



## **42 Partners Limited**

Unit 88 IMEX Business Park  
Upper Villiers Street  
Wolverhampton  
WV2 4XB  
UK  
+44 (0) 1902 313142  
42@42partners.com  
<http://www.42partners.com>  
registered in England: 3021552

## **Photometric Test Report**

Job Ref. 42 / 5482  
Report Ref. 42 / 5482 / 54822a  
Report Date 2002.12.30

Customer Encapsulite

Luminaire catalog No. MT50 IP68 14W CLEAR  
Luminaire description linear cylindrical luminaire  
with clear cover  
data derived from range test series

Lamp description 14W T5 550mm HE  
Lamp lumen output 1200lm  
No. of lamps in luminaire 1

width of luminaire 0.050m  
length of luminaire 0.660m  
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.

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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 perpendicular to the front face of the reflector.

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Light Output Ratios	Up	0.13
	Down	0.88
	Total	1.01

Lighting design calculations should be performed using an initial (100 hour) lumen output of 1200 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	.57	.64	.69	.77	.82	.86	.91	.94			
	.30		N/A	.49	.56	.61	.69	.75	.79	.85	.89			
	.10		N/A	.42	.49	.55	.63	.69	.74	.80	.85			
.50	.50	.20	N/A	.54	.60	.65	.71	.76	.80	.84	.88			
	.30		N/A	.47	.53	.58	.65	.70	.74	.80	.84			
	.10		N/A	.41	.47	.52	.60	.65	.70	.76	.80			
.30	.50	.20	N/A	.51	.56	.60	.67	.71	.74	.78	.81			
	.30		N/A	.44	.50	.55	.61	.66	.70	.75	.78			
	.10		N/A	.39	.45	.50	.57	.62	.66	.71	.75			
.00	.00	.00	N/A	.35	.41	.45	.51	.56	.59	.64	.68			
BZ Class			N/A	6	6	6	6	6	6	6	6			
CIE Flux code			33 / 61 / 83 / 87 / 101											
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 / 8 / 9 / -											
Flux Fraction Ratio			0.14											
DIN Class			1.01 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°	201.90	201.90	201.90
5°	202.13	201.20	201.43
10°	202.26	198.46	199.41
15°	202.45	193.73	195.95
20°	202.40	187.51	191.45
25°	201.94	179.30	185.77
30°	201.02	168.95	178.53
35°	199.68	157.17	169.97
40°	198.34	143.95	160.69
45°	197.32	129.01	150.46
50°	197.19	114.02	139.79
55°	196.31	96.35	129.20
60°	194.00	79.05	118.27
65°	190.03	60.67	108.95
70°	184.45	41.56	99.04
75°	175.77	24.53	87.91
80°	163.73	10.67	74.48
85°	150.67	2.22	60.19
90°	143.56	0.00	50.80
95°	141.16	0.00	43.74
100°	125.93	0.00	16.28
105°	103.69	0.00	1.46
110°	23.17	0.00	0.53
115°	0.88	0.00	0.21
120°	0.51	0.00	0.16
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

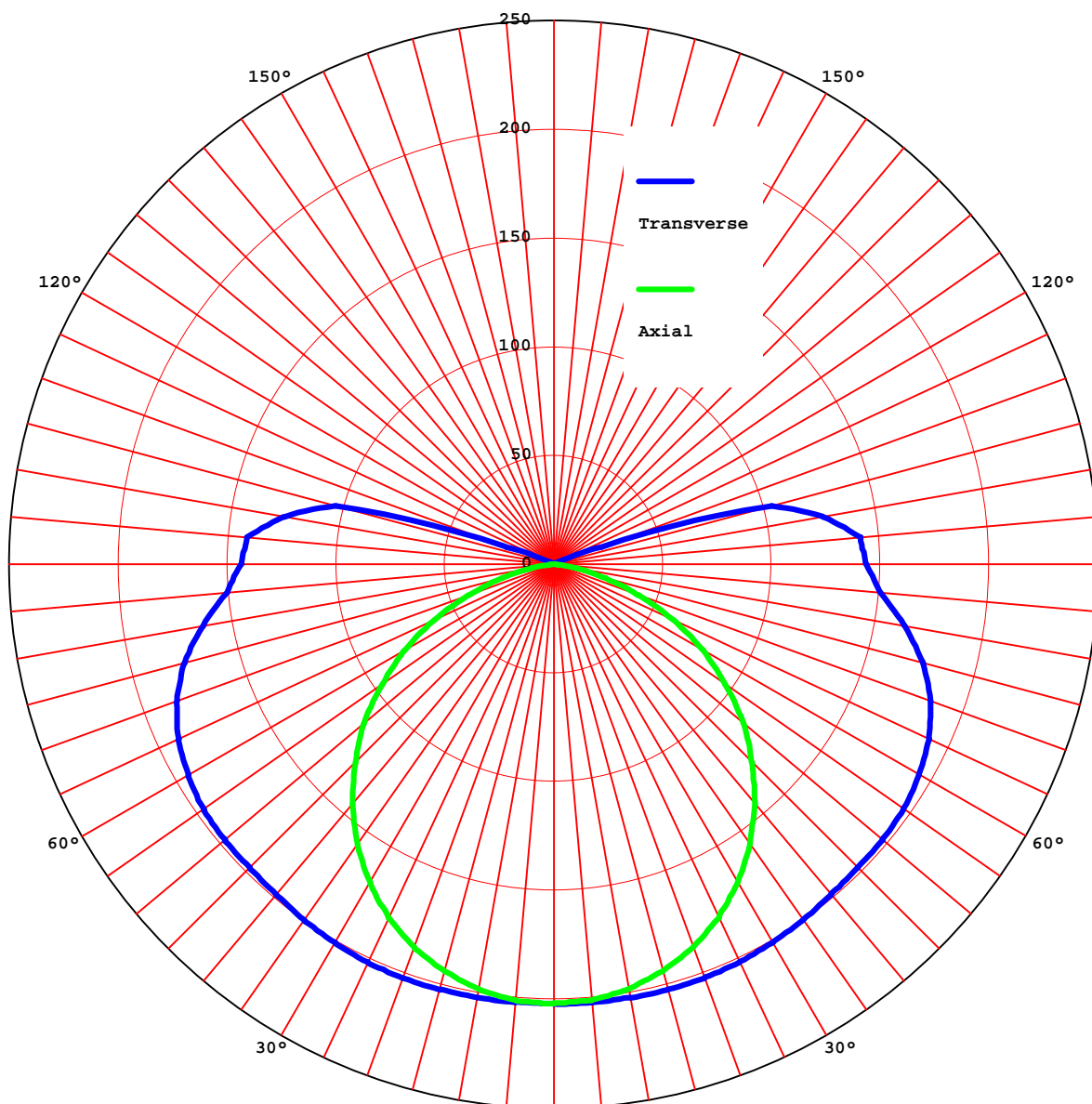
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Luminous Intensities (cd/Klm)



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°	1.9%	1.9%
10°- 20°	5.6%	5.6%
20°- 30°	8.8%	8.8%
30°- 40°	11.3%	11.2%
40°- 50°	12.8%	12.7%
50°- 60°	13.5%	13.4%
60°- 70°	13.3%	13.2%
70°- 80°	12.0%	11.9%
80°- 90°	9.5%	9.5%
90°-100°	8.3%	8.2%
100°-110°	4.4%	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°	201.9	201.9	201.9	201.9	201.9	201.9
5°	202.1	201.8	201.4	201.2	201.4	201.8
10°	202.3	201.5	199.4	198.5	199.4	201.5
15°	202.4	200.6	196.0	193.7	196.0	200.6
20°	202.4	199.0	191.5	187.5	191.5	199.0
25°	201.9	196.7	185.8	179.3	185.8	196.7
30°	201.0	194.1	178.5	169.0	178.5	194.1
35°	199.7	190.4	170.0	157.2	170.0	190.4
40°	198.3	186.8	160.7	143.9	160.7	186.8
45°	197.3	182.9	150.5	129.0	150.5	182.9
50°	197.2	179.6	139.8	114.0	139.8	179.6
55°	196.3	176.7	129.2	96.3	129.2	176.7
60°	194.0	173.4	118.3	79.0	118.3	173.4
65°	190.0	167.9	108.9	60.7	108.9	167.9
70°	184.4	160.9	99.0	41.6	99.0	160.9
75°	175.8	151.8	87.9	24.5	87.9	151.8
80°	163.7	140.3	74.5	10.7	74.5	140.3
85°	150.7	125.5	60.2	2.2	60.2	125.5
90°	143.6	118.1	50.8	0.0	50.8	118.1
95°	141.2	114.1	43.7	0.0	43.7	114.1
100°	125.9	98.7	16.3	0.0	16.3	98.7
105°	103.7	72.6	1.5	0.0	1.5	72.6
110°	23.2	1.0	0.5	0.0	0.5	1.0
115°	0.9	0.5	0.2	0.0	0.2	0.5
120°	0.5	0.5	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

Average Luminous Intensities (cd/Klm)

Angles	180°	210°	240°	270°	300°	330°
0°	201.9	201.9	201.9	201.9	201.9	201.9
5°	202.1	201.8	201.4	201.2	201.4	201.8
10°	202.3	201.5	199.4	198.5	199.4	201.5
15°	202.4	200.6	196.0	193.7	196.0	200.6
20°	202.4	199.0	191.5	187.5	191.5	199.0
25°	201.9	196.7	185.8	179.3	185.8	196.7
30°	201.0	194.1	178.5	169.0	178.5	194.1
35°	199.7	190.4	170.0	157.2	170.0	190.4
40°	198.3	186.8	160.7	143.9	160.7	186.8
45°	197.3	182.9	150.5	129.0	150.5	182.9
50°	197.2	179.6	139.8	114.0	139.8	179.6
55°	196.3	176.7	129.2	96.3	129.2	176.7
60°	194.0	173.4	118.3	79.0	118.3	173.4
65°	190.0	167.9	108.9	60.7	108.9	167.9
70°	184.4	160.9	99.0	41.6	99.0	160.9
75°	175.8	151.8	87.9	24.5	87.9	151.8
80°	163.7	140.3	74.5	10.7	74.5	140.3
85°	150.7	125.5	60.2	2.2	60.2	125.5
90°	143.6	118.1	50.8	0.0	50.8	118.1
95°	141.2	114.1	43.7	0.0	43.7	114.1
100°	125.9	98.7	16.3	0.0	16.3	98.7
105°	103.7	72.6	1.5	0.0	1.5	72.6
110°	23.2	1.0	0.5	0.0	0.5	1.0
115°	0.9	0.5	0.2	0.0	0.2	0.5
120°	0.5	0.5	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

Non Averaged Luminous Intensities (cd/Klm)

Angles	0°	30°	60°	90°	120°	150°
0°	201.9	201.9	201.9	201.9	201.9	201.9
5°	201.9	201.7	201.5	201.2	201.7	202.0
10°	201.8	201.4	199.6	198.7	200.1	202.1
15°	201.6	200.2	196.3	194.0	197.0	201.6
20°	201.4	198.8	191.7	188.1	192.5	200.2
25°	200.9	196.5	185.9	179.9	187.1	198.1
30°	199.9	193.8	178.8	169.9	180.1	195.4
35°	198.4	190.4	170.2	157.6	171.2	192.1
40°	197.0	186.7	161.8	145.1	162.1	188.3
45°	196.0	182.9	151.3	130.1	151.9	184.5
50°	195.8	179.5	141.2	115.7	141.2	181.3
55°	194.6	176.5	130.6	97.5	130.1	178.5
60°	192.6	173.2	119.5	79.9	119.6	175.0
65°	188.6	167.7	110.2	62.1	109.6	169.8
70°	183.4	161.0	100.4	42.4	99.4	162.5
75°	174.7	152.0	89.4	26.6	88.3	153.1
80°	162.8	141.5	74.9	11.0	75.0	141.1
85°	148.9	128.3	62.6	2.6	59.9	126.2
90°	141.6	117.7	52.0	0.0	50.0	119.1
95°	138.3	113.0	45.8	0.0	43.9	116.7
100°	123.7	99.1	25.5	0.0	14.2	100.4
105°	104.1	80.0	1.9	0.0	1.5	72.4
110°	23.2	0.9	0.6	0.0	0.4	0.9
115°	0.9	0.5	0.3	0.0	0.1	0.6
120°	0.4	0.4	0.2	0.0	0.1	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



Non Averaged Luminous Intensities (cd/Klm)

Angles	180°	210°	240°	270°	300°	330°
0°	201.9	201.9	201.9	201.9	201.9	201.9
5°	202.4	202.0	201.2	201.1	201.2	201.6
10°	202.7	201.8	199.1	198.3	198.9	200.7
15°	203.3	201.0	195.7	193.5	194.9	199.6
20°	203.4	199.5	191.0	187.0	190.6	197.5
25°	203.0	196.8	185.3	178.7	184.8	195.3
30°	202.2	194.2	178.2	168.0	177.0	193.1
35°	201.0	190.6	169.8	156.7	168.7	188.4
40°	199.7	187.4	160.2	142.7	158.6	184.7
45°	198.7	183.4	150.1	127.9	148.5	180.7
50°	198.6	179.8	139.6	112.3	137.2	177.8
55°	198.0	177.3	128.6	95.2	127.5	174.8
60°	195.4	173.6	118.0	78.2	115.9	171.7
65°	191.5	168.3	108.7	59.2	107.3	165.6
70°	185.5	161.1	99.1	40.7	97.3	158.9
75°	176.8	152.2	87.9	22.5	86.0	149.9
80°	164.7	140.5	75.2	10.4	72.8	137.9
85°	152.4	126.0	60.1	1.9	58.1	121.6
90°	145.5	119.8	52.1	0.0	49.0	115.8
95°	144.1	116.8	43.9	0.0	41.4	109.9
100°	128.2	99.7	10.7	0.0	14.7	95.6
105°	103.3	69.5	1.5	0.0	0.9	68.6
110°	23.1	1.0	0.7	0.0	0.5	1.1
115°	0.8	0.6	0.2	0.0	0.3	0.6
120°	0.6	0.5	0.2	0.0	0.2	0.6
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		Viewed crosswise					Viewed endwise				
X	Y	0°					90°				
2H	2H	18.1	20.0	18.8	20.7	21.4	14.5	16.4	15.2	17.1	17.9
	3H	21.6	23.3	22.2	24.0	24.8	16.5	18.2	17.2	18.9	19.7
	4H	23.2	24.9	23.9	25.6	26.4	17.1	18.8	17.8	19.5	20.3
	6H	25.0	26.6	25.7	27.3	28.2	17.6	19.1	18.3	19.9	20.7
	8H	25.9	27.4	26.6	28.1	29.0	17.6	19.2	18.4	19.9	20.7
	12H	26.8	28.3	27.5	29.0	29.9	17.6	19.1	18.4	19.9	20.7
4H	2H	19.1	20.7	19.8	21.5	22.3	16.7	18.4	17.4	19.1	19.9
	3H	22.9	24.4	23.6	25.1	26.0	19.1	20.6	19.8	21.3	22.2
	4H	24.9	26.2	25.6	27.0	27.9	20.1	21.4	20.8	22.2	23.1
	6H	26.8	28.0	27.6	28.8	29.7	20.7	21.9	21.5	22.7	23.6
	8H	27.8	29.0	28.6	29.8	30.7	20.9	22.1	21.7	22.9	23.8
	12H	28.9	30.0	29.7	30.7	31.7	21.0	22.1	21.8	22.9	23.9
8H	4H	25.5	26.7	26.3	27.5	28.4	22.2	23.4	23.0	24.2	25.1
	6H	27.8	28.8	28.6	29.6	30.5	23.2	24.2	24.0	25.0	26.0
	8H	29.1	30.0	29.9	30.8	31.8	23.7	24.6	24.6	25.5	26.4
	12H	30.4	31.2	31.2	32.0	33.0	24.0	24.8	24.9	25.7	26.6
12H	4H	25.7	26.8	26.5	27.5	28.5	23.1	24.2	23.9	25.0	25.9
	6H	28.1	29.0	28.9	29.9	30.8	24.4	25.3	25.3	26.2	27.1
	8H	29.5	30.2	30.3	31.1	32.0	25.0	25.8	25.9	26.7	27.6

Calculated in accordance with CIBSE Technical Memorandum No. 10 1985





Luminance values

Using a lamp with an initial (100 hour) output of 1200 lm

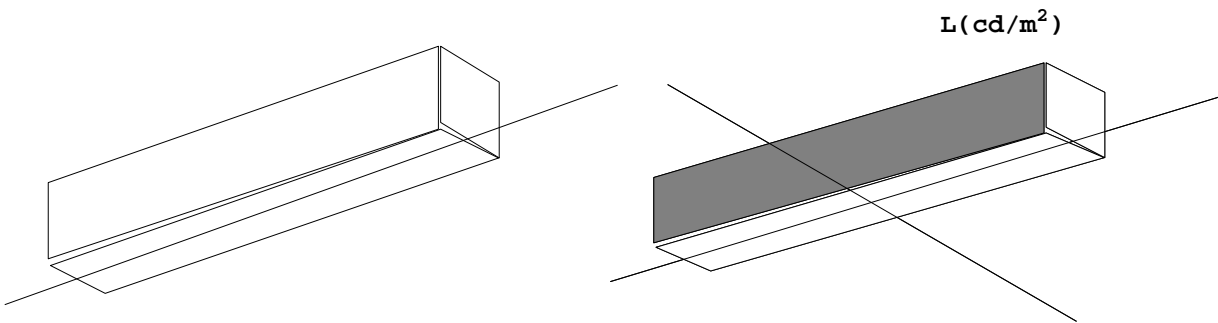
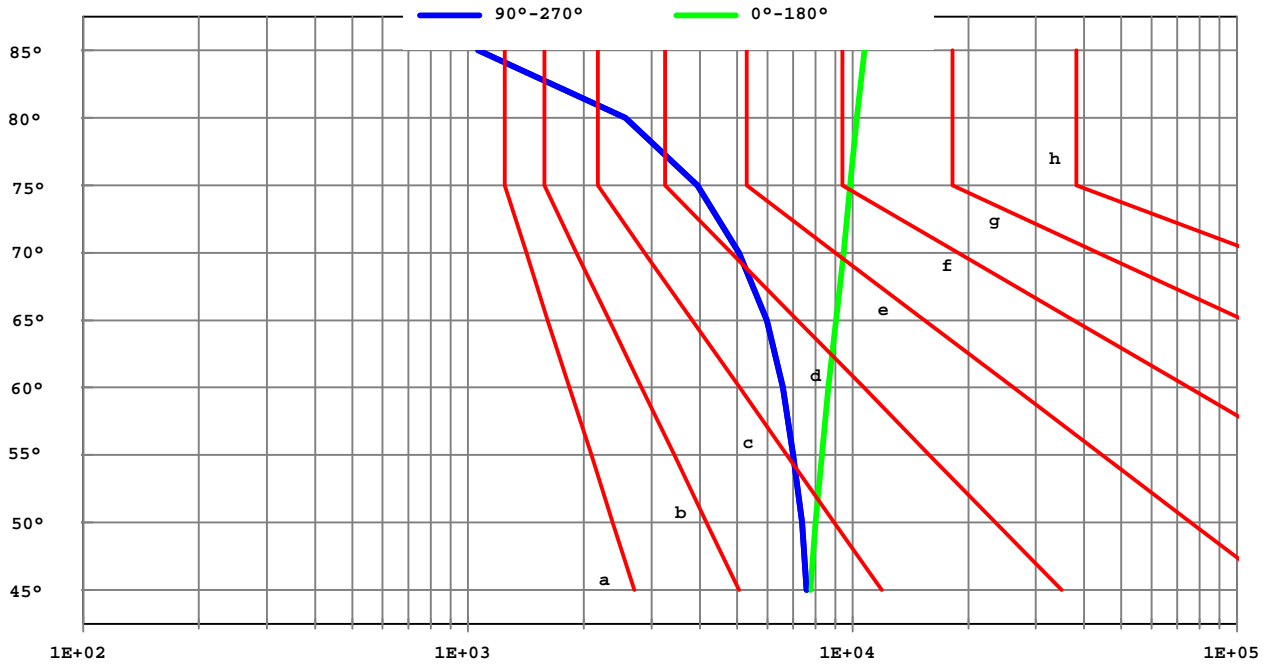
Averaged Luminance values (cd/m<sup>2</sup>)

Angle	0°	30°	60°	90°	120°	150°	180°	210°	240°	270°	300°	330°
45°	7765	7533	7105	7615	7105	7533	7765	7533	7105	7615	7105	7533
50°	8023	7692	6994	7404	6994	7692	8023	7692	6994	7404	6994	7692
55°	8334	7947	6928	7011	6928	7947	8334	7947	6928	7011	6928	7947
60°	8679	8270	6890	6599	6890	8270	8679	8270	6890	6599	6890	8270
65°	9057	8596	7005	5992	7005	8596	9057	8596	7005	5992	7005	8596
70°	9483	8966	7165	5072	7165	8966	9483	8966	7165	5072	7165	8966
75°	9891	9359	7334	3956	7334	9359	9891	9359	7334	3956	7334	9359
80°	10260	9756	7404	2564	7404	9756	10260	9756	7404	2564	7404	9756
85°	10745	10104	7472	1065	7472	10104	10745	10104	7472	1065	7472	10104

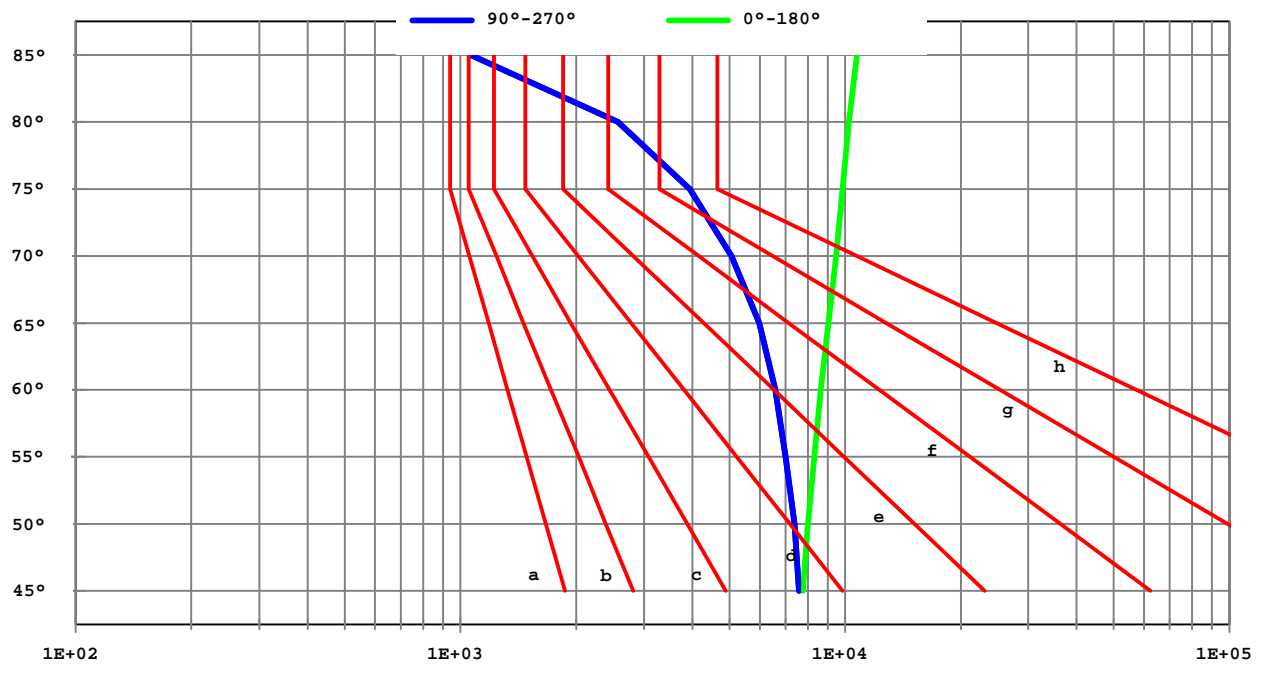
Non Averaged Luminance values (cd/m<sup>2</sup>)

Angle	0°	30°	60°	90°	120°	150°	180°	210°	240°	270°	300°	330°
45°	7712	7535	7144	7680	7172	7599	7818	7554	7090	7550	7015	7442
50°	7967	7689	7064	7514	7063	7763	8080	7700	6986	7294	6862	7614
55°	8261	7934	7001	7098	6977	8026	8407	7971	6895	6925	6839	7858
60°	8614	8263	6964	6671	6966	8347	8744	8280	6874	6527	6754	8189
65°	8988	8587	7085	6133	7048	8697	9126	8619	6989	5851	6896	8480
70°	9429	8974	7263	5180	7190	9059	9537	8978	7172	4964	7036	8854
75°	9830	9373	7457	4286	7367	9441	9951	9383	7333	3626	7179	9239
80°	10201	9842	7451	2639	7458	9813	10320	9776	7472	2489	7235	9592
85°	10619	10326	7777	1237	7435	10155	10871	10144	7463	894	7214	9790

Glare Rating	Quality Class	Service values of illuminance (lx)							
		a	b	c	d	e	f	g	h
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



Glare Rating	Quality Class	Service values of illuminance (lx)							
		a	b	c	d	e	f	g	h
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



L (cd/m<sup>2</sup>)

