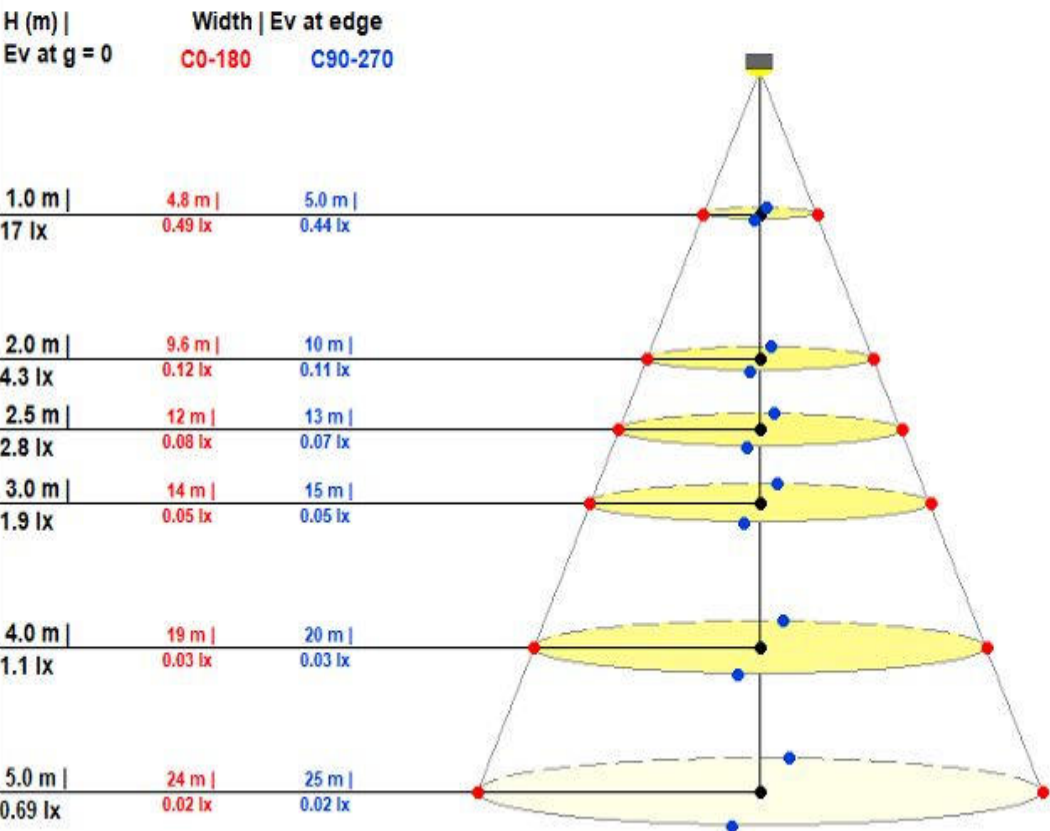
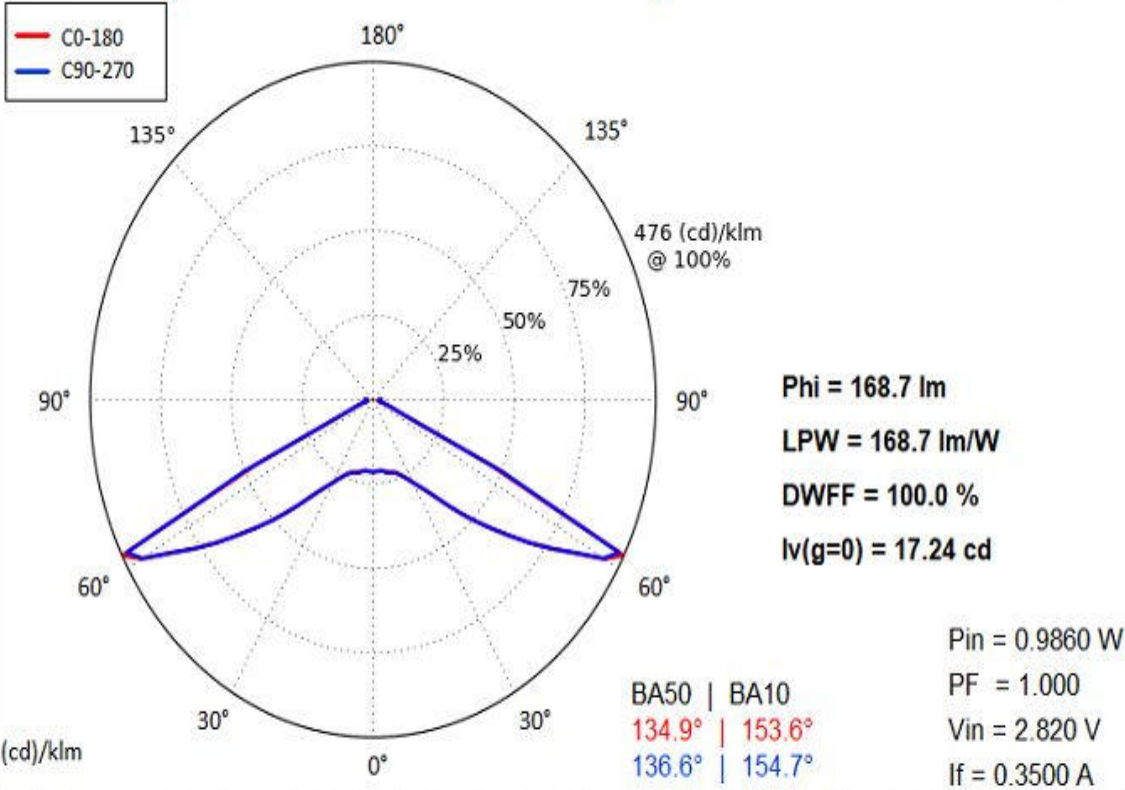


Goniophotometric Test Report



Beam angle determined by Luminous Intesity, Iv(0deg)*50%. C0-180: 134.9 deg, C90-270: 136.6 deg

Table. Measurement results of the main luminous parameters

Luminous flux	Input power	Luminous efficacy	LOR	DWFF	Luminous intensity (g=0)
168.7 lm	1 W	168.7 lm/W	100.0 %	100.0 %	17.24 cd

Table. Electrical parameters during the light measurements.

	Pin	PF	Vin	If
Value	0.9860 W	1.000	2.820 V	0.3500 A
St.dev.	0.00 %	0.00 %	0.00 %	0.00 %

Table. Maximum Luminous Intensity and its direction

Iv	g	C plane
80 cd	62.5°	0.0°

Table. Beam widths at two perpendicular planes

	Beam angle, FWHM, 50 % (deg)	Beam angle, 10% (deg)	Effective beam direction from g=0
C0-180	134.9°	153.6°	-0.0°
C90-270	136.6°	154.7°	0.0°

Figure. Polar curve of the angular Luminous Intesity distribution at two perpendicular C planes and at C plane with maximum Luminous Intesity.

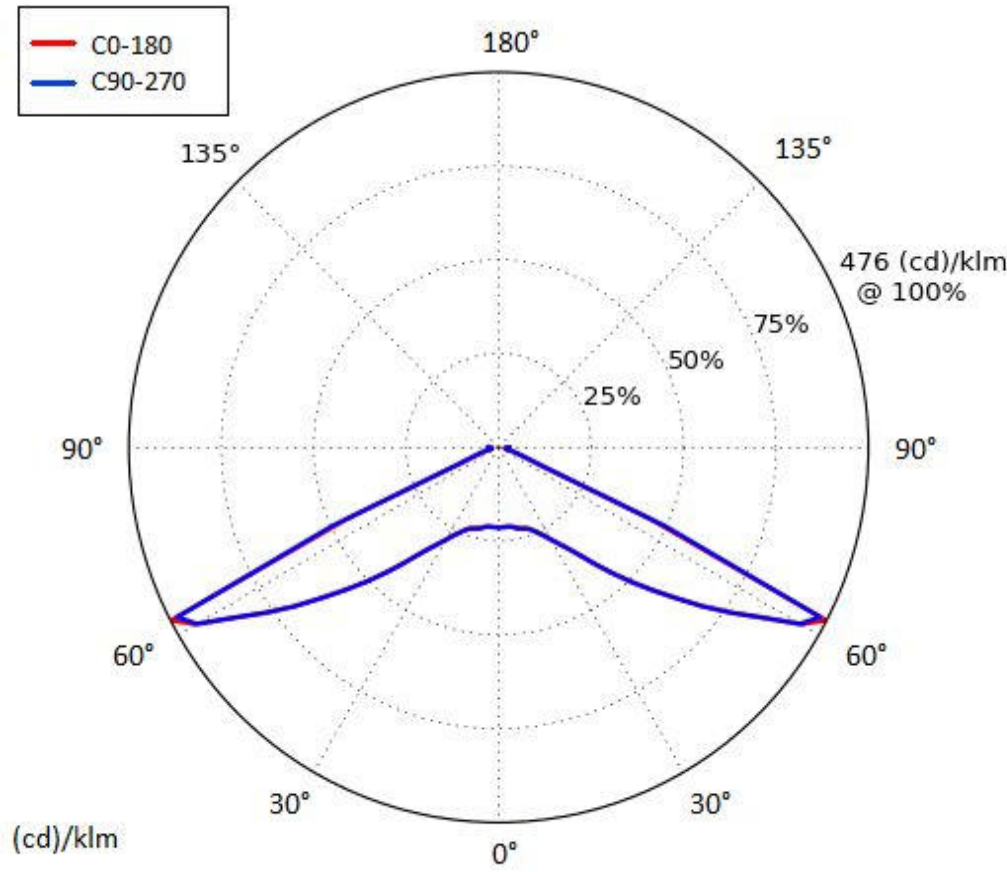
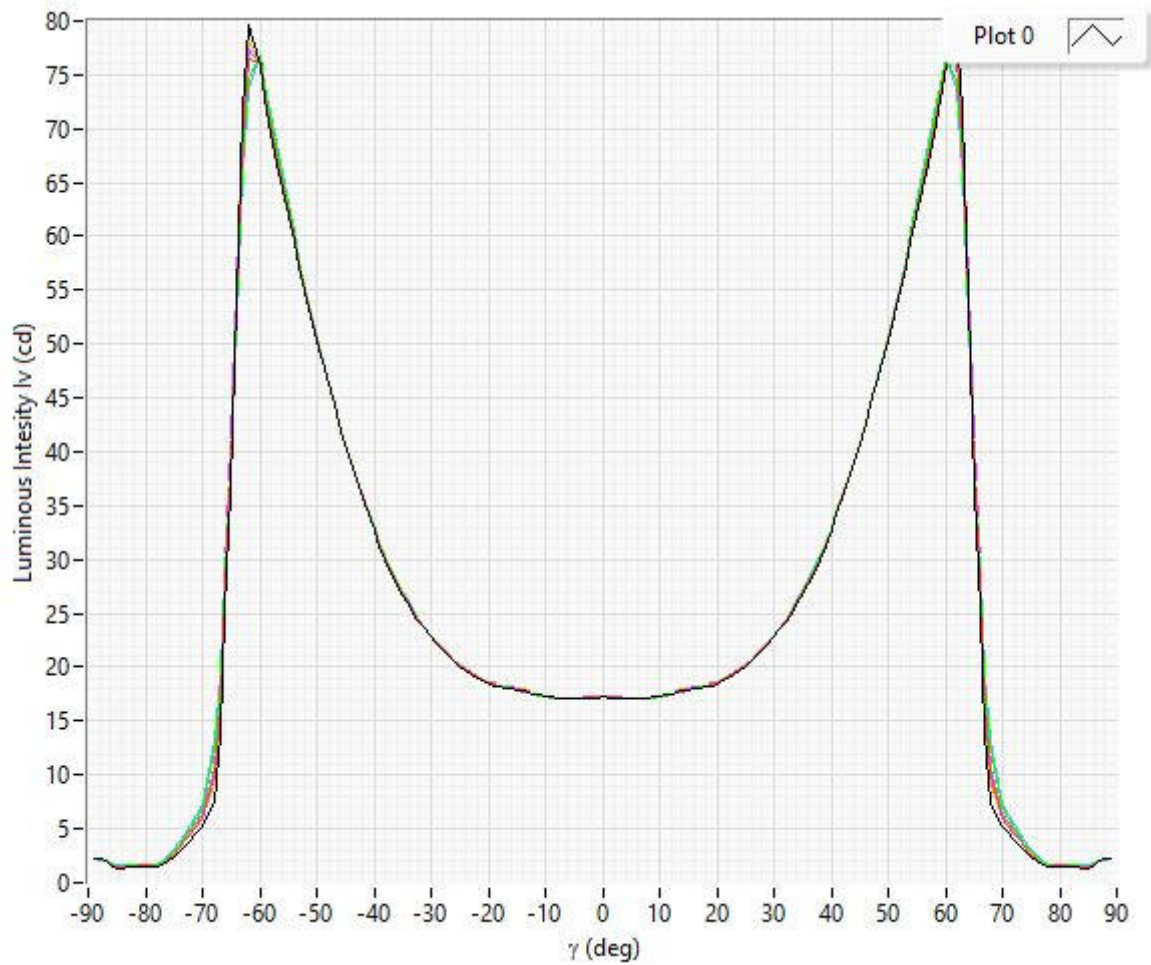


Figure. Luminous Intesity distribution in cartesian diagram at all measured C planes.



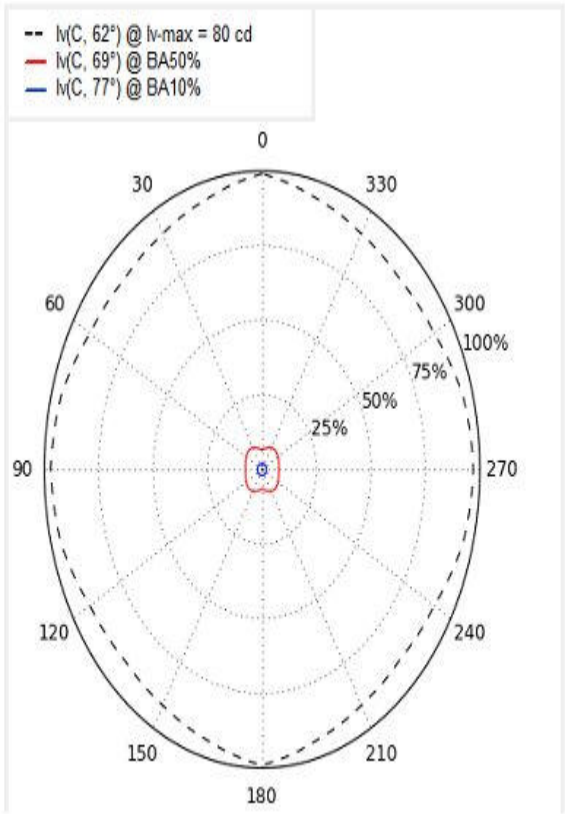


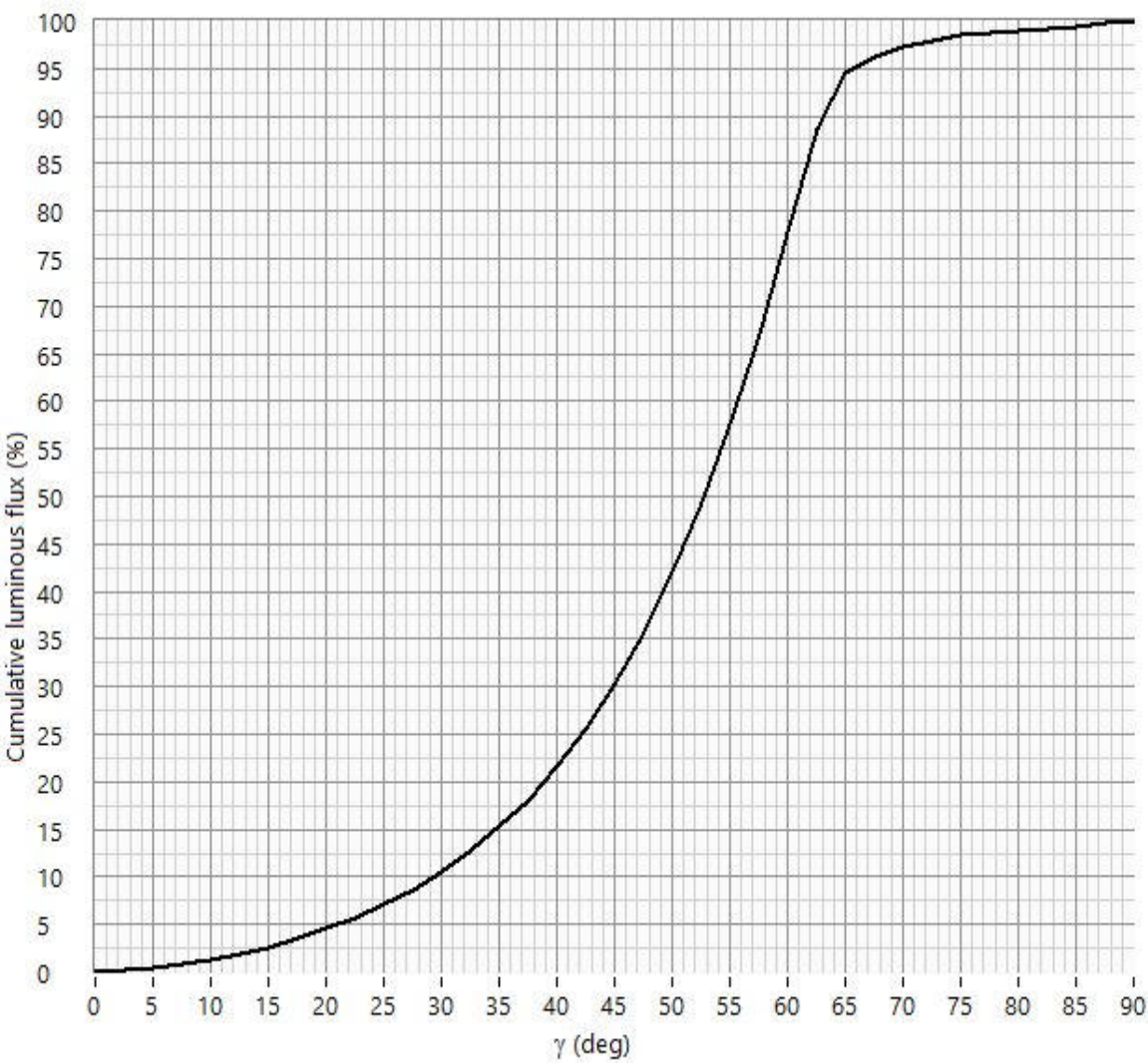
Table. Zonal lumen summary

	Lumens	Relative lumens (%)
0-20	7.64	4.53
0-30	17.84	10.57
0-40	36.41	21.58
0-60	131.30	77.83
0-80	167.00	98.99
0-90	168.70	100.00
10-90	166.62	98.77
20-40	28.77	17.05
20-50	63.24	37.49
40-70	127.79	75.75
40-90	132.29	78.42
60-80	35.70	21.16
60-90	37.40	22.17
70-80	2.80	1.66
80-90	1.70	1.01
90-110	0.00	0.00
90-120	0.00	0.00
90-130	0.00	0.00
90-150	0.00	0.00
90-180	0.00	0.00
110-180	0.00	0.00
0-180	168.70	100.00
	2.08	1.23

Table. Cumulative and Zonal luminous flux

gamma (deg)	Zone Flux (lm)	Sum Flux (lm)	Zone Flux (%)	Sum Flux (%)
0	0.02582	0.02582	0.0153	0.0153
2.5	0.2057	0.2315	0.1219	0.1372
5	0.4098	0.6413	0.2429	0.3801
7.5	0.6123	1.254	0.3629	0.743
10	0.8227	2.076	0.4876	1.231
12.5	1.047	3.123	0.6205	1.851
15	1.272	4.395	0.754	2.605
17.5	1.503	5.898	0.8908	3.496
20	1.742	7.64	1.033	4.529
22.5	2.021	9.661	1.198	5.726
25	2.337	12	1.385	7.112
27.5	2.7	14.7	1.601	8.712
30	3.139	17.84	1.861	10.57
32.5	3.643	21.48	2.159	12.73
35	4.222	25.7	2.502	15.23
37.5	4.926	30.63	2.919	18.15
40	5.786	36.41	3.429	21.58
42.5	6.779	43.19	4.018	25.6
45	7.912	51.1	4.69	30.29
47.5	9.174	60.28	5.438	35.73
50	10.61	70.88	6.287	42.01
52.5	12.24	83.12	7.255	49.27
55	14.02	97.15	8.313	57.58
57.5	15.96	113.1	9.46	67.04
60	18.15	131.3	10.76	77.8
62.5	18.44	149.7	10.93	88.73
65	9.643	159.3	5.716	94.44
67.5	3.133	162.5	1.857	96.3
70	1.681	164.2	0.9962	97.29
72.5	1.164	165.3	0.6901	97.99
75	0.7686	166.1	0.4555	98.44
77.5	0.4311	166.5	0.2555	98.7
80	0.4583	167	0.2716	98.97
82.5	0.4321	167.4	0.2561	99.22
85	0.4134	167.8	0.245	99.47
87.5	0.5848	168.4	0.3466	99.82
90	0.3114	168.7	0.1846	100

Figure. Cumulative luminous flux



Söllner diagram (EN 12464) - Luminance

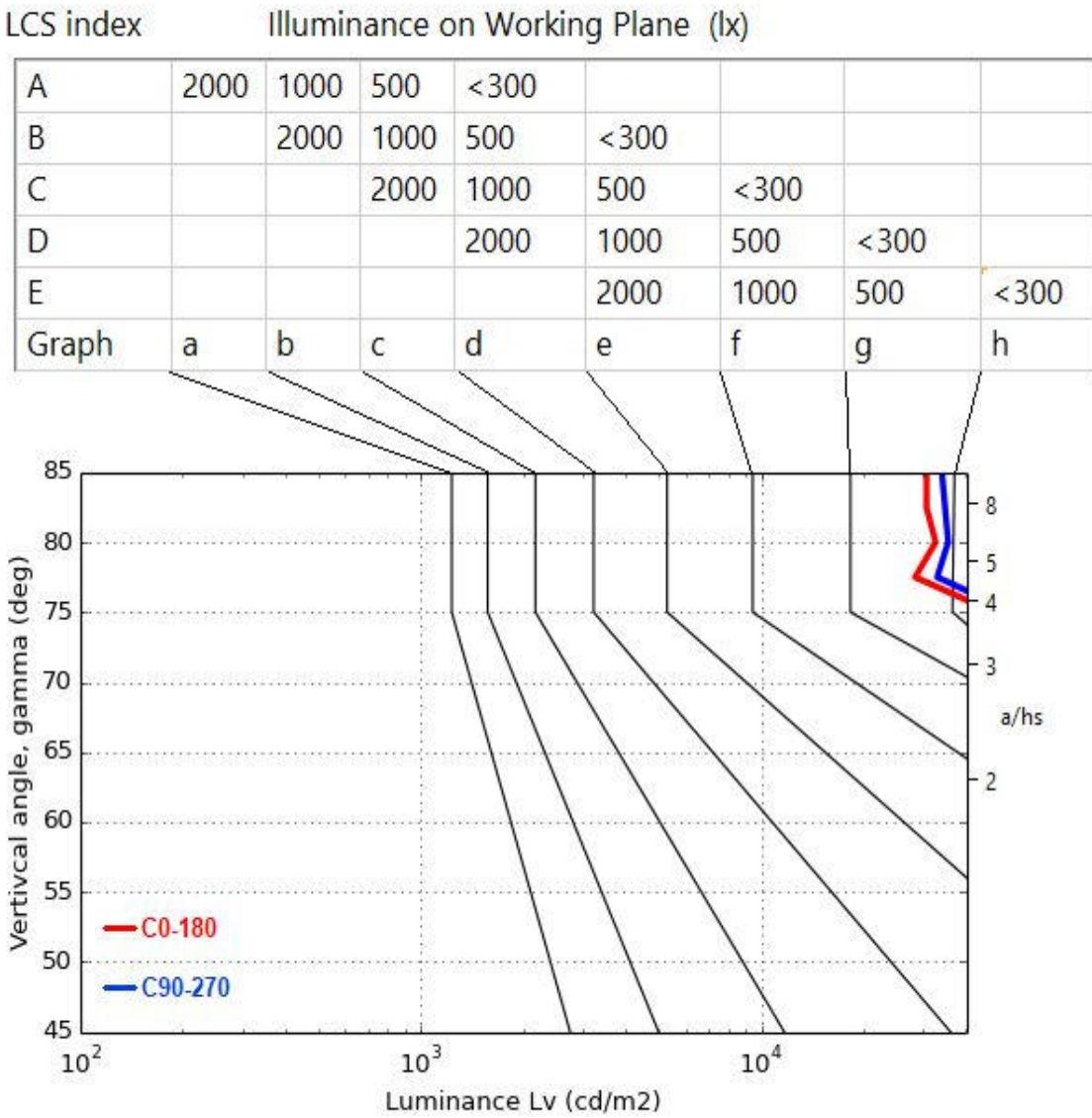


Table. Luminance [Lv] = cd/m2

	C 0	C 45	C 90
γ 0	343554	343554	343554
γ 45	638811	638231	639783
γ 55	1004536	1023819	1003820
γ 65	634153	662826	698786
γ 75	48197	60373	55072
γ 85	30626	36013	33977

UGR table (CIE 190)

Ceiling		70	70	50	50	30		70	70	50	50	30
Walls		50	30	50	30	30		50	30	50	30	30
Floor		20	20	20	20	20		20	20	20	20	20
Room size		Viewing direction at right angles to lamp axis						Viewing direction parallel to lamp axis				
	X Y											
2H	2H	39.1	41.0	39.4	41.3	41.6		39.1	41.0	39.4	41.3	41.6
	3H	39.2	40.9	39.6	41.3	41.6		39.2	41.0	39.6	41.3	41.6
	4H	39.2	40.8	39.6	41.1	41.5		39.2	40.8	39.6	41.2	41.5
	6H	39.1	40.7	39.5	41.0	41.4		39.2	40.7	39.6	41.0	41.4
	8H	39.1	40.6	39.5	41.0	41.4		39.2	40.6	39.6	41.0	41.4
	12H	39.1	40.5	39.5	40.9	41.3		39.1	40.5	39.6	40.9	41.3
4H	2H	39.3	41.0	39.7	41.3	41.7		39.3	41.0	39.7	41.3	41.7
	3H	39.5	40.8	39.9	41.2	41.6		39.5	40.9	39.9	41.3	41.7
	4H	39.5	40.7	39.9	41.1	41.5		39.5	40.7	39.9	41.1	41.6
	6H	39.4	40.5	39.9	41.0	41.4		39.5	40.5	39.9	41.0	41.4
	8H	39.4	40.4	39.9	40.9	41.3		39.5	40.5	39.9	40.9	41.4
	12H	39.4	40.3	39.9	40.8	41.3		39.5	40.4	39.9	40.8	41.3
8H	4H	39.4	40.4	39.9	40.9	41.3		39.5	40.5	39.9	40.9	41.4
	6H	39.4	40.2	39.9	40.7	41.2		39.4	40.3	39.9	40.7	41.2
	8H	39.4	40.1	39.9	40.6	41.1		39.4	40.1	39.9	40.6	41.1
	12H	39.4	40.0	39.9	40.5	41.1		39.4	40.1	39.9	40.5	41.1
12H	4H	39.4	40.3	39.9	40.8	41.3		39.5	40.3	39.9	40.8	41.3
	6H	39.4	40.1	39.9	40.6	41.1		39.4	40.2	39.9	40.6	41.2
	8H	39.4	40.0	39.9	40.5	41.1		39.4	40.1	39.9	40.5	41.1

Figure. Number of luminaires in different sizes of rectangular spaces.

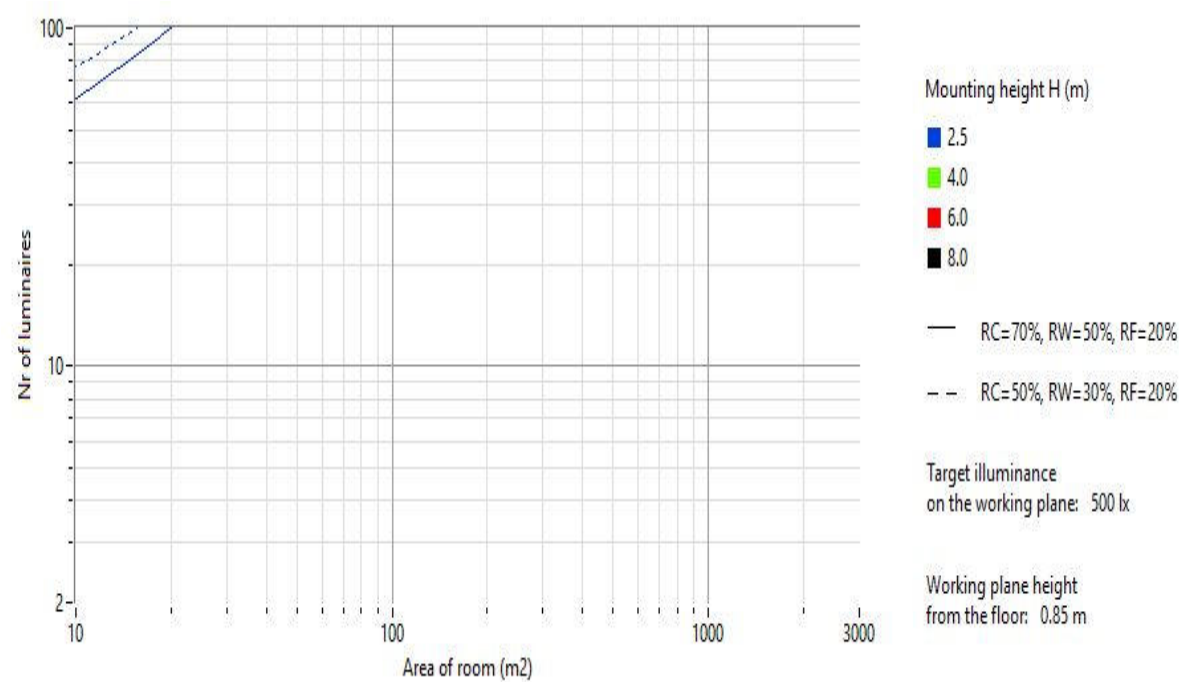


Table. Coefficient of Utilization (CU).

RC	80				70				50			30			10		
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RF / RCR	20				20				20			20			20		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102
1	87	83	79	76	88	84	81	77	87	84	81	89	86	84	91	89	87
2	82	74	67	62	82	74	68	63	75	70	65	76	71	67	77	72	69
3	76	65	57	50	75	65	57	50	65	58	52	65	58	53	64	59	54
4	70	57	47	40	69	57	48	41	56	48	41	55	48	42	54	48	43
5	64	50	40	33	63	49	40	33	48	40	34	48	40	34	47	40	34
6	59	44	34	27	57	43	34	27	42	34	27	41	34	28	41	34	28
7	54	39	29	23	53	39	29	23	38	29	23	37	29	23	36	29	23
8	50	35	26	19	49	35	25	19	34	25	19	33	25	19	32	25	20
9	46	32	23	16	45	31	22	16	30	22	17	29	22	17	29	22	17
10	43	29	20	14	42	28	20	14	28	20	14	27	20	14	26	19	14

Table. Wall Exitance Coefficients (WEC).

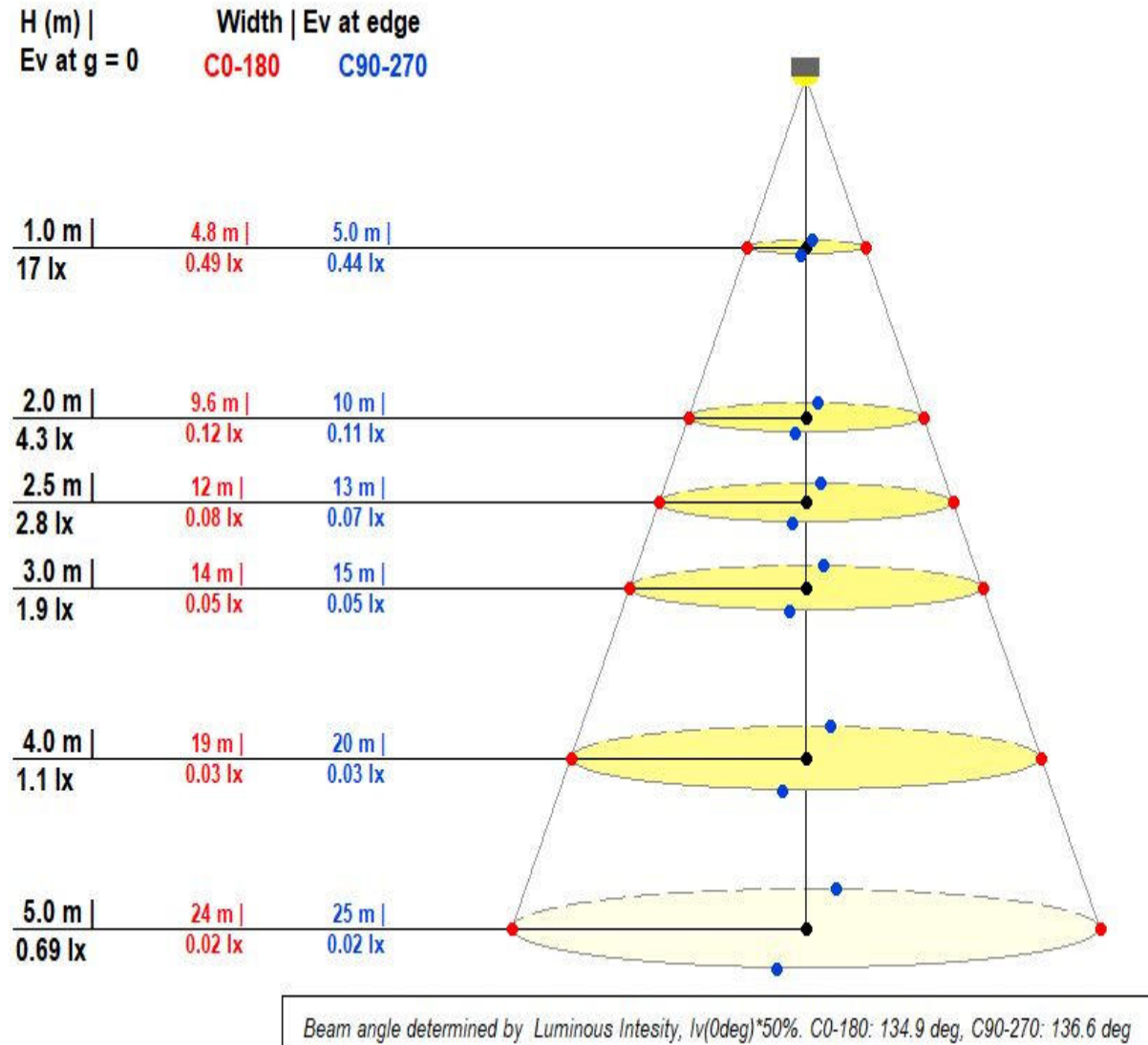
RC	80				70				50			30			10		
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RF / RCR	20				20				20			20			20		
1	49.1	33.1	18.8	6.0	47.8	32.4	18.5	5.9	31.1	17.8	5.7	29.8	17.2	5.5	28.7	16.6	5.4
2	50.3	32.6	17.8	5.5	49.1	31.9	17.6	5.4	30.7	17.1	5.3	29.6	16.6	5.2	28.6	16.2	5.1
3	49.4	30.8	16.4	4.9	48.1	30.2	16.2	4.9	29.1	15.8	4.8	28.1	15.4	4.7	27.2	15.1	4.7
4	47.4	28.6	14.9	4.4	46.2	28.1	14.7	4.4	27.2	14.4	4.3	26.3	14.1	4.3	25.4	13.8	4.2
5	45.1	26.5	13.5	3.9	43.9	26.1	13.4	3.9	25.2	13.1	3.9	24.4	12.9	3.8	23.6	12.6	3.8
6	42.7	24.5	12.3	3.5	41.6	24.1	12.2	3.5	23.3	12.0	3.5	22.6	11.7	3.5	21.9	11.5	3.4
7	40.4	22.7	11.2	3.2	39.3	22.3	11.1	3.2	21.6	10.9	3.2	21.0	10.8	3.1	20.4	10.6	3.1
8	38.2	21.1	10.3	2.9	37.1	20.7	10.2	2.9	20.1	10.0	2.9	19.5	9.9	2.9	19.0	9.7	2.8
9	36.1	19.6	9.5	2.6	35.2	19.3	9.4	2.6	18.7	9.3	2.6	18.2	9.1	2.6	17.7	9.0	2.6
10	34.2	18.3	8.8	2.4	33.3	18.0	8.7	2.4	17.5	8.6	2.4	17.1	8.5	2.4	16.6	8.4	2.4

Table. Ceiling Cavity Exitance Coefficients (CCEC).

RC	80				70				50			30			10		
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RF / RCR	20				20				20			20			20		
1	21.1	18.2	15.6	13.3	18.0	15.6	13.4	11.4	10.6	9.2	7.9	6.1	5.3	4.6	2.0	1.7	1.5
2	23.1	17.7	13.2	9.4	19.7	15.1	11.3	8.1	10.4	7.8	5.7	6.0	4.6	3.3	1.9	1.5	1.1
3	24.6	17.2	11.5	6.9	20.9	14.7	9.9	6.0	10.1	6.9	4.2	5.8	4.0	2.5	1.9	1.3	0.8
4	25.4	16.6	10.2	5.3	21.6	14.2	8.8	4.6	9.8	6.1	3.2	5.7	3.6	1.9	1.8	1.2	0.6
5	25.7	16.0	9.2	4.2	21.8	13.7	8.0	3.7	9.4	5.6	2.6	5.5	3.3	1.5	1.8	1.1	0.5
6	25.6	15.3	8.4	3.5	21.7	13.1	7.3	3.0	9.1	5.1	2.1	5.3	3.0	1.3	1.7	1.0	0.4
7	25.2	14.6	7.7	2.9	21.4	12.6	6.7	2.6	8.7	4.7	1.8	5.0	2.8	1.1	1.6	0.9	0.4
8	24.6	13.9	7.2	2.6	21.0	12.0	6.2	2.2	8.3	4.4	1.6	4.8	2.6	0.9	1.6	0.8	0.3
9	24.0	13.3	6.7	2.3	20.4	11.4	5.8	2.0	7.9	4.1	1.4	4.6	2.4	0.8	1.5	0.8	0.3
10	23.3	12.6	6.3	2.0	19.8	10.9	5.4	1.8	7.6	3.8	1.3	4.4	2.3	0.8	1.4	0.7	0.2

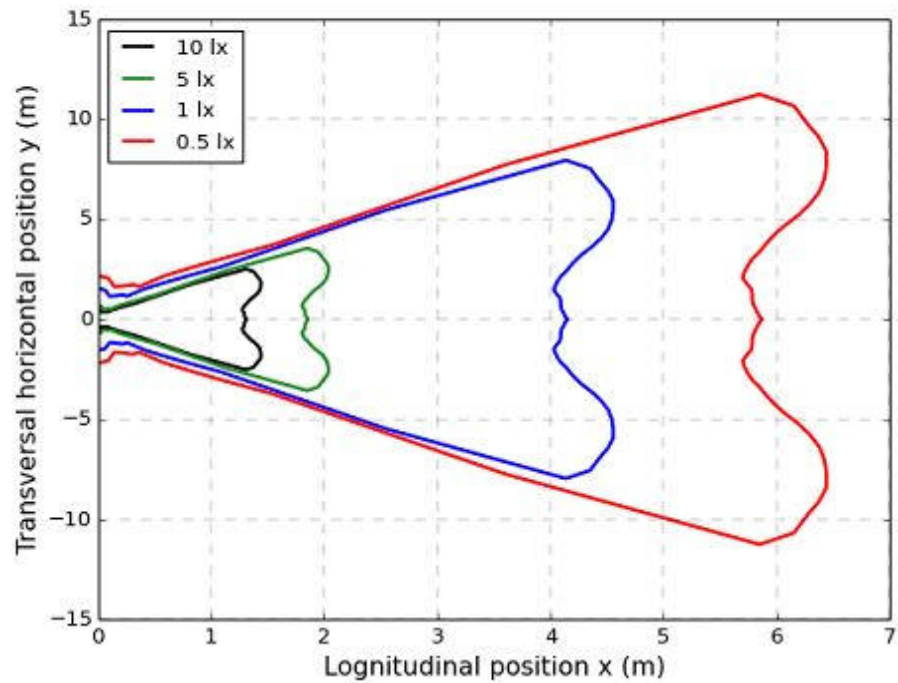
CONE DIAGRAM

- Cone is limited by the beam angle at the planes of C0 and C90
- H = Mounting Height
- D = Cone diameter
- Ev Edge = Illuminance at the edge of the cone of the C0/90 plane
- Ev Center = Illuminance at the center of the cone

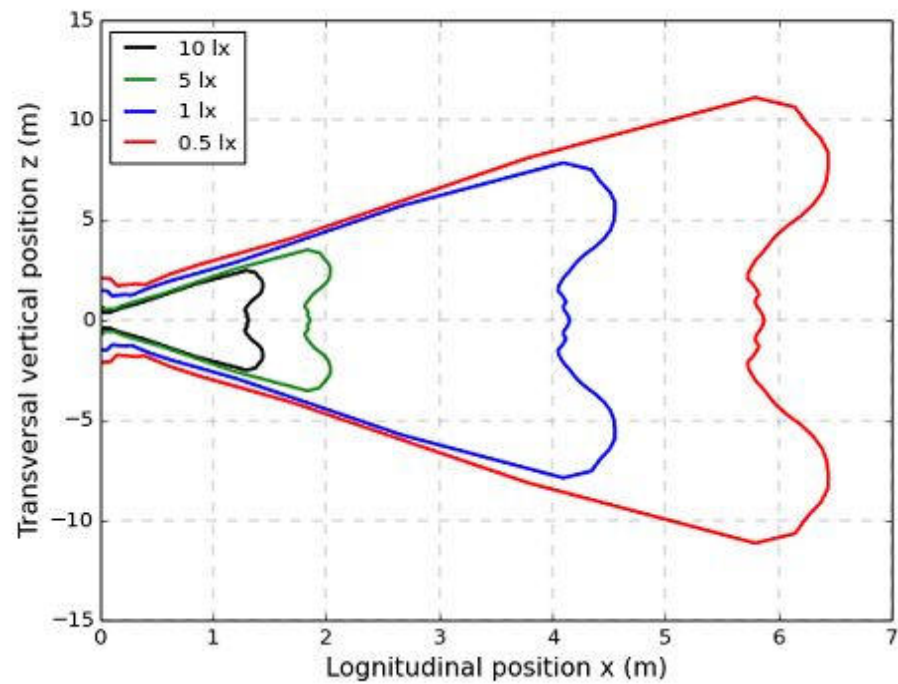


LOGNITUDINAL ISOLUX CURVES

Horizontal



Vertical



Illumination uniformity figures at the perpendicular plane to the lamp axis.
Mounting height of 2.50 m.
Lamp center position x =0.0 m, y = 0.0 m.
C rotation of 0.0 deg. Gamma rotation of 0.0 deg.
Maintenance factor = 0.80.
Nr of lamps: X = 1 pcs, Y = 1 pcs.
Distance between lamps: X = 0.00 meters, Y = 0.00 meters.

