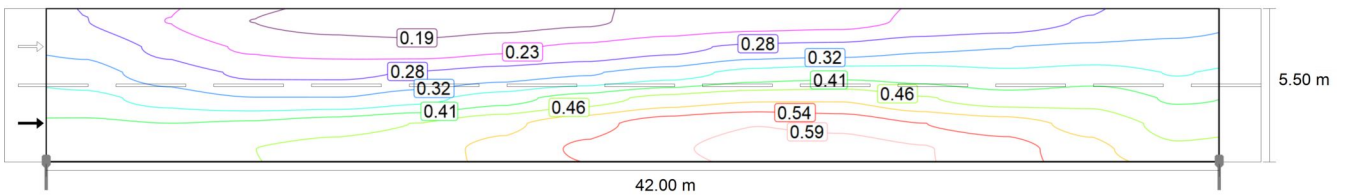
m	1.500	4.500	7.500	10.500	13.500	16.500	19.500	22.500	25.500	28.500	31.500	34.500	37.500	40.500
5.042	0.22	0.19	0.15	0.14	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20	0.22	0.24
4.125	0.25	0.21	0.18	0.17	0.17	0.18	0.19	0.21	0.23	0.23	0.25	0.26	0.26	0.27
3.208	0.27	0.24	0.22	0.22	0.22	0.24	0.25	0.28	0.31	0.32	0.31	0.30	0.31	0.29
2.292	0.30	0.28	0.26	0.26	0.28	0.31	0.35	0.38	0.39	0.40	0.37	0.35	0.35	0.32

Ranna tee Roadway 1 (M6)

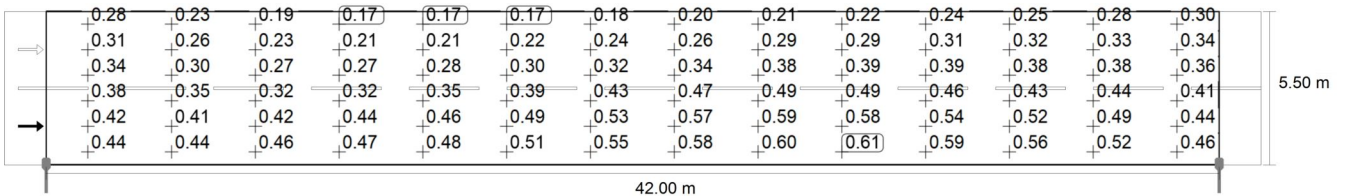
m	1.500	4.500	7.500	10.500	13.500	16.500	19.500	22.500	25.500	28.500	31.500	34.500	37.500	40.500
1.375	0.33	0.33	0.33	0.35	0.37	0.39	0.42	0.45	0.47	0.46	0.44	0.42	0.39	0.36
0.458	0.35	0.35	0.36	0.38	0.39	0.41	0.44	0.47	0.48	0.49	0.47	0.45	0.41	0.37

Observer 1: Maintenance value, luminance with dry roadway [cd/m^2] (Value chart)

	L_{av}	L_{min}	L_{max}	g_1	g_2
Observer 1: Maintenance value, luminance with dry roadway	0.30 cd/m^2	0.13 cd/m^2	0.49 cd/m^2	0.44	0.27



Observer 1: Luminance with new installation [cd/m^2] (Iso-illuminance curves)



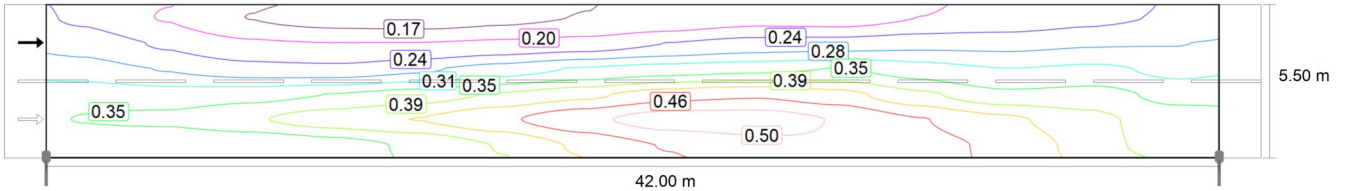
Observer 1: Luminance with new installation [cd/m^2] (Value grid)

m	1.500	4.500	7.500	10.500	13.500	16.500	19.500	22.500	25.500	28.500	31.500	34.500	37.500	40.500
5.042	0.28	0.23	0.19	0.17	0.17	0.17	0.18	0.20	0.21	0.22	0.24	0.25	0.28	0.30
4.125	0.31	0.26	0.23	0.21	0.21	0.22	0.24	0.26	0.29	0.29	0.31	0.32	0.33	0.34
3.208	0.34	0.30	0.27	0.27	0.28	0.30	0.32	0.34	0.38	0.39	0.39	0.38	0.38	0.36
2.292	0.38	0.35	0.32	0.32	0.35	0.39	0.43	0.47	0.49	0.49	0.46	0.43	0.44	0.41
1.375	0.42	0.41	0.42	0.44	0.46	0.49	0.53	0.57	0.59	0.58	0.54	0.52	0.49	0.44
0.458	0.44	0.44	0.46	0.47	0.48	0.51	0.55	0.58	0.60	0.61	0.59	0.56	0.52	0.46

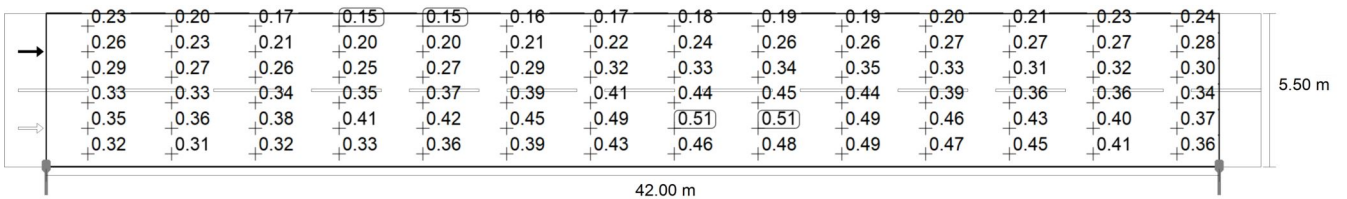
Observer 1: Luminance with new installation [cd/m^2] (Value chart)

	L_{av}	L_{min}	L_{max}	g_1	g_2
Observer 1: Luminance with new installation	0.38 cd/m^2	0.17 cd/m^2	0.61 cd/m^2	0.44	0.27

Ranna tee
Roadway 1 (M6)



Observer 2: Maintenance value, luminance with dry roadway [cd/m^2] (Iso-illuminance curves)

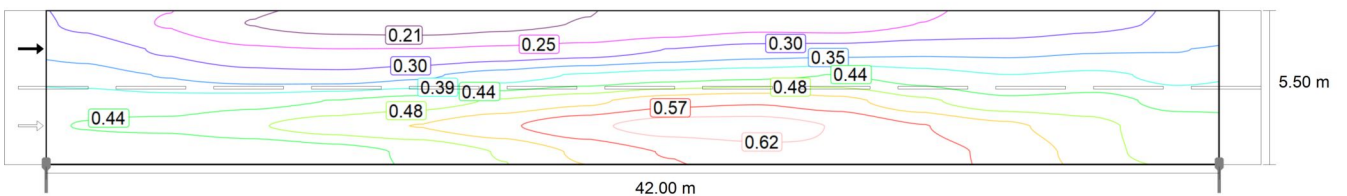


Observer 2: Maintenance value, luminance with dry roadway [cd/m^2] (Value grid)

m	1.500	4.500	7.500	10.500	13.500	16.500	19.500	22.500	25.500	28.500	31.500	34.500	37.500	40.500
5.042	0.23	0.20	0.17	0.15	0.15	0.16	0.17	0.18	0.19	0.19	0.20	0.21	0.23	0.24
4.125	0.26	0.23	0.21	0.20	0.20	0.21	0.22	0.24	0.26	0.26	0.27	0.27	0.27	0.28
3.208	0.29	0.27	0.26	0.25	0.27	0.29	0.32	0.33	0.34	0.35	0.33	0.31	0.32	0.30
2.292	0.33	0.33	0.34	0.35	0.37	0.39	0.41	0.44	0.45	0.44	0.39	0.36	0.36	0.34
1.375	0.35	0.36	0.38	0.41	0.42	0.45	0.49	0.51	0.51	0.49	0.46	0.43	0.40	0.37
0.458	0.32	0.31	0.32	0.33	0.36	0.39	0.43	0.46	0.48	0.49	0.47	0.45	0.41	0.36

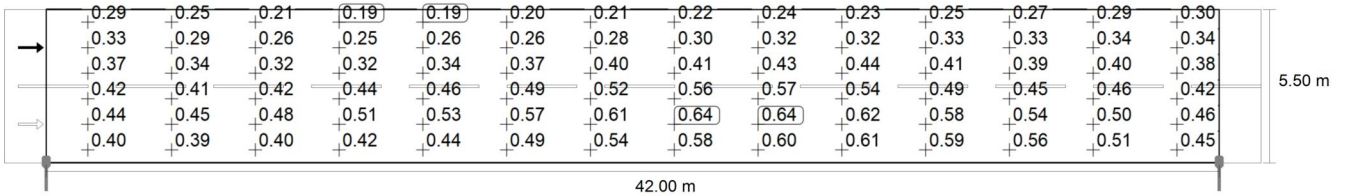
Observer 2: Maintenance value, luminance with dry roadway [cd/m^2] (Value chart)

	L_{av}	L_{min}	L_{max}	g_1	g_2
Observer 2: Maintenance value, luminance with dry roadway	0.32 cd/m^2	0.15 cd/m^2	0.51 cd/m^2	0.46	0.29



Observer 2: Luminance with new installation [cd/m^2] (Iso-illuminance curves)

Ranna tee
Roadway 1 (M6)



Observer 2: Luminance with new installation [cd/m²] (Value grid)

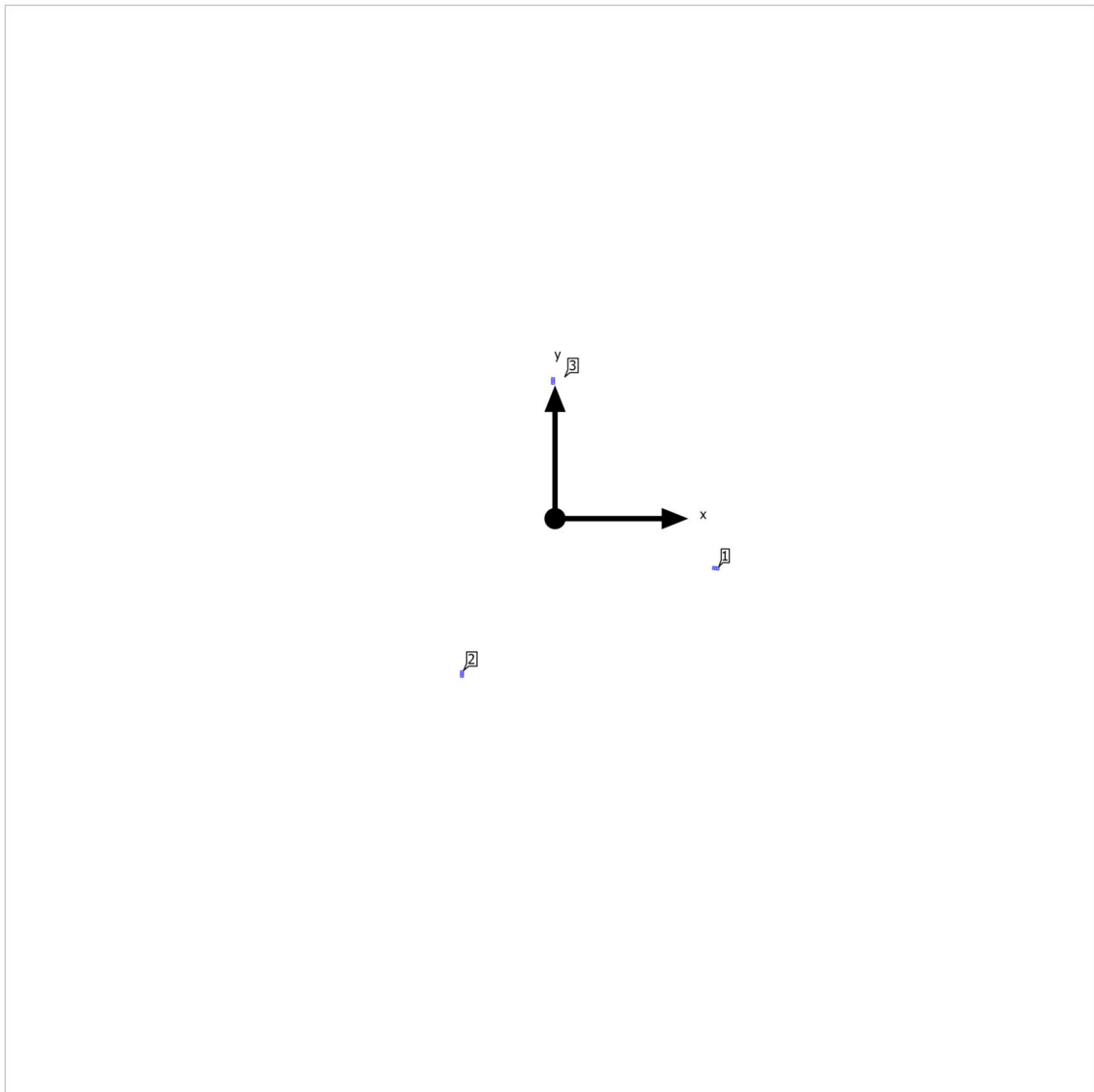
m	1.500	4.500	7.500	10.500	13.500	16.500	19.500	22.500	25.500	28.500	31.500	34.500	37.500	40.500
5.042	0.29	0.25	0.21	0.19	0.19	0.20	0.21	0.22	0.24	0.23	0.25	0.27	0.29	0.30
4.125	0.33	0.29	0.26	0.25	0.26	0.26	0.28	0.30	0.32	0.32	0.33	0.33	0.34	0.34
3.208	0.37	0.34	0.32	0.32	0.34	0.37	0.40	0.41	0.43	0.44	0.41	0.39	0.40	0.38
2.292	0.42	0.41	0.42	0.44	0.46	0.49	0.52	0.56	0.57	0.54	0.49	0.45	0.46	0.42
1.375	0.44	0.45	0.48	0.51	0.53	0.57	0.61	0.64	0.64	0.62	0.58	0.54	0.50	0.46
0.458	0.40	0.39	0.40	0.42	0.44	0.49	0.54	0.58	0.60	0.61	0.59	0.56	0.51	0.45

Observer 2: Luminance with new installation [cd/m²] (Value chart)

	L _{av}	L _{min}	L _{max}	g ₁	g ₂
Observer 2: Luminance with new installation	0.41 cd/m ²	0.19 cd/m ²	0.64 cd/m ²	0.46	0.29

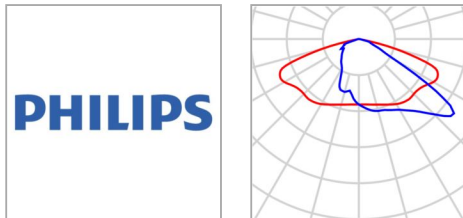
Ringtee

Luminaire layout plan



Ringtee

Luminaire layout plan



Manufacturer	Philips	P	33.5 W
Article name	BGP281 T25 DW10 /730	Φ _{Luminaire}	4247 lm
Fitting	1x LED50-CLO-4S/730		

Individual luminaires

X	Y	Mounting height	Luminaire
13.567 m	-4.190 m	8.000 m	1
-7.850 m	-13.117 m	8.000 m	2
-0.170 m	11.614 m	8.000 m	3

Ringtee

Luminaire list Φ_{total}

12741 lm

 P_{total}

100.5 W

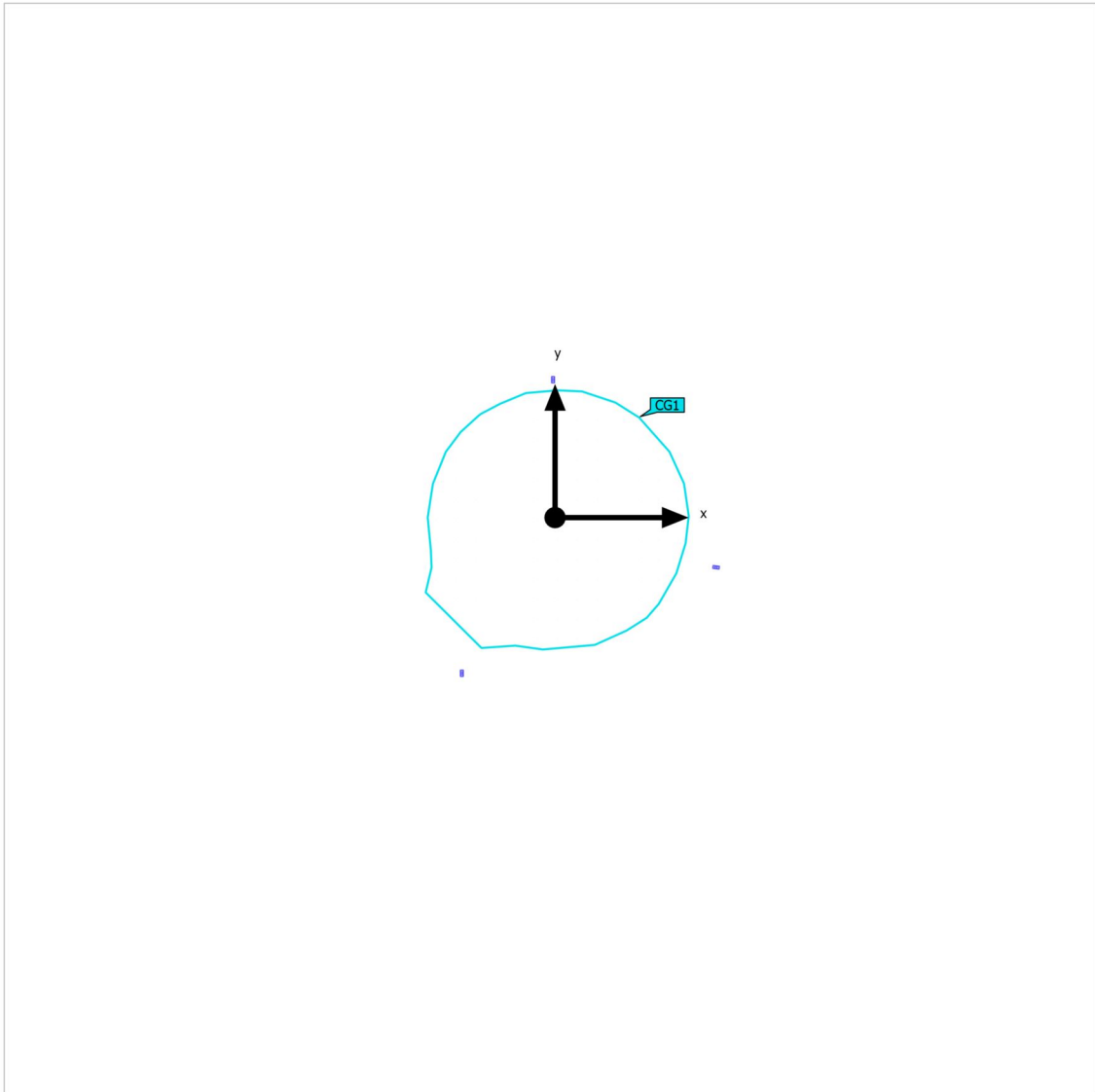
Luminous efficacy

126.8 lm/W

pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
3	Philips		BGP281 T25 DW10 /730	33.5 W	4247 lm	126.8 lm/W

Ringtee (Light scene 1)

Calculation objects



Ringtee (Light scene 1)

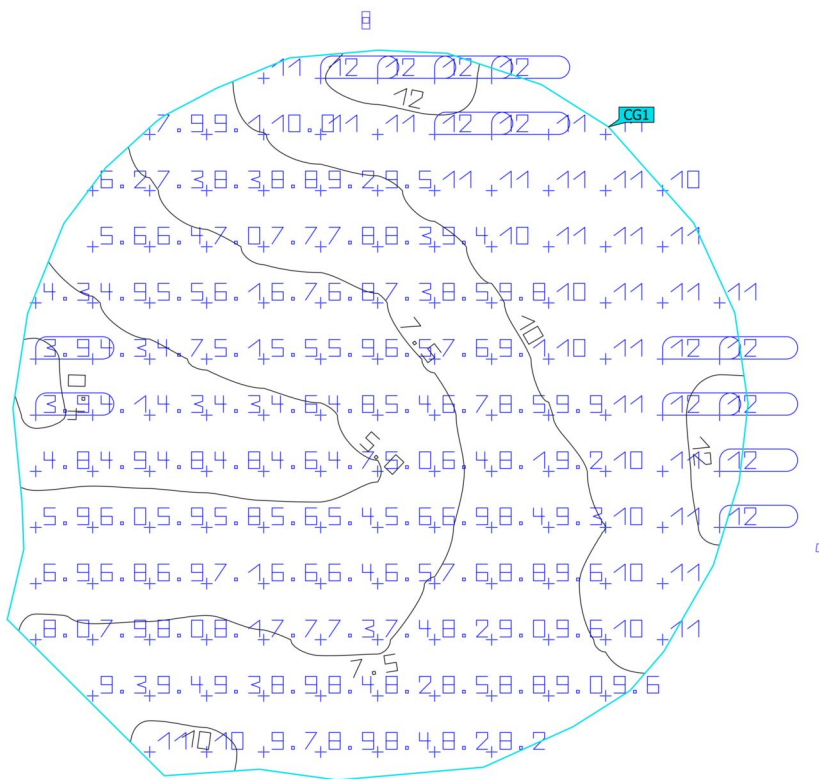
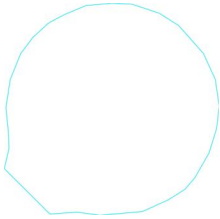
Calculation objects

Calculation surfaces

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2	Index
Ringtee Perpendicular illuminance Height: 0.000 m	8.34 lx	3.85 lx	12.5 lx	0.46	0.31	CG1

Utilisation profile: DIALux presetting (5.1.4-Standard (outdoor transportation area))

Ringtee (Light scene 1)
Ringtee



Properties	\bar{E}	E_{min}	E_{max}	g_1	g_2	Index
Ringtee Perpendicular illuminance Height: 0.000 m	8.34 lx	3.85 lx	12.5 lx	0.46	0.31	CG1

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))