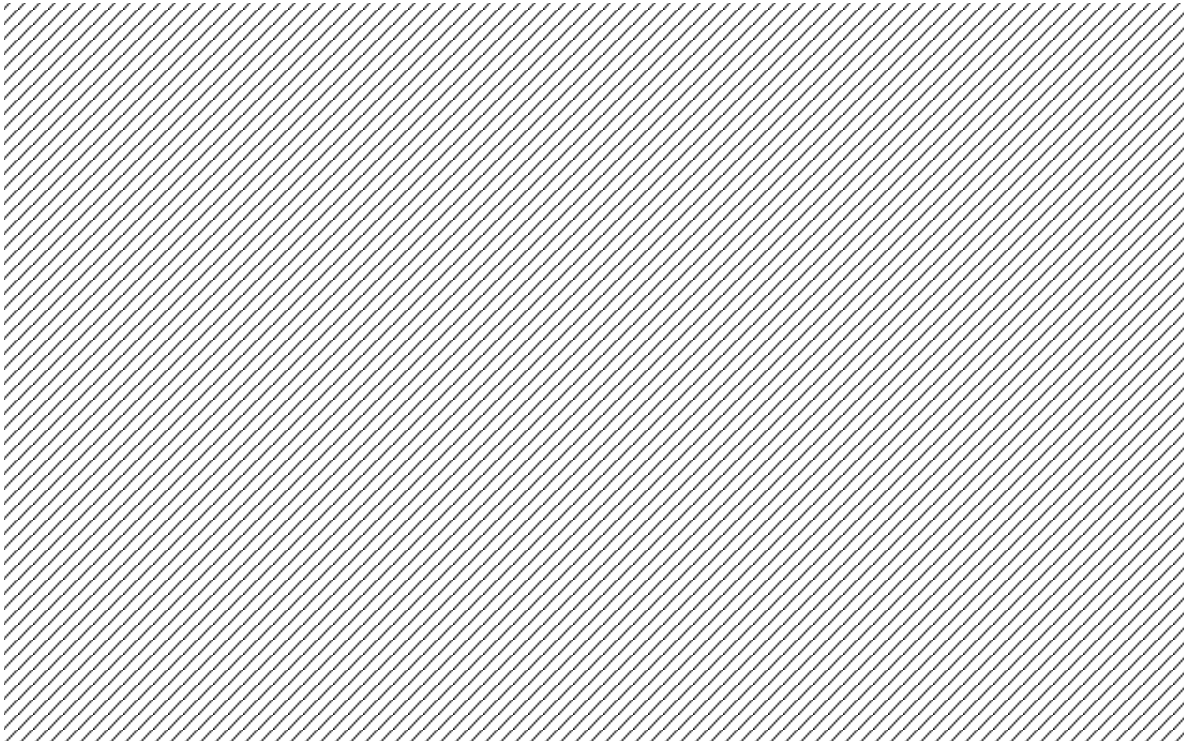




Lighting of Tbilisi-Sagarejo-Bakurtsikhe road - Typical cross sections of asphalt local roads 8m - with Izylum luminaires

Object

Tbilisi-Sagarejo-Bakurtsikhe road - Typical cross sections of asphalt local roads 8m

Content

Cover page 1

Content 2

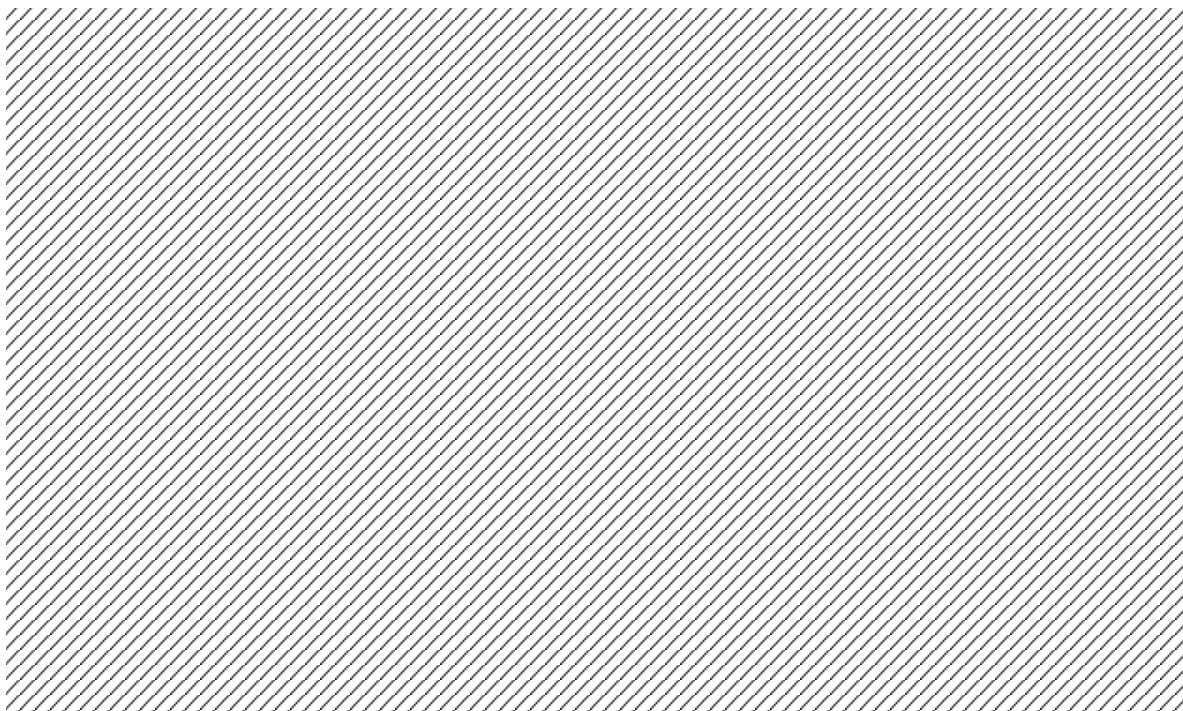
Description 3

Product data sheets

Schröder - IZYLUM 3 5304 Flat glass - 70 LH351C@670mA NW 740 230V 00-36-984 447632 (1x 70 LH351C@670mA NW 740 230V 00-36-984)4

Summary (according to EN 13201:2015)6

Roadway (M4)9



Description

Lighting calculations of road lighting of Tbilisi-Sagarejo-Bakurtsikhe road - Typical cross sections of asphalt local roads 8m - with Izylum luminaires

Project & Export Manager
Petro BUKANOV

Schröder TOV
Mykulynetska str. 46B | 46005
Ternopil - UKRAINE

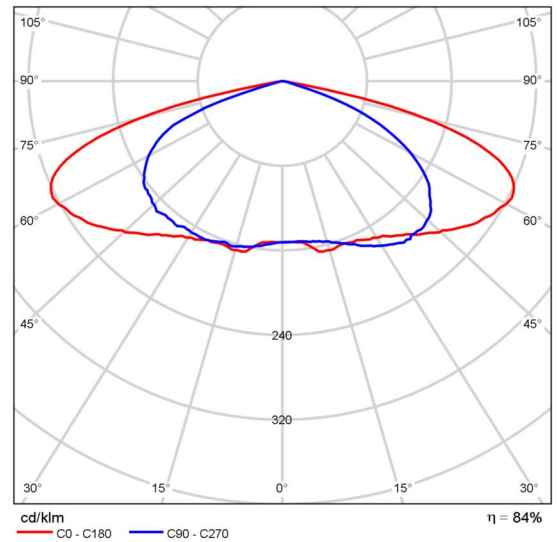
T +380 50 385 73 80
F +380 352 250613
pbukanov@schreder.com

Product data sheet

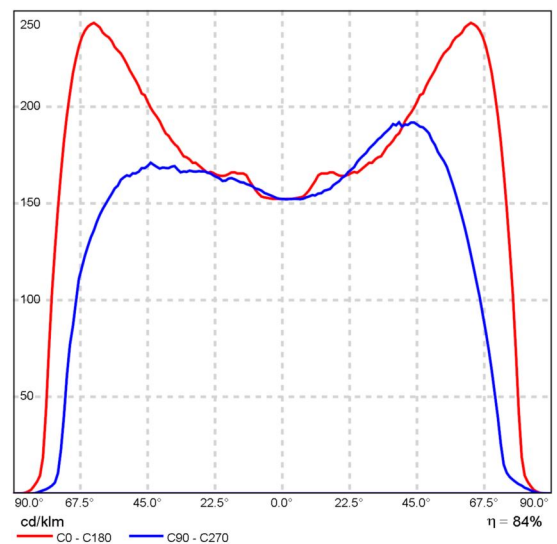
SCHREDER IZYLUM 3 5304 Flat glass - 70 LH351C@670mA NW 740 230V 00-36-984 447632



Article No.	447632
P	142.0 W
$\Phi_{\text{Luminaire}}$	19041 lm
Luminous efficacy	134.1 lm/W
CCT	4000 K
CRI	70



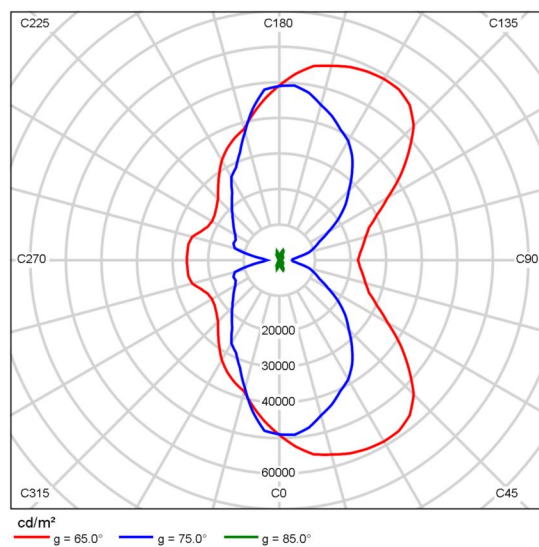
Polar LDC



Linear LDC

Product data sheet

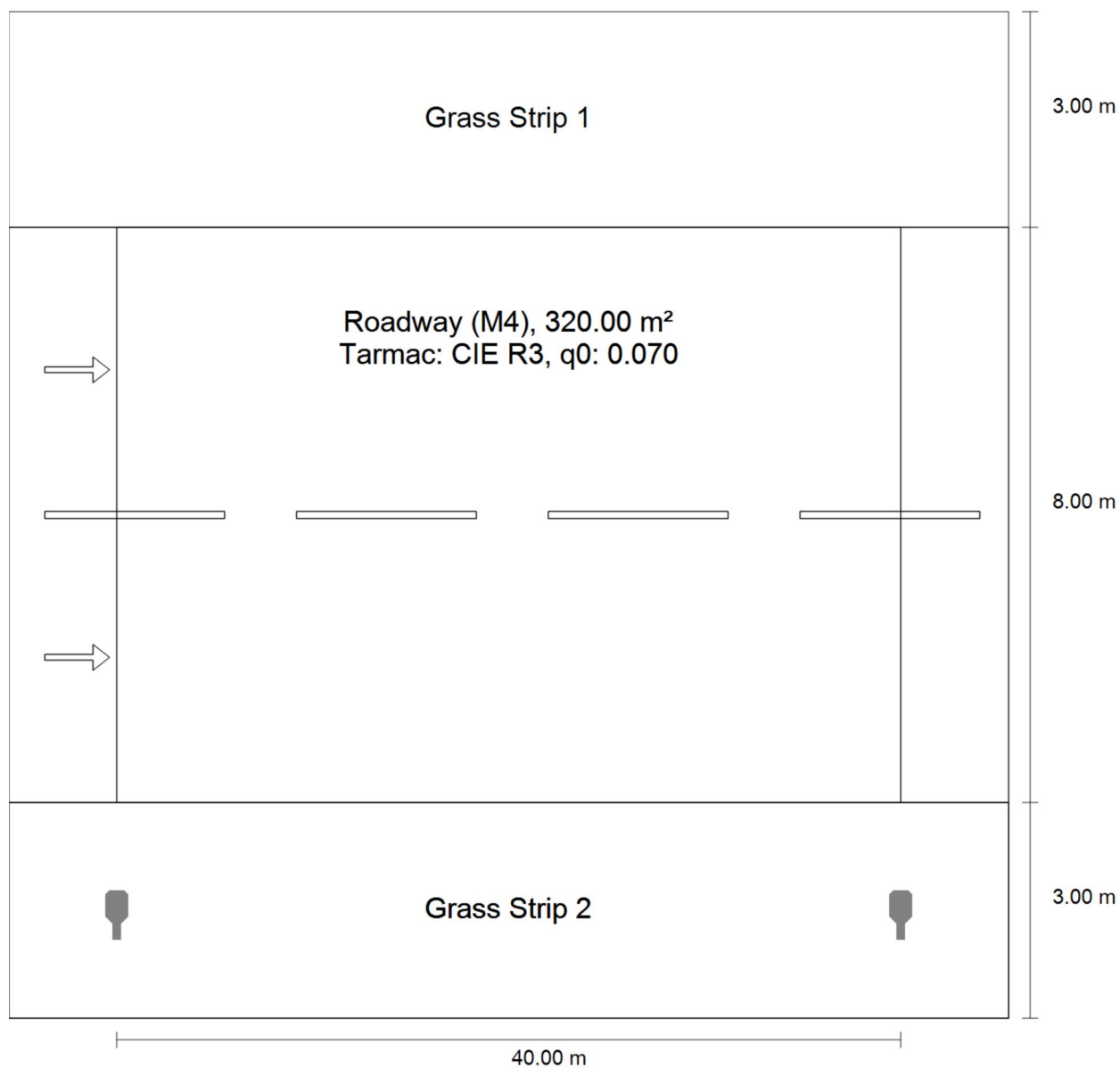
SCHREDER IZYLUM 3 5304 Flat glass - 70 LH351C@670mA NW 740 230V 00-36-984 447632



Luminance diagram

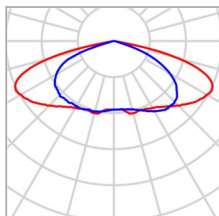
Tbilisi-Sagarejo-Bakurtsikhe road - Typical cross sections of asphalt local roads 8m · Альтернатива 1

Summary (according to EN 13201:2015)



Tbilisi-Sagarejo-Bakurtsikhe road - Typical cross sections of asphalt local roads 8m · Альтернатива 1

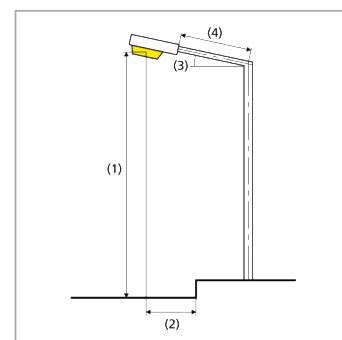
Summary (according to EN 13201:2015)



Manufacturer	SCHREDER	P	142.0 W
Article No.	447632	Φ_{Lamp}	22610 lm
Article name	IZYLUM 3 5304 Flat glass - 70 LH351C@670mA NW 740 230V 00-36-984 447632	$\Phi_{\text{Luminaire}}$	19041 lm
		η	84.21 %
Fitting	1x 70 LH351C@670mA NW 740 230V 00-36-984		

IZYLUM 3 5304 Flat glass - 70 LH351C@670mA NW 740 230V 00-36-984 447632 (single side bottom)

Pole distance	40.000 m
(1) Light spot height	8.000 m
(2) Light point overhang	-1.475 m
(3) Boom inclination	10.0°
(4) Boom length	0.415 m
Annual operating hours	4000 h: 100.0 %, 142.0 W
Consumption	3550.0 W/km
ULR / ULOR	0.00 / 0.00
Max. luminous intensities	$\geq 70^\circ$: 344 cd/klm
Any direction forming the specified angle from the downward vertical, with the luminaire installed for use.	$\geq 80^\circ$: 182 cd/klm $\geq 90^\circ$: 7.16 cd/klm
Luminous intensity class	G*1



Tbilisi-Sagarejo-Bakurtsikhe road - Typical cross sections of asphalt local roads 8m · Альтернатива 1

Summary (according to EN 13201:2015)

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.

Glare index class	D.0
-------------------	-----

Results for valuation fields

	Symbol	Calculated	Target	Check
Roadway (M4)	L_{av}	0.91 cd/m ²	≥ 0.75 cd/m ²	✓
	U_o	0.45	≥ 0.40	✓
	U_l	0.61	≥ 0.60	✓
	TI	15 %	≤ 15 %	✓
	R_{EI}	0.61	≥ 0.30	✓

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

Results for energy efficiency indicators

	Symbol	Calculated	Consumption
Tbilisi-Sagarejo-Bakurtsikhe road - Typical cross sections of asphalt local roads 8m	D_p	0.028 W/lx*m ²	-
IZYLUM 3 5304 Flat glass - 70 LH351C@670mA NW 740 230V 00-36-984 447632 (single side bottom)	D_e	1.8 kWh/m ² yr	568.0 kWh/yr

Tbilisi-Sagarejo-Bakurtsikhe road - Typical cross sections of asphalt local roads 8m · Альтернатива 1

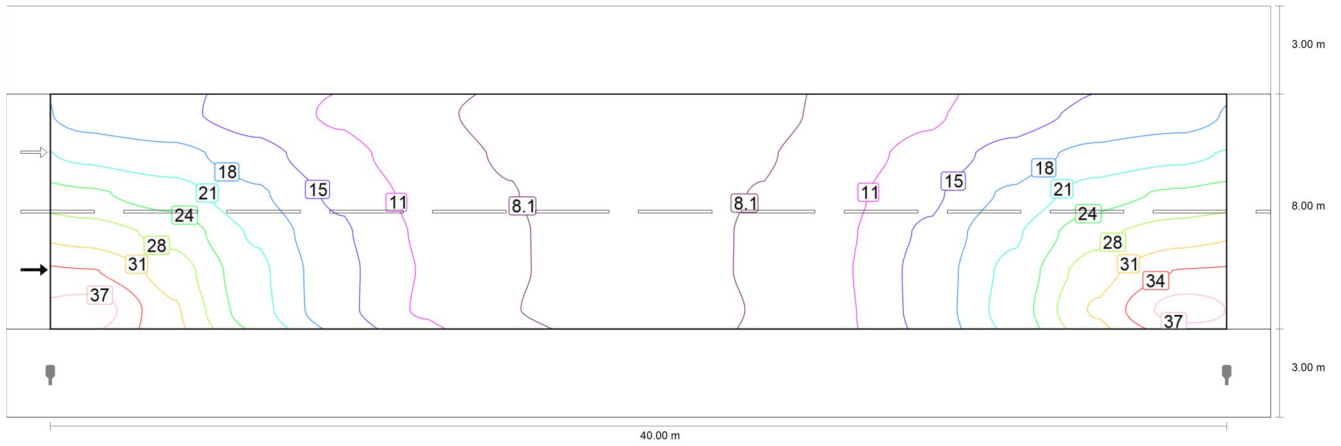
Roadway (M4)

Results for valuation field

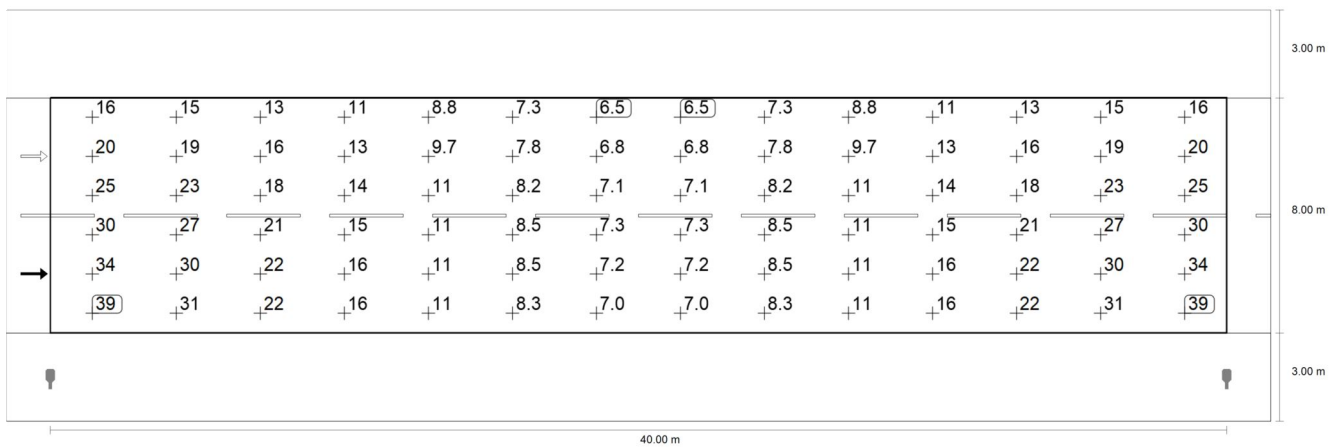
	Symbol	Calculated	Target	Check
Roadway (M4)	L_{av}	0.91 cd/m ²	≥ 0.75 cd/m ²	✓
	U_o	0.45	≥ 0.40	✓
	U_l	0.61	≥ 0.60	✓
	TI	15 %	≤ 15 %	✓
	R_{EI}	0.61	≥ 0.30	✓

Results for observer

	Symbol	Calculated	Target	Check
Observer 1 Position: -60.000 m, 5.000 m, 1.500 m	L_{av}	0.91 cd/m ²	≥ 0.75 cd/m ²	✓
	U_o	0.48	≥ 0.40	✓
	U_l	0.61	≥ 0.60	✓
	TI	15 %	≤ 15 %	✓
Observer 2 Position: -60.000 m, 9.000 m, 1.500 m	L_{av}	1.02 cd/m ²	≥ 0.75 cd/m ²	✓
	U_o	0.45	≥ 0.40	✓
	U_l	0.72	≥ 0.60	✓
	TI	7 %	≤ 15 %	✓



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

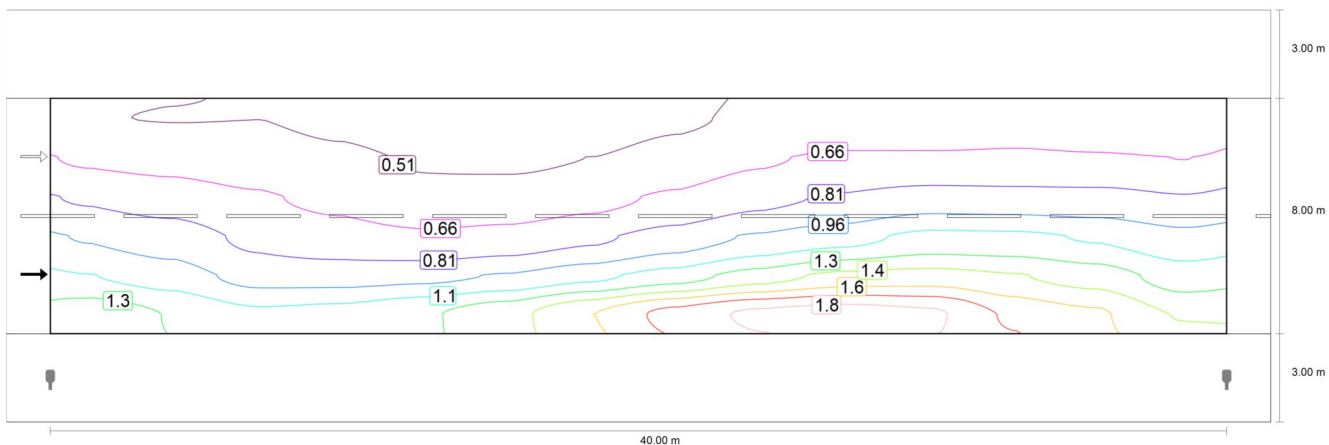


Maintenance value, horizontal illuminance [lx] (Value grid)

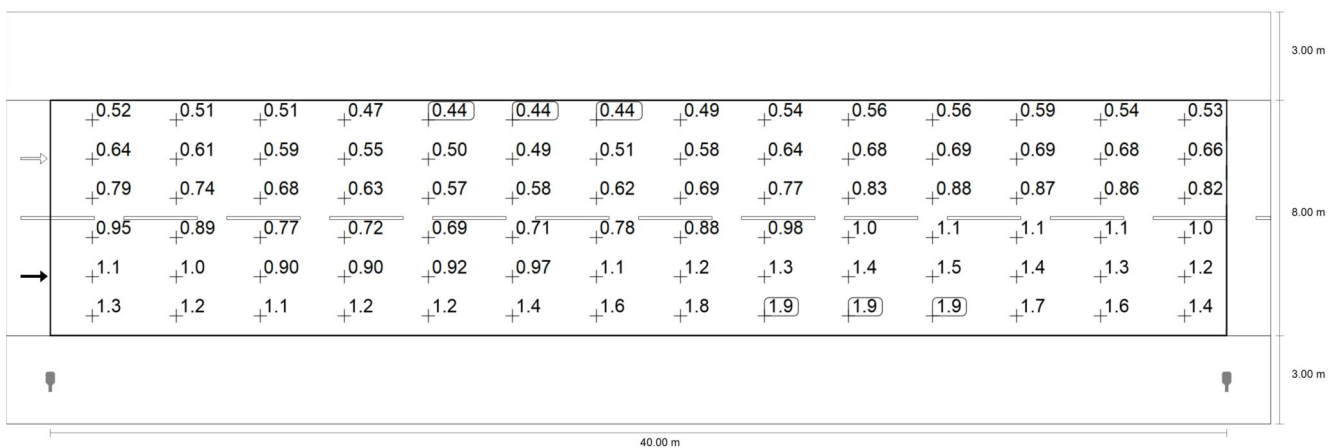
m	1.429	4.286	7.143	10.000	12.857	15.714	18.571	21.429	24.286	27.143	30.000	32.857	35.714	38.571
10.333	16.45	15.32	13.26	10.91	8.82	7.28	6.47	6.47	7.28	8.82	10.91	13.26	15.32	16.45
9.000	20.46	19.07	15.89	12.51	9.74	7.82	6.81	6.81	7.82	9.74	12.51	15.89	19.07	20.46
7.667	24.89	22.91	18.43	13.96	10.50	8.22	7.08	7.08	8.22	10.50	13.96	18.43	22.91	24.89
6.333	29.56	26.64	20.70	15.13	10.96	8.46	7.26	7.26	8.46	10.96	15.13	20.70	26.64	29.56
5.000	34.39	29.51	22.02	15.70	11.18	8.49	7.25	7.25	8.49	11.18	15.70	22.02	29.51	34.39
3.667	39.11	31.41	22.50	15.69	10.99	8.28	7.02	7.02	8.28	10.99	15.69	22.50	31.41	39.11

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

	E_{av}	E_{min}	E_{max}	g_1	g_2
Maintenance value, horizontal illuminance	15.7 lx	6.47 lx	39.1 lx	0.412	0.165



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

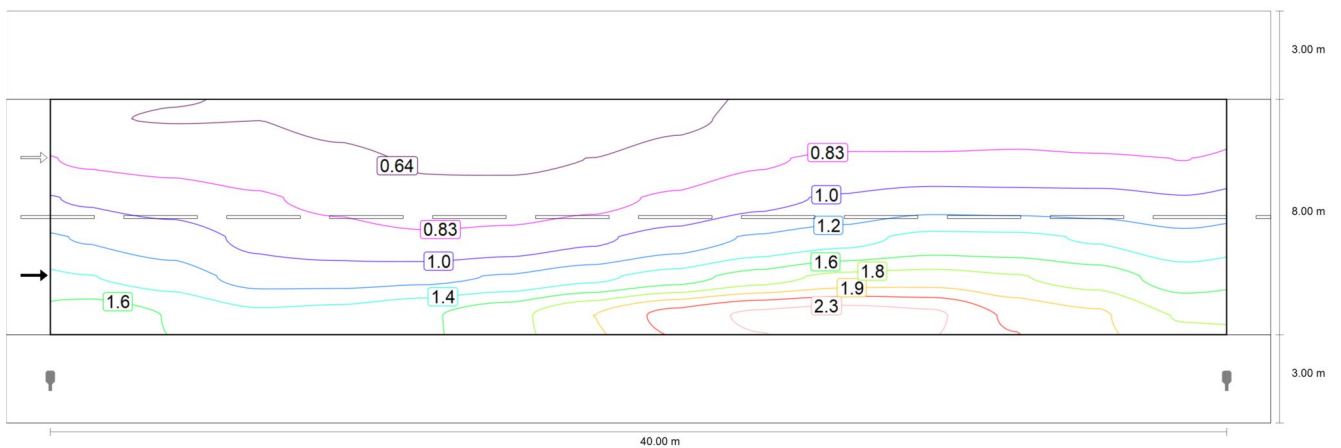


Observer 1: Maintenance value, luminance with dry roadway [cd/m^2] (Value grid)

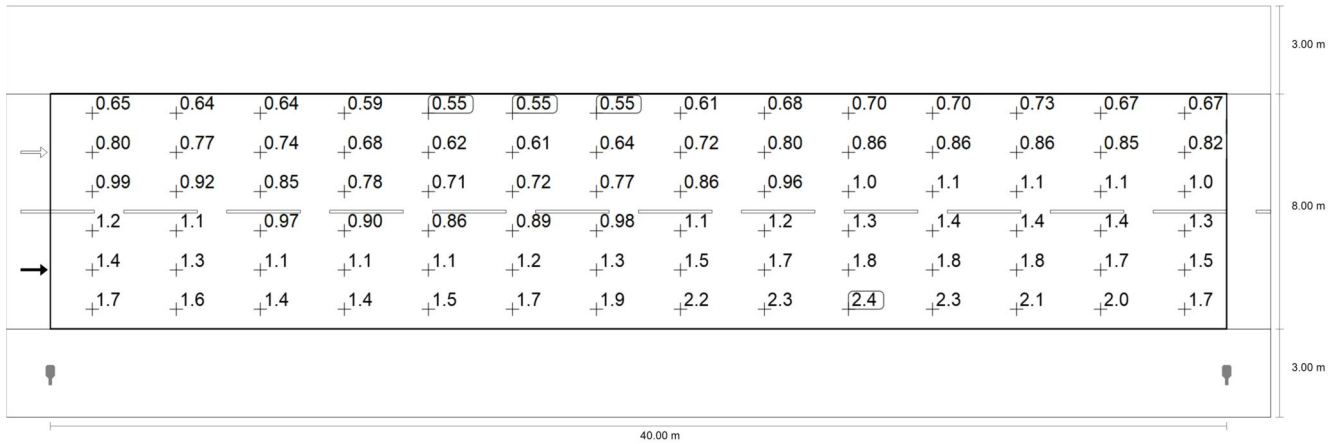
m	1.429	4.286	7.143	10.000	12.857	15.714	18.571	21.429	24.286	27.143	30.000	32.857	35.714	38.571
10.333	0.52	0.51	0.51	0.47	0.44	0.44	0.44	0.49	0.54	0.56	0.56	0.59	0.54	0.53
9.000	0.64	0.61	0.59	0.55	0.50	0.49	0.51	0.58	0.64	0.68	0.69	0.69	0.68	0.66
7.667	0.79	0.74	0.68	0.63	0.57	0.58	0.62	0.69	0.77	0.83	0.88	0.87	0.86	0.82
6.333	0.95	0.89	0.77	0.72	0.69	0.71	0.78	0.88	0.98	1.05	1.15	1.14	1.09	1.00
5.000	1.11	1.03	0.90	0.90	0.92	0.97	1.07	1.18	1.33	1.45	1.47	1.41	1.34	1.19
3.667	1.34	1.25	1.14	1.16	1.23	1.35	1.55	1.75	1.88	1.92	1.87	1.68	1.57	1.39

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	0.91 cd/m^2	0.44 cd/m^2	1.92 cd/m^2	0.483	0.228



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

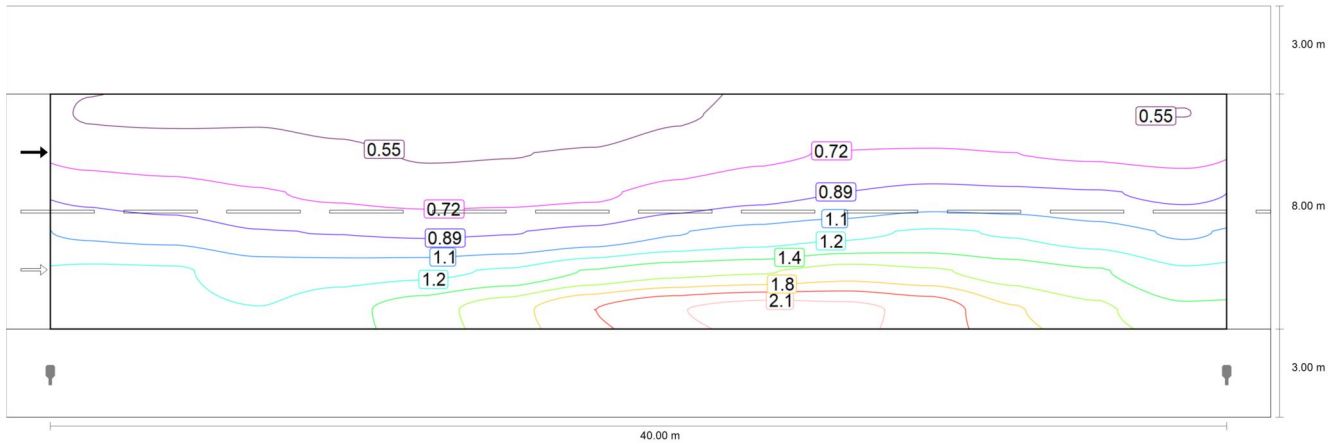


Observer 1: Luminance with new installation [cd/m²] (Value grid)

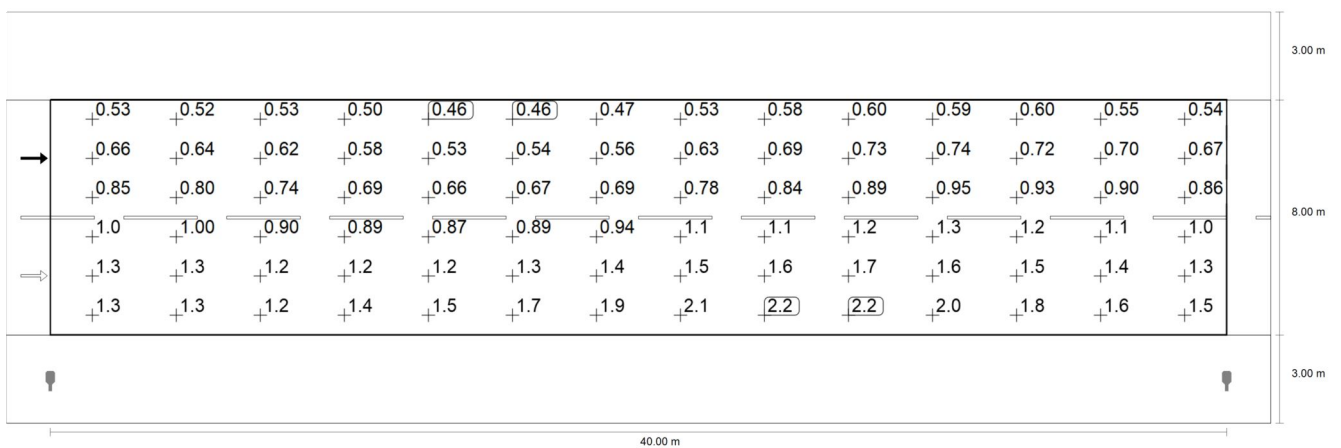
m	1.429	4.286	7.143	10.000	12.857	15.714	18.571	21.429	24.286	27.143	30.000	32.857	35.714	38.571
10.333	0.65	0.64	0.64	0.59	0.55	0.55	0.55	0.61	0.68	0.70	0.70	0.73	0.67	0.67
9.000	0.80	0.77	0.74	0.68	0.62	0.61	0.64	0.72	0.80	0.86	0.86	0.86	0.85	0.82
7.667	0.99	0.92	0.85	0.78	0.71	0.72	0.77	0.86	0.96	1.03	1.10	1.08	1.08	1.02
6.333	1.18	1.11	0.97	0.90	0.86	0.89	0.98	1.09	1.22	1.31	1.44	1.42	1.36	1.25
5.000	1.39	1.29	1.13	1.12	1.15	1.21	1.33	1.48	1.66	1.81	1.83	1.77	1.67	1.48
3.667	1.67	1.56	1.43	1.45	1.54	1.69	1.94	2.19	2.35	2.40	2.34	2.09	1.97	1.74

Observer 1: Luminance with new installation [cd/m²] (Value chart)

	L _{av}	L _{min}	L _{max}	g ₁	g ₂
Observer 1: Luminance with new installation	1.13 cd/m²	0.55 cd/m²	2.40 cd/m²	0.483	0.228



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

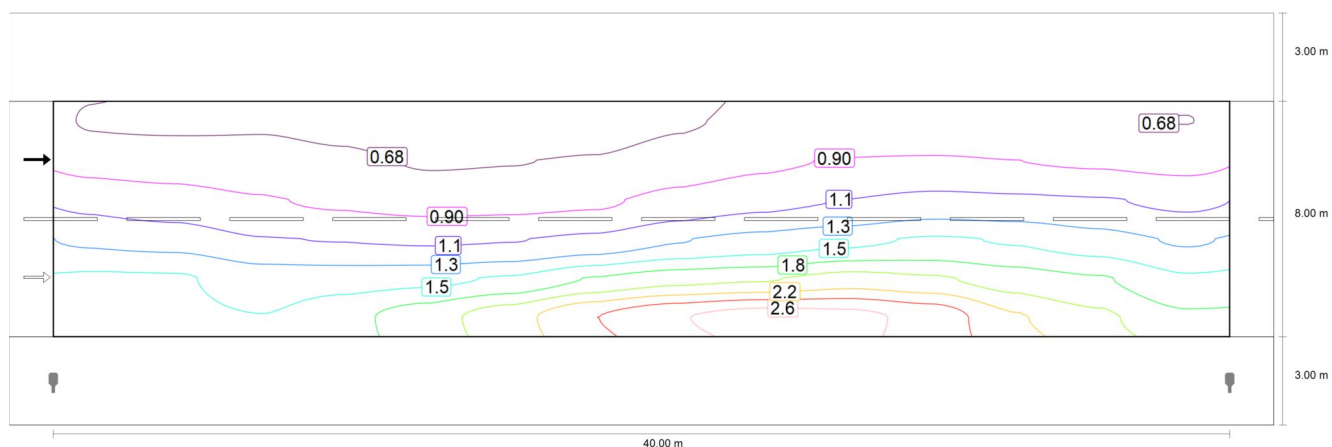


Observer 2: Maintenance value, luminance with dry roadway [cd/m^2] (Value grid)

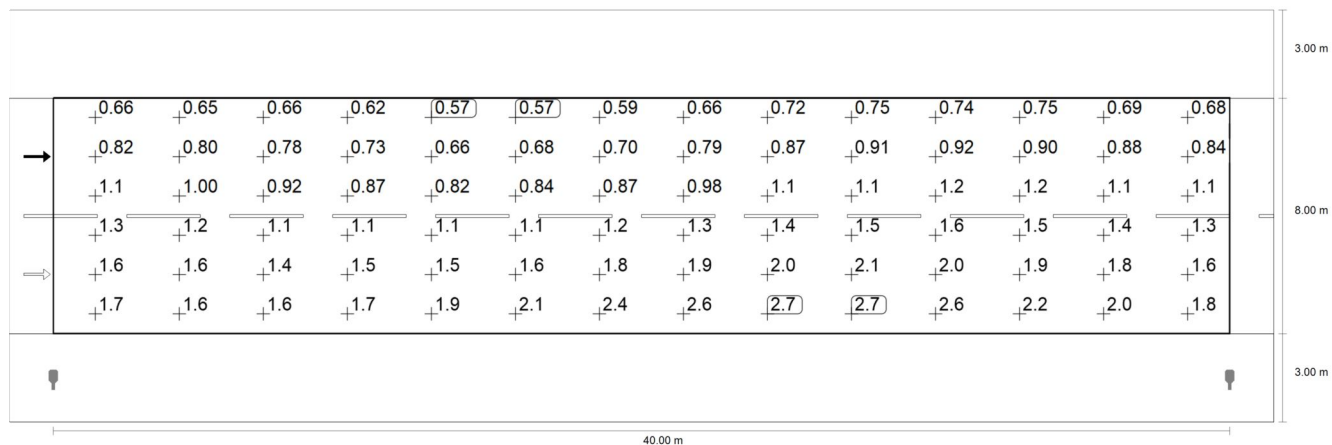
m	1.429	4.286	7.143	10.000	12.857	15.714	18.571	21.429	24.286	27.143	30.000	32.857	35.714	38.571
10.333	0.53	0.52	0.53	0.50	0.46	0.46	0.47	0.53	0.58	0.60	0.59	0.60	0.55	0.54
9.000	0.66	0.64	0.62	0.58	0.53	0.54	0.56	0.63	0.69	0.73	0.74	0.72	0.70	0.67
7.667	0.85	0.80	0.74	0.69	0.66	0.67	0.69	0.78	0.84	0.89	0.95	0.93	0.90	0.86
6.333	1.04	1.00	0.90	0.89	0.87	0.89	0.94	1.06	1.13	1.19	1.26	1.22	1.14	1.05
5.000	1.27	1.25	1.16	1.17	1.19	1.26	1.43	1.53	1.57	1.67	1.61	1.51	1.43	1.27
3.667	1.34	1.29	1.25	1.36	1.51	1.69	1.93	2.10	2.19	2.16	2.05	1.78	1.62	1.46

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	1.02 cd/m ²	0.46 cd/m ²	2.19 cd/m ²	0.451	0.209



Observer 2: Luminance with new installation [cd/m²] (Iso-illuminance curves)



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

m	1.429	4.286	7.143	10.000	12.857	15.714	18.571	21.429	24.286	27.143	30.000	32.857	35.714	38.571
10.333	0.66	0.65	0.66	0.62	0.57	0.57	0.59	0.66	0.72	0.75	0.74	0.75	0.69	0.68
9.000	0.82	0.80	0.78	0.73	0.66	0.68	0.70	0.79	0.87	0.91	0.92	0.90	0.88	0.84
7.667	1.06	1.00	0.92	0.87	0.82	0.84	0.87	0.98	1.06	1.12	1.18	1.16	1.13	1.08
6.333	1.29	1.25	1.13	1.11	1.09	1.11	1.17	1.32	1.41	1.49	1.58	1.53	1.42	1.31
5.000	1.59	1.57	1.45	1.46	1.49	1.58	1.78	1.91	1.96	2.09	2.01	1.88	1.79	1.58
3.667	1.68	1.61	1.56	1.69	1.88	2.11	2.42	2.62	2.74	2.70	2.56	2.23	2.03	1.82

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	1.27 cd/m ²	0.57 cd/m ²	2.74 cd/m ²	0.451	0.209