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Photometric Test Report

Job Ref.	42 / 5482
Report Ref.	42 / 5482 / 54821a
Report Date	2002.12.30
Customer	Encapsulite
Luminaire catalog No.	MT50 IP68 8W CLEAR
Luminaire description	linear cylindrical luminaire with clear cover data derived from range test series
Lamp description	8W T5 300mm
Lamp lumen output	400lm
No. of lamps in luminaire	1
width of luminaire	0.050m
length of luminaire	0.400m
height of luminaire	0.050m

The luminaire has been treated as though it has 2 planes of symmetry through the 0°/180° plane and the 90°/270° plane.

Index to report

All measurements taken in accordance with BS5225.

The photometric centre of the luminaire was taken as the centre of the lamp.

The photometric nadir was taken to be perpedicular to the front face of the reflector.

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Light Output Ratios	Up	0.11
	Down	0.78
	Total	0.90

Lighting design calculations should be performed using an initial (100 hour) lumen output of 400 lm

Spacing to Height Ratios	SHR NOM	1.75
	SHR MAX	1.83
	SHR MAX TRANS	2.43

Utilisation Factors UF(F) Standard Presentation SHR NOM = 1.75

Room Reflectances			Room Index								
C	W	F	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
.70	.50	.20	N/A	.51	.57	.62	.68	.73	.76	.81	.84
	.30		N/A	.44	.50	.54	.62	.67	.70	.76	.80
	.10		N/A	.38	.44	.49	.56	.61	.65	.72	.76
.50	.50	.20	N/A	.48	.53	.58	.64	.68	.71	.75	.78
	.30		N/A	.41	.47	.52	.58	.63	.66	.71	.74
	.10		N/A	.36	.42	.47	.53	.58	.62	.67	.71
.30	.50	.20	N/A	.45	.50	.54	.59	.63	.66	.70	.72
	.30		N/A	.39	.45	.49	.55	.59	.62	.67	.70
	.10		N/A	.35	.40	.44	.51	.55	.59	.64	.67
.00	.00	.00	N/A	.31	.36	.40	.46	.50	.53	.57	.60
BZ Class			N/A	6	6	6	6	6	6	6	6

CIE Flux code	33 / 61 / 83 / 87 / 90
CIE Room Index	0.60 0.80 1.00 1.25 1.50 2.00 2.50 3.00 4.00 5.00 10.0 20.0
CIE DRR	0.21 0.28 0.34 0.41 0.46 0.54 0.60 0.65 0.70 0.74 0.81 0.85
CIE class	7 / 7 / 7 / 8 / 8 / 8 / 8 / 8 / 8 / 8 / 9 / -
Flux Fraction Ratio	0.14
DIN Class	0.90 B

Calculated in accordance with CIBSE Technical Memorandum No. 5 1980
In accordance with TM5, this UF table is valid for values of SHR from 0.5 below SHR NOM to 0.5 above SHR NOM. SHR MAX is a separate limitation.
Reflectances given in the UF table are the effective reflectances of the ceiling cavity, walls and floor cavity, and must be determined for the actual room in which the luminaire will be used.
UF(F),UF(W), and UF(C) for 0% reflectance of the room surfaces are equivalent to DF(F),DF(W) and DF(C) respectively.

Average Luminous Intensities (cd/Klm)

Angle	Transverse plane	Axial plane	Average all planes
0°	179.75	179.75	179.75
5°	179.95	179.13	179.33
10°	180.07	176.69	177.53
15°	180.24	172.48	174.46
20°	180.20	166.94	170.45
25°	179.79	159.63	165.39
30°	178.96	150.42	158.95
35°	177.77	139.93	151.33
40°	176.58	128.15	143.06
45°	175.68	114.86	133.96
50°	175.55	101.51	124.46
55°	174.77	85.78	115.02
60°	172.72	70.37	105.29
65°	169.18	54.02	96.99
70°	164.21	37.00	88.18
75°	156.49	21.84	78.26
80°	145.77	9.50	66.31
85°	134.14	1.98	53.58
90°	127.81	0.00	45.22
95°	125.67	0.00	38.94
100°	112.12	0.00	14.49
105°	92.32	0.00	1.30
110°	20.62	0.00	0.48
115°	0.78	0.00	0.19
120°	0.45	0.00	0.14
125°	0.00	0.00	0.00
130°	0.00	0.00	0.00
135°	0.00	0.00	0.00
140°	0.00	0.00	0.00
145°	0.00	0.00	0.00
150°	0.00	0.00	0.00
155°	0.00	0.00	0.00
160°	0.00	0.00	0.00
165°	0.00	0.00	0.00
170°	0.00	0.00	0.00
175°	0.00	0.00	0.00
180°	0.00	0.00	0.00

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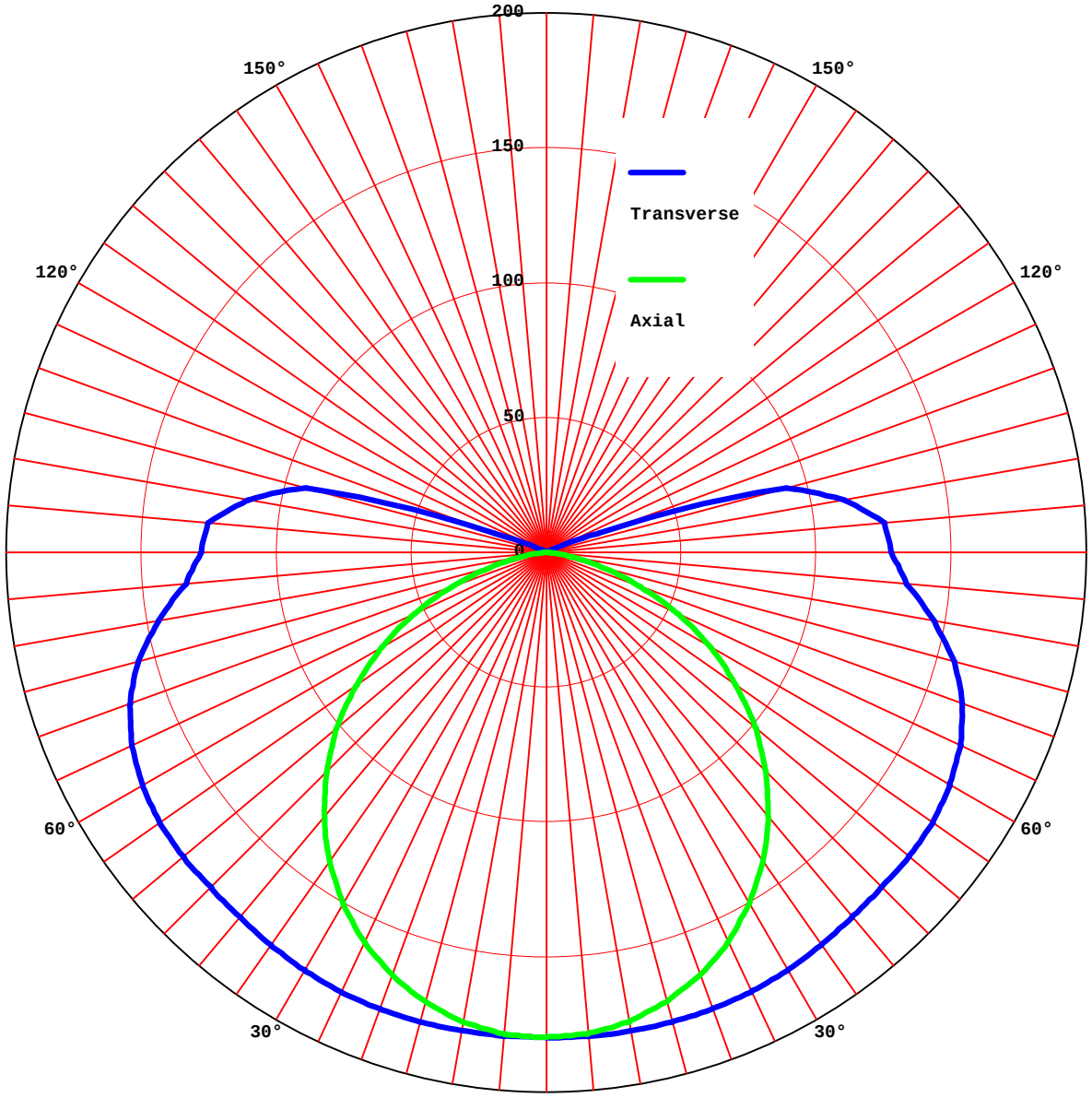
Luminous Intensities (cd/Klm)



Angle	Aspect Factors	
	Parallel plane	Perpendicular plane
0°	0.000	0.000
5°	0.087	0.004
10°	0.173	0.015
15°	0.255	0.033
20°	0.334	0.058
25°	0.407	0.089
30°	0.474	0.123
35°	0.533	0.161
40°	0.585	0.201
45°	0.628	0.241
50°	0.664	0.279
55°	0.692	0.315
60°	0.712	0.347
65°	0.726	0.374
70°	0.734	0.394
75°	0.739	0.408
80°	0.740	0.416
85°	0.741	0.418
90°	0.741	0.419

Zonal fluxes (Lumens)

Zone	% lamp	% luminaire
0°- 10°	1.7%	1.9%
10°- 20°	5.0%	5.6%
20°- 30°	7.9%	8.8%
30°- 40°	10.0%	11.2%
40°- 50°	11.4%	12.7%
50°- 60°	12.0%	13.4%
60°- 70°	11.9%	13.2%
70°- 80°	10.7%	11.9%
80°- 90°	8.5%	9.5%
90°-100°	7.4%	8.2%
100°-110°	4.0%	4.4%
110°-120°	0.0%	0.0%
120°-130°	0.0%	0.0%
130°-140°	0.0%	0.0%
140°-150°	0.0%	0.0%
150°-160°	0.0%	0.0%
160°-170°	0.0%	0.0%
170°-180°	0.0%	0.0%

Average Luminous Intensities (cd/Klm)

Angles	0°	30°	60°	90°	120°	150°
0°	179.7	179.7	179.7	179.7	179.7	179.7
5°	180.0	179.7	179.3	179.1	179.3	179.7
10°	180.1	179.4	177.5	176.7	177.5	179.4
15°	180.2	178.6	174.5	172.5	174.5	178.6
20°	180.2	177.2	170.5	166.9	170.5	177.2
25°	179.8	175.1	165.4	159.6	165.4	175.1
30°	179.0	172.8	158.9	150.4	158.9	172.8
35°	177.8	169.5	151.3	139.9	151.3	169.5
40°	176.6	166.3	143.1	128.2	143.1	166.3
45°	175.7	162.8	134.0	114.9	134.0	162.8
50°	175.6	159.9	124.5	101.5	124.5	159.9
55°	174.8	157.4	115.0	85.8	115.0	157.4
60°	172.7	154.3	105.3	70.4	105.3	154.3
65°	169.2	149.4	97.0	54.0	97.0	149.4
70°	164.2	143.2	88.2	37.0	88.2	143.2
75°	156.5	135.2	78.3	21.8	78.3	135.2
80°	145.8	124.9	66.3	9.5	66.3	124.9
85°	134.1	111.7	53.6	2.0	53.6	111.7
90°	127.8	105.2	45.2	0.0	45.2	105.2
95°	125.7	101.6	38.9	0.0	38.9	101.6
100°	112.1	87.9	14.5	0.0	14.5	87.9
105°	92.3	64.7	1.3	0.0	1.3	64.7
110°	20.6	0.9	0.5	0.0	0.5	0.9
115°	0.8	0.5	0.2	0.0	0.2	0.5
120°	0.5	0.4	0.1	0.0	0.1	0.4
125°	0.0	0.0	0.0	0.0	0.0	0.0
130°	0.0	0.0	0.0	0.0	0.0	0.0
135°	0.0	0.0	0.0	0.0	0.0	0.0
140°	0.0	0.0	0.0	0.0	0.0	0.0
145°	0.0	0.0	0.0	0.0	0.0	0.0
150°	0.0	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0	0.0

Average Luminous Intensities (cd/Klm)

Angles	180°	210°	240°	270°	300°	330°
0°	179.7	179.7	179.7	179.7	179.7	179.7
5°	180.0	179.7	179.3	179.1	179.3	179.7
10°	180.1	179.4	177.5	176.7	177.5	179.4
15°	180.2	178.6	174.5	172.5	174.5	178.6
20°	180.2	177.2	170.5	166.9	170.5	177.2
25°	179.8	175.1	165.4	159.6	165.4	175.1
30°	179.0	172.8	158.9	150.4	158.9	172.8
35°	177.8	169.5	151.3	139.9	151.3	169.5
40°	176.6	166.3	143.1	128.2	143.1	166.3
45°	175.7	162.8	134.0	114.9	134.0	162.8
50°	175.6	159.9	124.5	101.5	124.5	159.9
55°	174.8	157.4	115.0	85.8	115.0	157.4
60°	172.7	154.3	105.3	70.4	105.3	154.3
65°	169.2	149.4	97.0	54.0	97.0	149.4
70°	164.2	143.2	88.2	37.0	88.2	143.2
75°	156.5	135.2	78.3	21.8	78.3	135.2
80°	145.8	124.9	66.3	9.5	66.3	124.9
85°	134.1	111.7	53.6	2.0	53.6	111.7
90°	127.8	105.2	45.2	0.0	45.2	105.2
95°	125.7	101.6	38.9	0.0	38.9	101.6
100°	112.1	87.9	14.5	0.0	14.5	87.9
105°	92.3	64.7	1.3	0.0	1.3	64.7
110°	20.6	0.9	0.5	0.0	0.5	0.9
115°	0.8	0.5	0.2	0.0	0.2	0.5
120°	0.5	0.4	0.1	0.0	0.1	0.4
125°	0.0	0.0	0.0	0.0	0.0	0.0
130°	0.0	0.0	0.0	0.0	0.0	0.0
135°	0.0	0.0	0.0	0.0	0.0	0.0
140°	0.0	0.0	0.0	0.0	0.0	0.0
145°	0.0	0.0	0.0	0.0	0.0	0.0
150°	0.0	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0	0.0

Non Averaged Luminous Intensities (cd/Klm)

Angles	0°	30°	60°	90°	120°	150°
0°	179.7	179.7	179.7	179.7	179.7	179.7
5°	179.7	179.6	179.4	179.2	179.6	179.8
10°	179.7	179.3	177.7	176.9	178.1	179.9
15°	179.5	178.3	174.7	172.7	175.4	179.5
20°	179.3	176.9	170.7	167.4	171.4	178.3
25°	178.8	175.0	165.5	160.2	166.6	176.4
30°	177.9	172.5	159.2	151.2	160.4	174.0
35°	176.6	169.5	151.5	140.3	152.4	171.1
40°	175.4	166.2	144.1	129.2	144.3	167.6
45°	174.5	162.9	134.7	115.8	135.2	164.2
50°	174.3	159.8	125.7	103.0	125.7	161.4
55°	173.2	157.1	116.2	86.8	115.8	158.9
60°	171.4	154.2	106.4	71.1	106.5	155.8
65°	167.9	149.3	98.1	55.3	97.6	151.2
70°	163.3	143.4	89.4	37.8	88.5	144.7
75°	155.5	135.4	79.6	23.7	78.6	136.3
80°	144.9	126.0	66.7	9.8	66.8	125.6
85°	132.6	114.2	55.8	2.3	53.3	112.3
90°	126.1	104.8	46.3	0.0	44.5	106.1
95°	123.1	100.6	40.8	0.0	39.1	103.9
100°	110.1	88.2	22.7	0.0	12.7	89.4
105°	92.7	71.2	1.7	0.0	1.3	64.5
110°	20.7	0.8	0.6	0.0	0.3	0.8
115°	0.8	0.4	0.2	0.0	0.1	0.5
120°	0.3	0.3	0.2	0.0	0.1	0.4
125°	0.0	0.0	0.0	0.0	0.0	0.0
130°	0.0	0.0	0.0	0.0	0.0	0.0
135°	0.0	0.0	0.0	0.0	0.0	0.0
140°	0.0	0.0	0.0	0.0	0.0	0.0
145°	0.0	0.0	0.0	0.0	0.0	0.0
150°	0.0	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0	0.0

Non Averaged Luminous Intensities (cd/Klm)

Angles	180°	210°	240°	270°	300°	330°
0°	179.7	179.7	179.7	179.7	179.7	179.7
5°	180.2	179.8	179.2	179.1	179.2	179.5
10°	180.5	179.7	177.3	176.5	177.1	178.7
15°	181.0	178.9	174.2	172.3	173.5	177.7
20°	181.1	177.6	170.1	166.5	169.7	175.8
25°	180.7	175.2	164.9	159.1	164.5	173.8
30°	180.0	172.9	158.7	149.6	157.6	171.9
35°	178.9	169.7	151.2	139.5	150.2	167.8
40°	177.8	166.8	142.6	127.1	141.2	164.4
45°	176.9	163.3	133.7	113.9	132.3	160.8
50°	176.8	160.1	124.3	100.0	122.1	158.3
55°	176.3	157.8	114.5	84.7	113.5	155.6
60°	174.0	154.5	105.1	69.6	103.2	152.8
65°	170.5	149.8	96.8	52.7	95.5	147.4
70°	165.2	143.4	88.3	36.2	86.6	141.4
75°	157.4	135.5	78.3	20.0	76.6	133.4
80°	146.6	125.1	66.9	9.2	64.8	122.8
85°	135.7	112.2	53.5	1.7	51.7	108.3
90°	129.6	106.7	46.4	0.0	43.7	103.1
95°	128.2	104.0	39.0	0.0	36.8	97.9
100°	114.1	88.8	9.5	0.0	13.1	85.1
105°	91.9	61.9	1.3	0.0	0.8	61.1
110°	20.6	0.9	0.6	0.0	0.4	1.0
115°	0.7	0.5	0.2	0.0	0.2	0.5
120°	0.6	0.4	0.2	0.0	0.2	0.5
125°	0.0	0.0	0.0	0.0	0.0	0.0
130°	0.0	0.0	0.0	0.0	0.0	0.0
135°	0.0	0.0	0.0	0.0	0.0	0.0
140°	0.0	0.0	0.0	0.0	0.0	0.0
145°	0.0	0.0	0.0	0.0	0.0	0.0
150°	0.0	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0	0.0

Uncorrected Glare Indices

Reflectance of Ceiling	.70	.70	.50	.50	.30	.70	.70	.50	.50	.30
Wall	.50	.30	.50	.30	.30	.50	.30	.50	.30	.30
Floor Cavity	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20
Room dimension X Y	Viewed crosswise 0°					Viewed endwise 90°				
2H 2H	19.9	21.8	20.5	22.5	23.2	16.3	18.2	17.0	18.9	19.6
3H	23.3	25.1	24.0	25.8	26.6	18.2	20.0	18.9	20.7	21.5
4H	25.0	26.7	25.7	27.4	28.2	18.9	20.6	19.6	21.3	22.1
6H	26.8	28.4	27.5	29.1	29.9	19.3	20.9	20.1	21.6	22.5
8H	27.6	29.2	28.4	29.9	30.8	19.4	20.9	20.1	21.7	22.5
12H	28.5	30.0	29.3	30.8	31.6	19.4	20.9	20.1	21.7	22.5
4H 2H	20.8	22.5	21.5	23.2	24.0	18.5	20.2	19.2	20.9	21.7
3H	24.6	26.1	25.4	26.9	27.7	20.8	22.3	21.6	23.1	23.9
4H	26.6	28.0	27.4	28.7	29.6	21.8	23.2	22.6	23.9	24.8
6H	28.6	29.8	29.4	30.6	31.5	22.5	23.7	23.2	24.5	25.4
8H	29.6	30.7	30.4	31.5	32.4	22.7	23.8	23.5	24.6	25.5
12H	30.7	31.7	31.5	32.5	33.5	22.8	23.9	23.6	24.7	25.6
8H 4H	27.3	28.5	28.1	29.3	30.2	24.0	25.1	24.8	25.9	26.8
6H	29.6	30.6	30.4	31.4	32.3	25.0	26.0	25.8	26.8	27.8
8H	30.9	31.8	31.7	32.6	33.5	25.5	26.4	26.3	27.2	28.2
12H	32.2	32.9	33.0	33.8	34.8	25.8	26.6	26.6	27.5	28.4
12H 4H	27.5	28.5	28.3	29.3	30.3	24.9	26.0	25.7	26.8	27.7
6H	29.9	30.8	30.7	31.6	32.6	26.2	27.1	27.0	28.0	28.9
8H	31.2	32.0	32.1	32.9	33.8	26.8	27.6	27.6	28.4	29.4

Calculated in accordance with CIBSE Technical Memorandum No. 10 1985

Comments

It is recommended that point to point calculations are used when designing lighting schemes in order to accurately predict uniformity. Data files in various formats are available to allow easy transfer of this data to a computer. Please enquire for details.

Quick Design Table

Based on: reflectances of Ceiling = 0.5
Wall = 0.5
Floor = 0.2
Room Index = 2.00
lamp output = 400 lumens
ballast lumen factor = 1.00

To achieve an Illuminance of 100 lux

Surface Area (m^2)	20	30	40	50	80	100	200	300	500
No. of luminaires	7.9	11.8	15.7	19.7	31.4	39.3	78.6	117.9	196.5

Luminance values

Using a lamp with an initial (100 hour) output of 400 lm

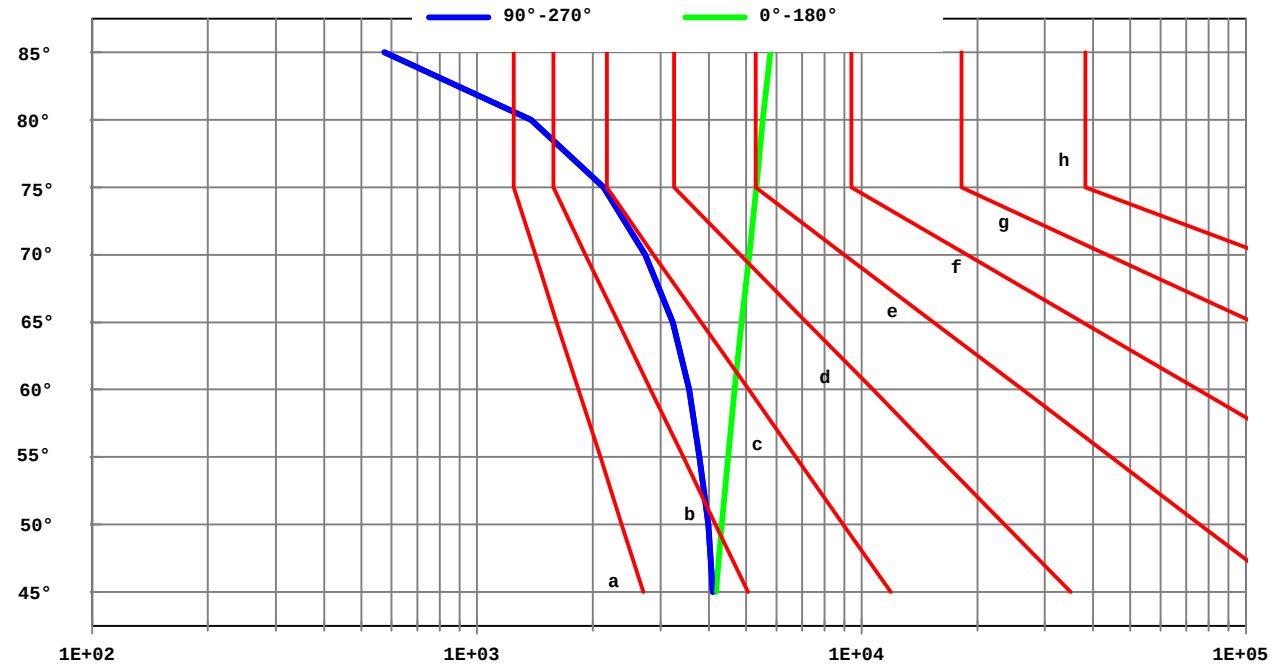
Averaged Luminance values (cd/m^2)

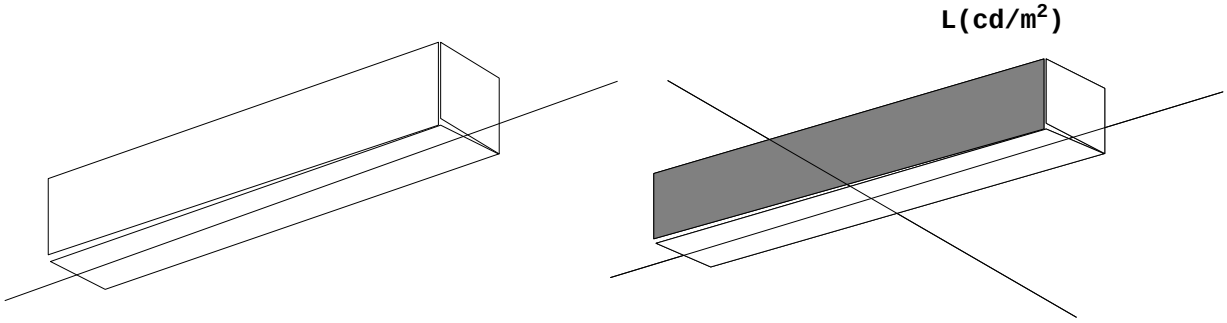
Angle	0°	30°	60°	90°	120°	150°	180°	210°	240°	270°	300°	330°
45°	4193	4068	3837	4112	3837	4068	4193	4068	3837	4112	3837	4068
50°	4333	4153	3777	3998	3777	4153	4333	4153	3777	3998	3777	4153
55°	4500	4292	3741	3786	3741	4292	4500	4292	3741	3786	3741	4292
60°	4687	4466	3720	3563	3720	4466	4687	4466	3720	3563	3720	4466
65°	4891	4642	3782	3236	3782	4642	4891	4642	3782	3236	3782	4642
70°	5121	4842	3869	2739	3869	4842	5121	4842	3869	2739	3869	4842
75°	5341	5054	3960	2136	3960	5054	5341	5054	3960	2136	3960	5054
80°	5541	5268	3998	1385	3998	5268	5541	5268	3998	1385	3998	5268
85°	5802	5456	4035	575	4035	5456	5802	5456	4035	575	4035	5456

Non Averaged Luminance values (cd/m^2)

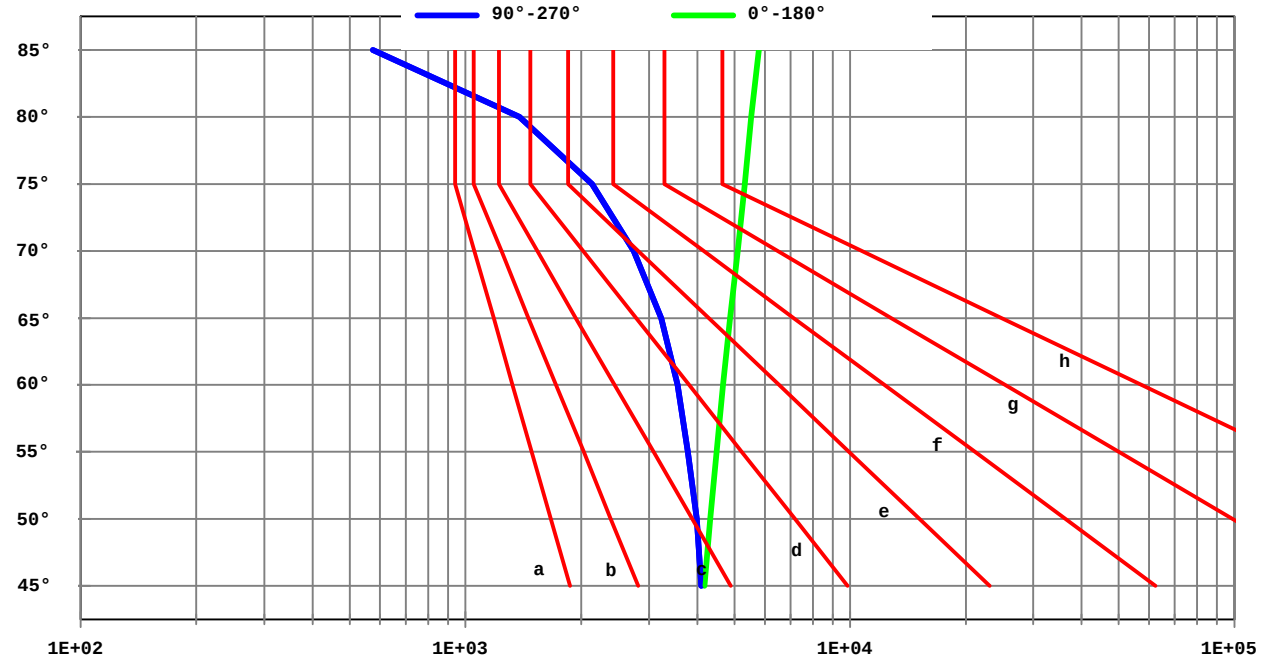
Angle	0°	30°	60°	90°	120°	150°	180°	210°	240°	270°	300°	330°
45°	4165	4069	3858	4147	3873	4103	4222	4079	3829	4077	3788	4018
50°	4302	4152	3815	4057	3814	4192	4363	4158	3773	3939	3705	4111
55°	4461	4285	3781	3833	3767	4334	4540	4305	3724	3740	3693	4243
60°	4652	4462	3761	3602	3762	4508	4721	4471	3712	3524	3647	4422
65°	4853	4637	3826	3312	3806	4696	4928	4654	3774	3160	3724	4579
70°	5092	4846	3922	2797	3882	4892	5150	4848	3873	2681	3799	4781
75°	5308	5061	4027	2314	3978	5098	5373	5067	3960	1958	3876	4989
80°	5508	5315	4023	1425	4027	5299	5573	5279	4035	1344	3907	5180
85°	5734	5576	4199	668	4015	5483	5871	5478	4030	483	3896	5287

Glare Rating	Quality Class	Service values of illuminance (lx)							
1.15	A	2000	1000	500	<300				
1.50	B		2000	1000	500	<300			
1.85	C			2000	1000	500	<300		
2.20	D				2000	1000	500	<300	
2.55	E					2000	1000	500	<300
		a	b	c	d	e	f	g	h





Glare Rating	Quality Class	Service values of illuminance (lx)							
1.15	A	2000	1000	500	<300				
1.50	B		2000	1000	500	<300			
1.85	C			2000	1000	500	<300		
2.20	D				2000	1000	500	<300	
2.55	E					2000	1000	500	<300
		a	b	c	d	e	f	g	h



$L(cd/m^2)$