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Nata

Client:

LumCAT: 3-1880-L

Luminaire: 92.70.131.00

Report No: NT2018011004

Test No: GC2018011004

LampCAT: CITIZEN CLU038

Lamp flux(lm): 2870.0

Number of Lamps: 1

Length(mm): 74

Phm Type: C

Voltage(V): 34.8000

Current(A): 0.6400

Power (W): 22.2720

PF: 0.0000

Ballast type: DC

Width(mm): 74

Height(mm): 0

Photometric Results

Lumens(lm): 2818.59, Efficiency(%): 98.21% , Luminous Efficacy(lm/W): 126.55

Central intensity(cd): 23147.090, Maximum intensity(cd): 23147.090

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=14.4

[C90/270]Total=14.4

Field angle(10%Imax): [C0/180]Total=31.4

[C90/270]Total=31.4

Maximum s/h(1/2): C0_180=0.25 C90_270=0.25

Maximum s/h(1/4): C0_180=0.26 C90_270=0.26

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 98.40%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 98.252%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	23147.088	5.538	5.538	.193%	.196%
1.0	22907.592	43.842	49.379	1.528%	1.752%
2.0	21994.344	84.175	133.554	2.933%	4.738%
3.0	20670.236	118.631	252.185	4.133%	8.947%
4.0	19003.404	145.368	397.553	5.065%	14.105%
5.0	16461.037	157.328	554.88	5.482%	19.686%
6.0	14278.396	163.669	718.549	5.703%	25.493%
7.0	11968.780	159.954	878.503	5.573%	31.168%
8.0	9907.881	151.213	1029.716	5.269%	36.533%
9.0	7928.190	136.006	1165.722	4.739%	41.358%
10.0	6457.290	122.962	1288.684	4.284%	45.721%
11.0	5182.046	108.431	1397.115	3.778%	49.568%
12.0	4291.853	97.853	1494.968	3.410%	53.040%
13.0	3573.573	88.154	1583.122	3.072%	56.167%
14.0	2941.044	78.024	1661.146	2.719%	58.935%
15.0	2517.729	71.459	1732.605	2.490%	61.471%
16.0	2214.988	66.952	1799.557	2.333%	63.846%
17.0	1892.288	60.670	1860.227	2.114%	65.998%
18.0	1682.455	57.013	1917.24	1.987%	68.021%
19.0	1530.981	54.659	1971.9	1.905%	69.960%
20.0	1399.052	52.473	2024.373	1.828%	71.822%
21.0	1293.894	50.849	2075.221	1.772%	73.626%
22.0	1215.164	49.919	2125.14	1.739%	75.397%
23.0	1155.840	49.525	2174.665	1.726%	77.154%
24.0	1095.161	48.848	2223.513	1.702%	78.887%
25.0	1051.811	48.746	2272.259	1.698%	80.617%
26.0	1015.054	48.796	2321.055	1.700%	82.348%
27.0	982.502	48.914	2369.969	1.704%	84.083%
28.0	948.842	48.849	2418.817	1.702%	85.817%
29.0	909.408	48.348	2467.166	1.685%	87.532%
30.0	856.918	46.985	2514.151	1.637%	89.199%
31.0	792.496	44.760	2558.911	1.560%	90.787%
32.0	706.759	41.071	2599.982	1.431%	92.244%
33.0	606.845	36.244	2636.226	1.263%	93.530%
34.0	507.180	31.101	2667.327	1.084%	94.633%
35.0	393.598	24.757	2692.084	.863%	95.512%
36.0	288.241	18.579	2710.663	.647%	96.171%
37.0	198.334	13.089	2723.752	.456%	96.635%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	140.146	9.462	2733.214	.330%	96.971%
39.0	74.980	5.175	2738.388	.180%	97.154%
40.0	46.192	3.256	2741.644	.113%	97.270%
41.0	31.637	2.276	2743.92	.079%	97.351%
42.0	26.221	1.924	2745.844	.067%	97.419%
43.0	24.170	1.808	2747.652	.063%	97.483%
44.0	22.649	1.725	2749.377	.060%	97.544%
45.0	21.782	1.689	2751.066	.059%	97.604%
46.0	21.176	1.670	2752.737	.058%	97.664%
47.0	20.674	1.658	2754.395	.058%	97.722%
48.0	20.041	1.633	2756.028	.057%	97.780%
49.0	19.476	1.612	2757.64	.056%	97.838%
50.0	18.864	1.585	2759.225	.055%	97.894%
51.0	18.375	1.566	2760.791	.055%	97.949%
52.0	17.955	1.552	2762.342	.054%	98.004%
53.0	17.584	1.540	2763.882	.054%	98.059%
54.0	17.240	1.529	2765.412	.053%	98.113%
55.0	16.985	1.526	2766.937	.053%	98.167%
56.0	16.827	1.530	2768.467	.053%	98.222%
57.0	16.668	1.533	2770	.053%	98.276%
58.0	16.579	1.542	2771.542	.054%	98.331%
59.0	16.489	1.550	2773.092	.054%	98.386%
60.0	16.414	1.559	2774.651	.054%	98.441%
61.0	16.310	1.564	2776.215	.055%	98.497%
62.0	16.187	1.567	2777.782	.055%	98.552%
63.0	16.049	1.568	2779.35	.055%	98.608%
64.0	15.836	1.561	2780.911	.054%	98.663%
65.0	15.602	1.551	2782.462	.054%	98.718%
66.0	15.388	1.542	2784.003	.054%	98.773%
67.0	15.182	1.533	2785.536	.053%	98.827%
68.0	14.968	1.522	2787.058	.053%	98.881%
69.0	14.796	1.515	2788.573	.053%	98.935%
70.0	14.652	1.510	2790.082	.053%	98.989%
71.0	14.514	1.505	2791.587	.052%	99.042%
72.0	14.315	1.493	2793.08	.052%	99.095%
73.0	14.163	1.485	2794.566	.052%	99.148%
74.0	14.012	1.477	2796.043	.051%	99.200%
75.0	13.854	1.467	2797.51	.051%	99.252%

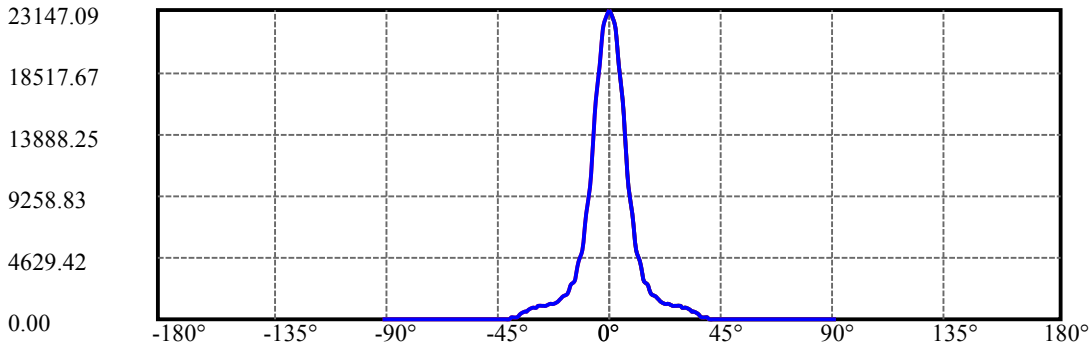
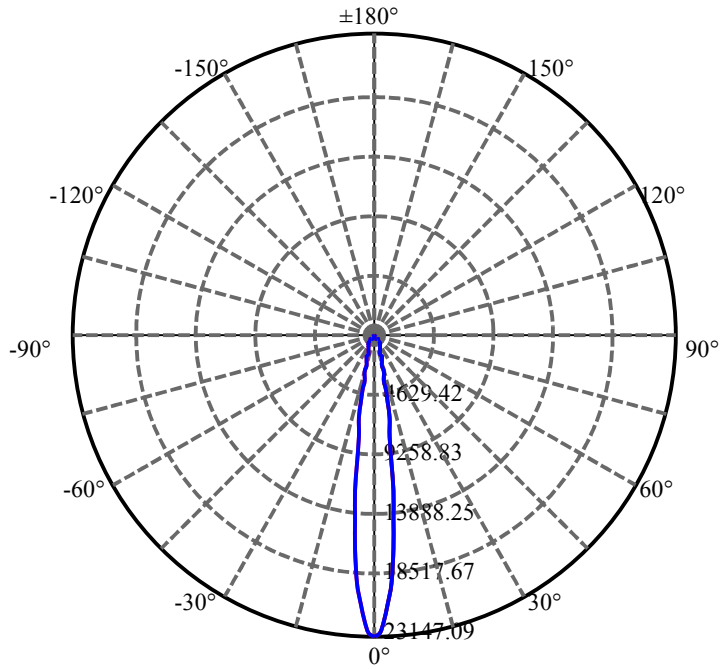
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	13.737	1.462	2798.972	.051%	99.304%
77.0	13.640	1.457	2800.429	.051%	99.356%
78.0	13.599	1.459	2801.888	.051%	99.407%
79.0	13.537	1.457	2803.345	.051%	99.459%
80.0	13.516	1.460	2804.805	.051%	99.511%
81.0	13.475	1.459	2806.264	.051%	99.563%
82.0	13.441	1.460	2807.724	.051%	99.614%
83.0	13.406	1.459	2809.183	.051%	99.666%
84.0	13.365	1.458	2810.64	.051%	99.718%
85.0	13.392	1.463	2812.104	.051%	99.770%
86.0	13.269	1.452	2813.555	.051%	99.821%
87.0	13.234	1.449	2815.004	.050%	99.873%
88.0	13.124	1.438	2816.443	.050%	99.924%
89.0	13.090	1.435	2817.878	.050%	99.975%
90.0	13.021	0.714	2818.592	.025%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2514.15	87.60%	89.20%
0-40	2741.64	95.53%	97.27%
0-60	2774.65	96.68%	98.44%
0-90	2817.88	98.18%	99.97%
0-120	2817.88	98.18%	99.97%
0-180	2818.59	98.21%	100.00%
60-90	44.79	1.56%	1.59%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-24.64	2254.87	78.57%	80.00%

ZONAL LUMEN SUMMARY

0-10	1288.68
10-20	735.69
20-30	489.78
30-40	227.49
40-50	17.58
50-60	15.43
60-70	15.43
70-80	14.72
80-90	13.07
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00



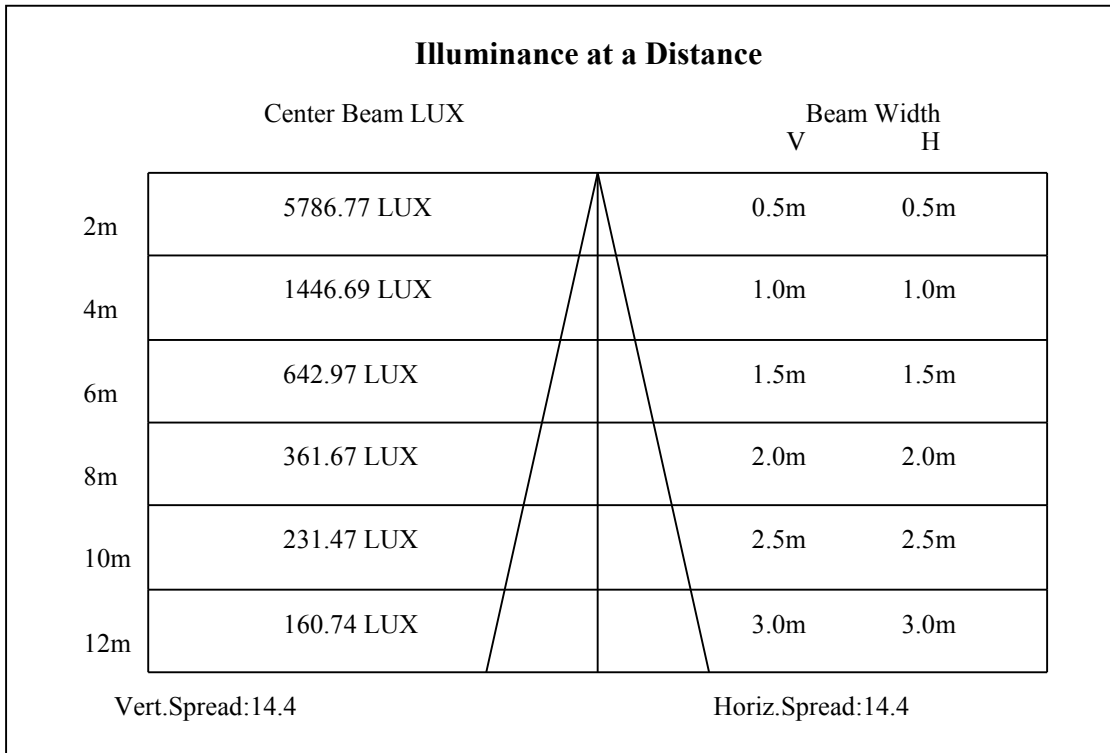
C0(Max): —————

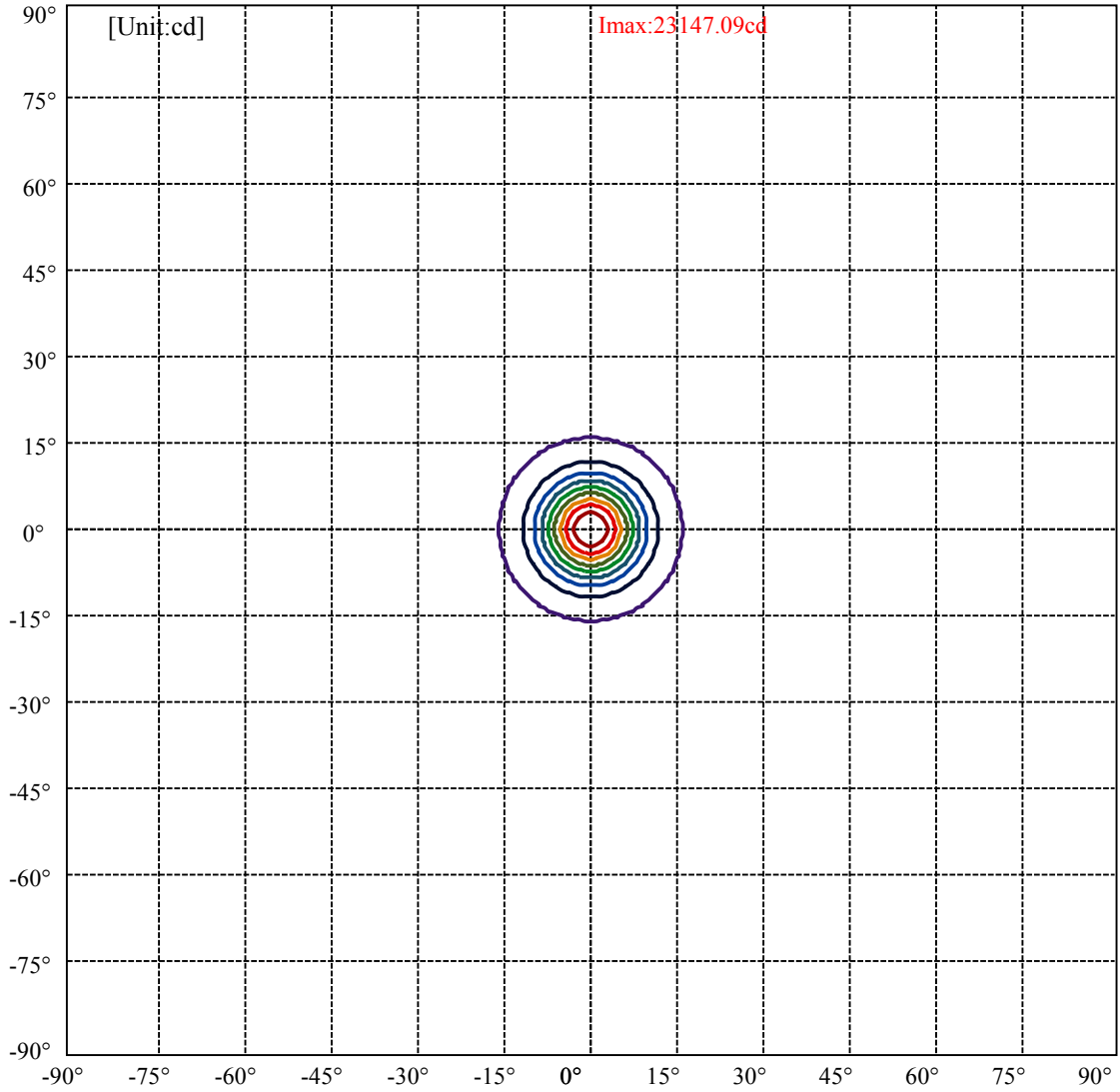
C0/C180: —————

C90/C270: —————

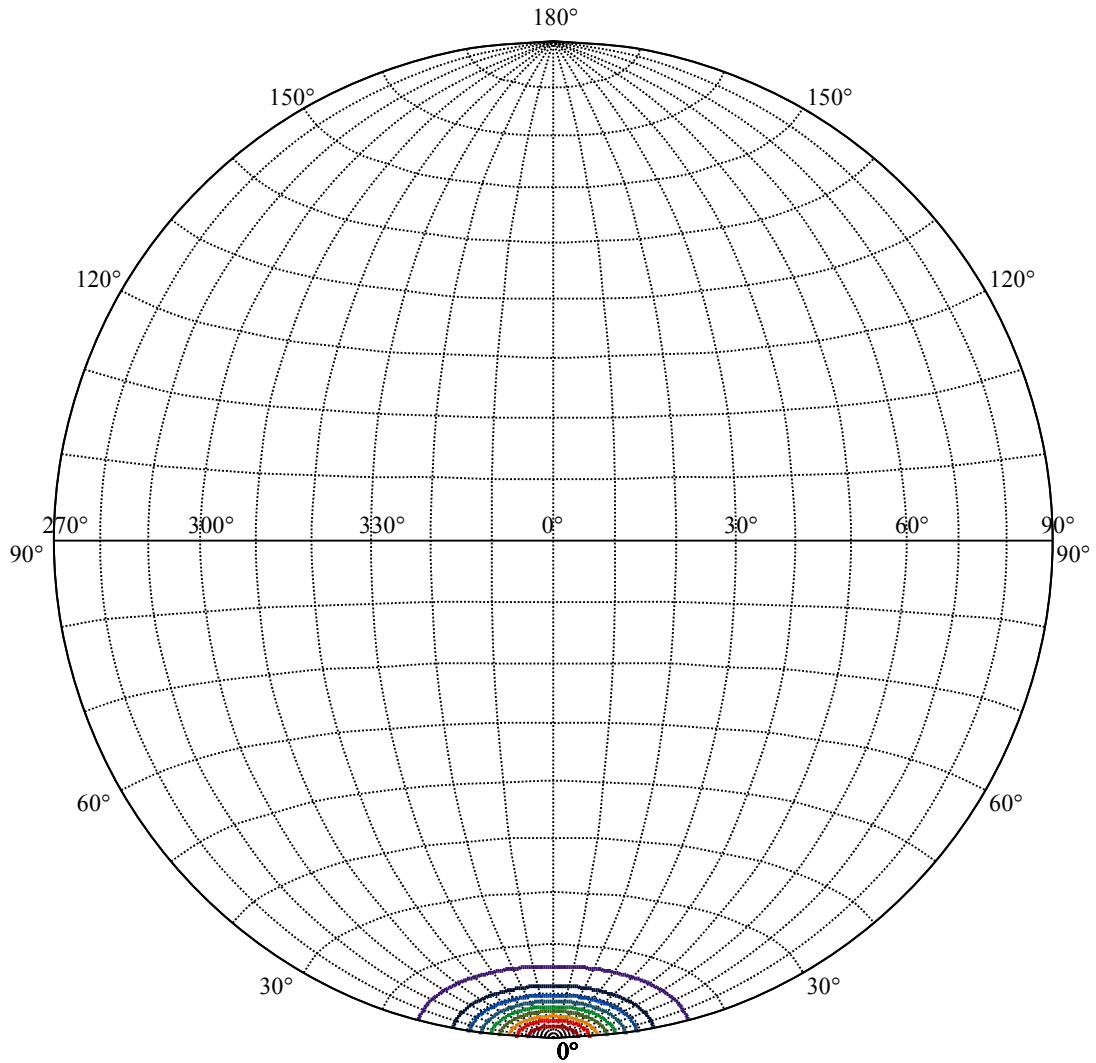
Field angle(10%Imax):C0/180Left:15.7 Right:15.7
:C90/270Left:15.7 Right:15.7

Beam Angle(50%Imax):C0/180Left:7.2 Right:7.2
:C90/270Left:7.2 Right:7.2





(10%Imax)	2314.71	—
(20%Imax)	4629.42	—
(30%Imax)	6944.13	—
(40%Imax)	9258.83	—
(50%Imax)	11573.5	—
(60%Imax)	13888.3	—
(70%Imax)	16203	—
(80%Imax)	18517.7	—
(90%Imax)	20832.4	—



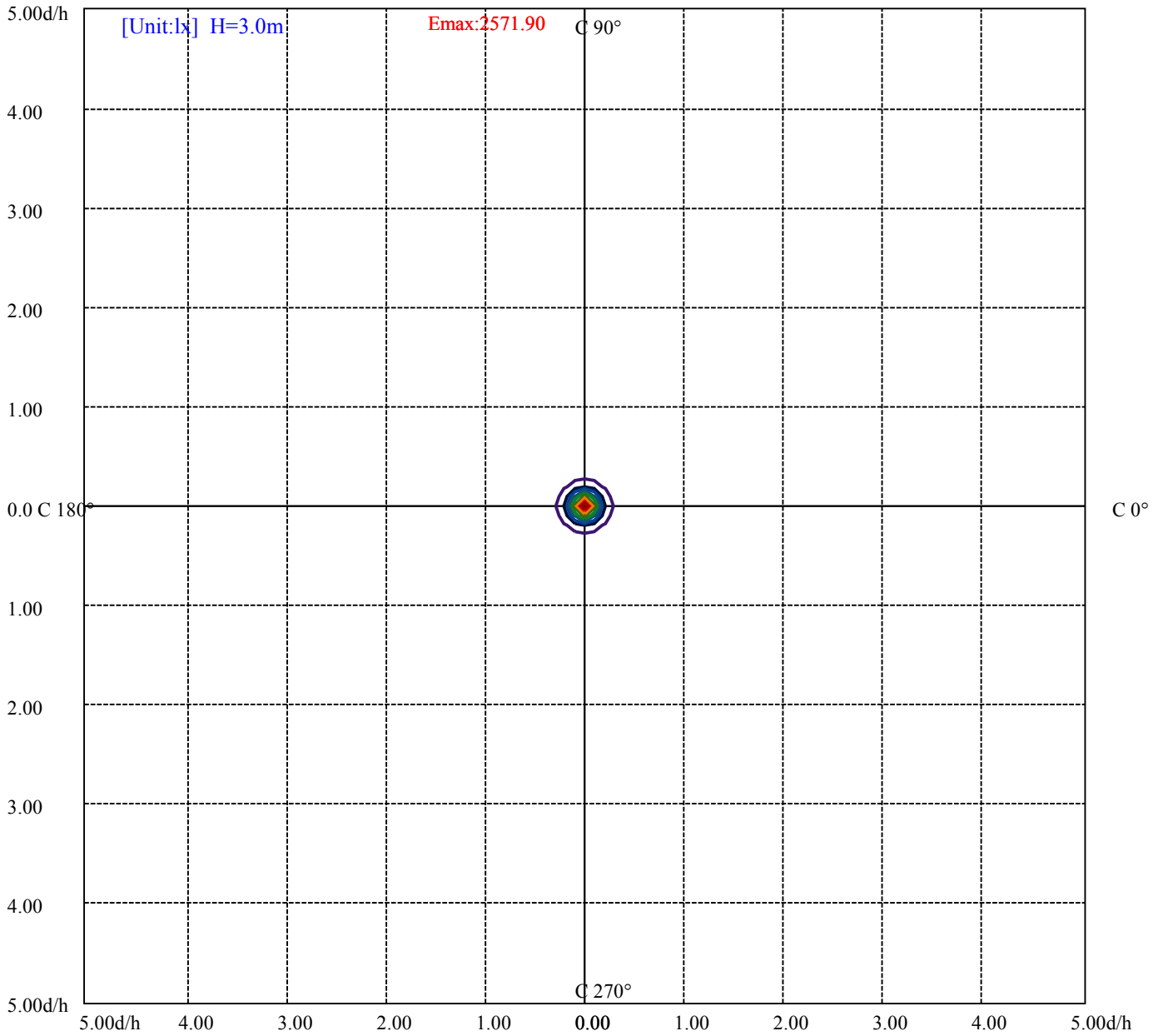
House

[Unit:cd]

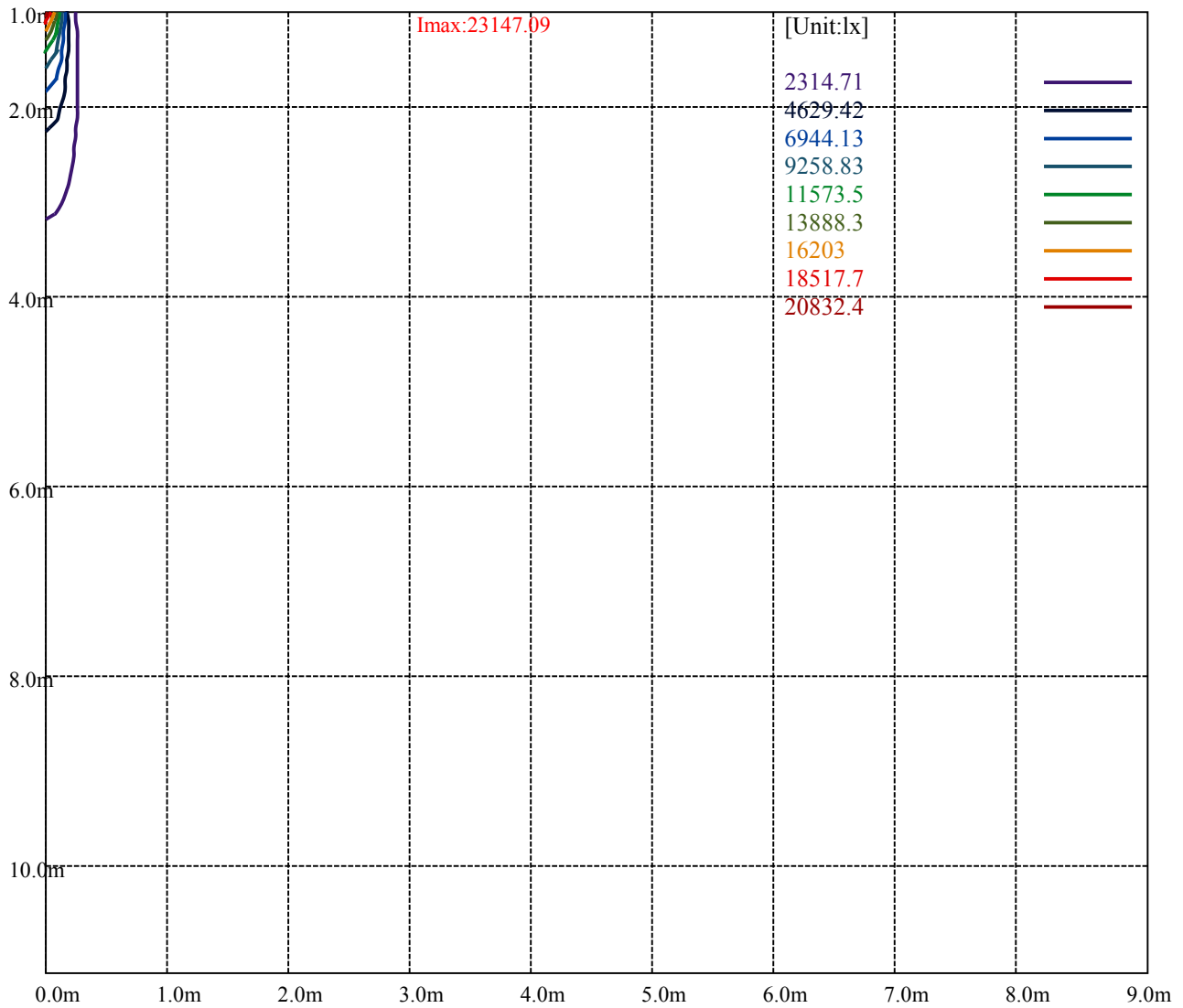
Road

Imax:23147.09

(10%Imax) 2314.71	—
(20%Imax) 4629.42	—
(30%Imax) 6944.13	—
(40%Imax) 9258.83	—
(50%Imax) 11573.5	—
(60%Imax) 13888.3	—
(70%Imax) 16203	—
(80%Imax) 18517.7	—
(90%Imax) 20832.4	—



(10%Emax) 257.1889	—
(20%Emax) 514.3789	—
(30%Emax) 771.5677	—
(40%Emax) 1028.758	—
(50%Emax) 1285.944	—
(60%Emax) 1543.133	—
(70%Emax) 1800.322	—
(80%Emax) 2057.511	—
(90%Emax) 2314.7	—



Luminance Table

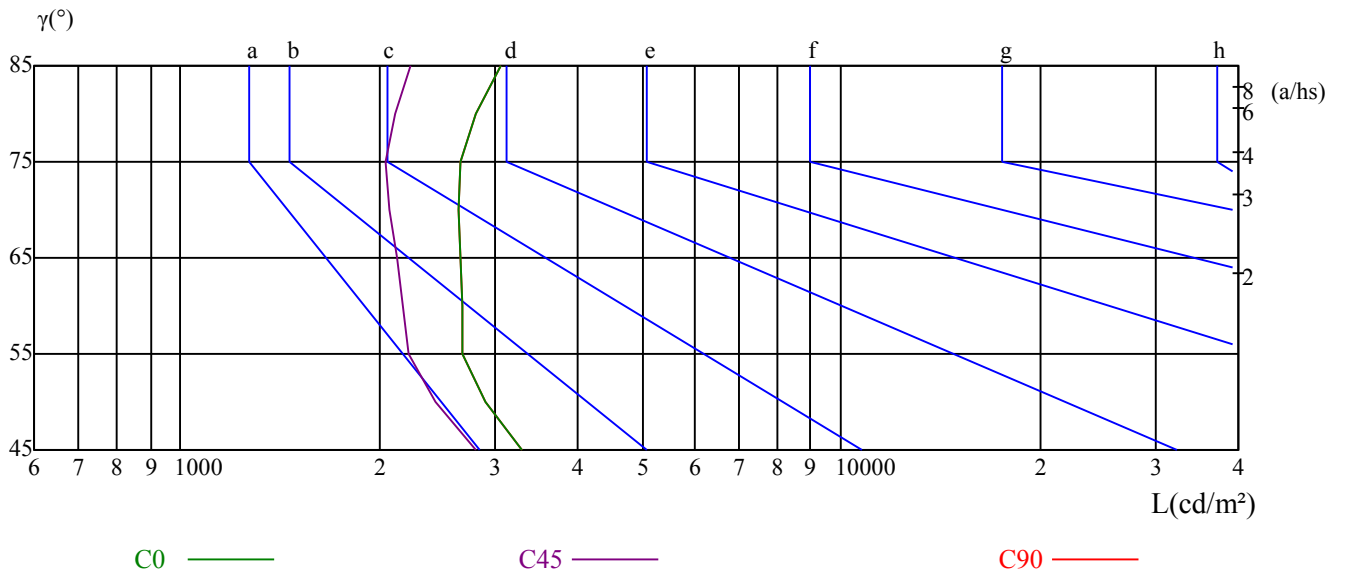
γ	45	50	55	60	65	70	75	80	85
C0	3278	2891	2673	2676	2658	2636	2661	2808	3055
C45	2795	2428	2210	2176	2125	2068	2045	2108	2231
C90	3278	2891	2673	2676	2658	2636	2661	2808	3055

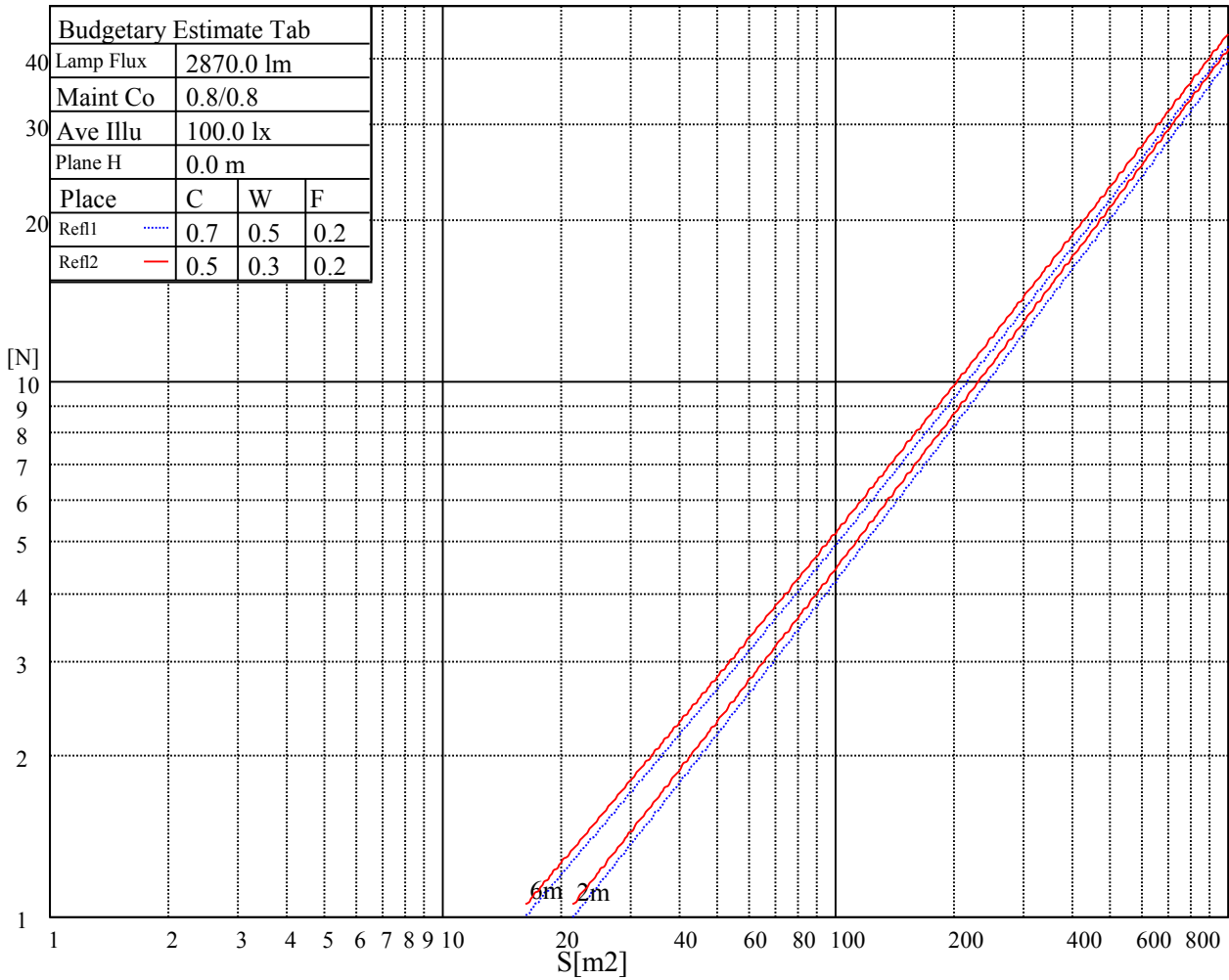
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
6742	6742	6742	9775	9775	9775	28061	28061	28061

Glare Table

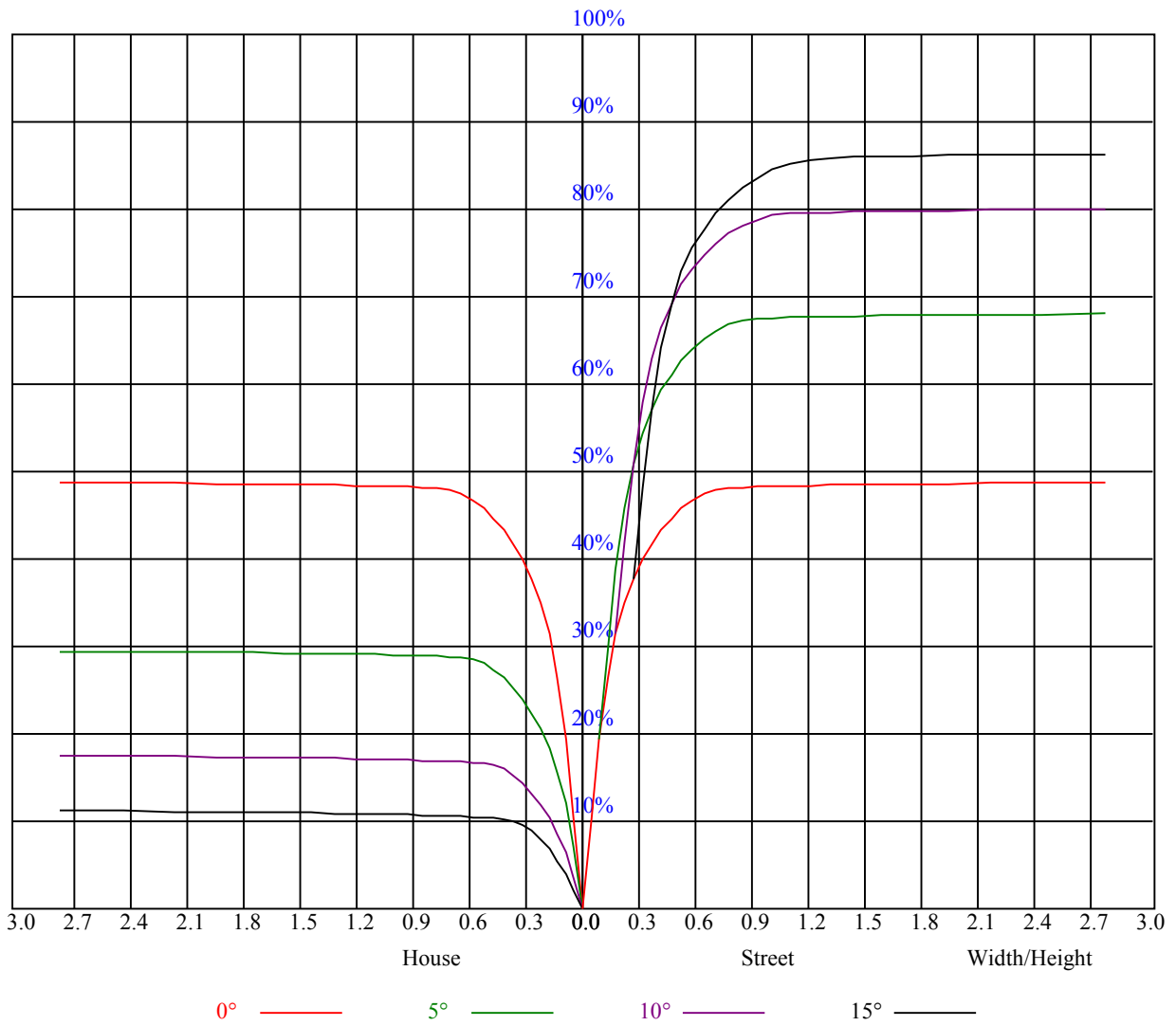
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

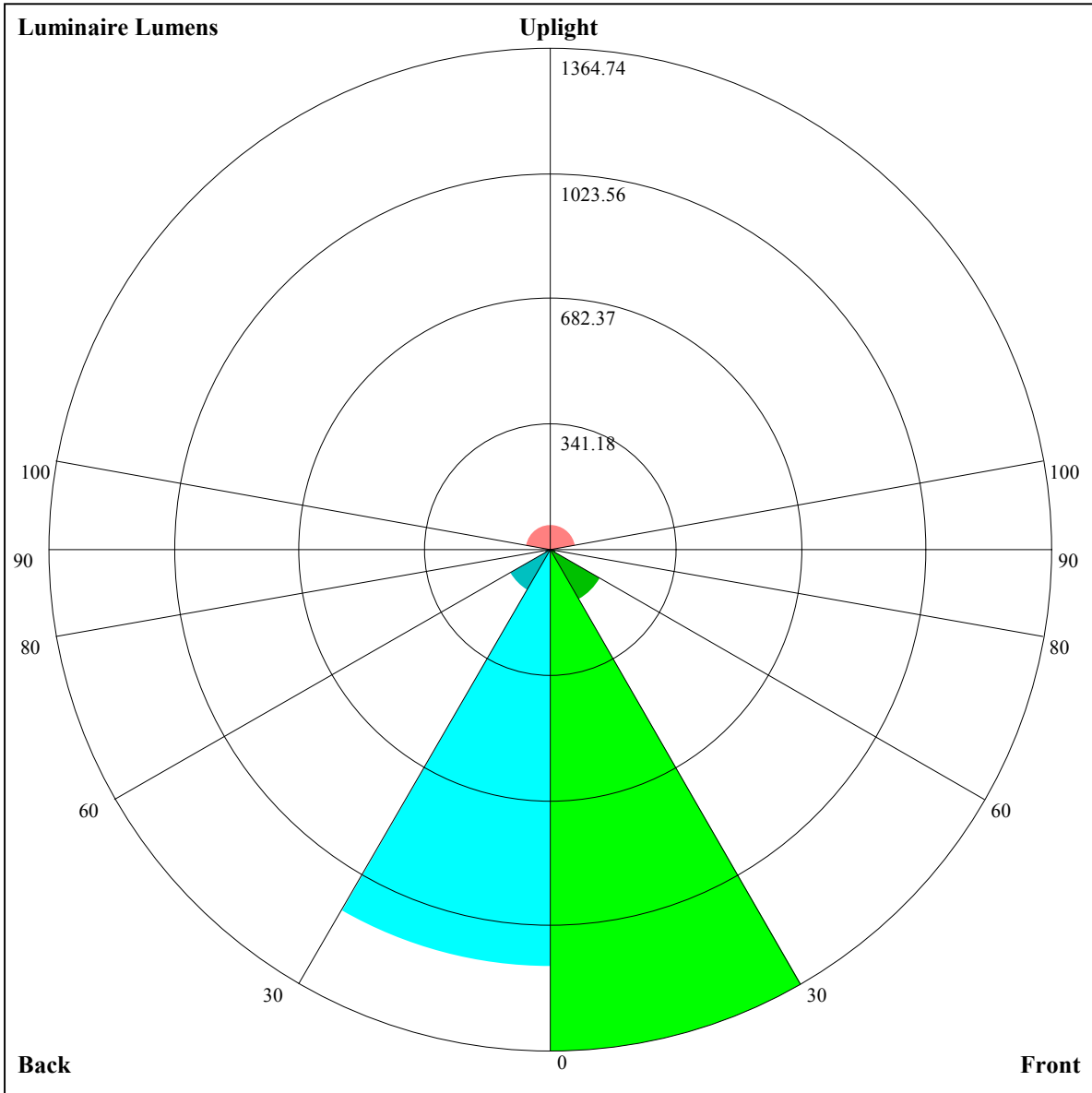
Luminance Limiting Curve





RHOCC	80			70			50			30			10			0
RHOW	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR	COEFFICIENTS OF UTILIZATION RHOFC=20 CU															
0	1.17	1.17	1.17	1.14	1.14	1.14	1.09	1.09	1.09	1.05	1.05	1.05	1.00	1.00	1.00	0.98
1	1.10	1.08	1.07	1.08	1.06	1.05	1.04	1.03	1.02	1.01	1.00	0.99	0.97	0.97	0.96	0.94
2	1.05	1.02	0.99	1.03	1.01	0.98	1.00	0.98	0.96	0.97	0.96	0.94	0.95	0.93	0.92	0.91
3	1.00	0.97	0.94	0.99	0.96	0.93	0.97	0.94	0.92	0.94	0.92	0.90	0.92	0.90	0.89	0.88
4	0.97	0.92	0.89	0.95	0.92	0.89	0.94	0.90	0.88	0.92	0.89	0.87	0.90	0.88	0.86	0.85
5	0.93	0.89	0.86	0.92	0.88	0.85	0.91	0.87	0.85	0.89	0.86	0.84	0.88	0.85	0.83	0.82
6	0.90	0.86	0.83	0.89	0.85	0.82	0.88	0.84	0.82	0.87	0.84	0.81	0.86	0.83	0.81	0.80
7	0.87	0.83	0.80	0.86	0.83	0.80	0.85	0.82	0.79	0.84	0.81	0.79	0.83	0.81	0.79	0.78
8	0.85	0.80	0.78	0.84	0.80	0.77	0.83	0.80	0.77	0.82	0.79	0.77	0.81	0.79	0.77	0.76
9	0.82	0.78	0.75	0.82	0.78	0.75	0.81	0.78	0.75	0.80	0.77	0.75	0.80	0.77	0.75	0.74
10	0.80	0.76	0.74	0.80	0.76	0.73	0.79	0.76	0.73	0.78	0.75	0.73	0.78	0.75	0.73	0.72





Luminaire Lumens:

FL=1364.74,FM=158.7,FH=15.19,FVH=7.26

BL=1133.34,BM=126.9,BH=14.86,BVH=7.24

UL=14.21,UH=67.61

BUG Rating:B3-U2-G0

Intensity data(cd)

C/γ(°)	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0
0.0	22953.01	23635.71	23916.50	23641.22	22897.96	21339.86	19093.56	16665.57	14061.40
45.0	23448.52	23140.20	22132.67	20684.69	18757.72	16120.51	13340.17	11044.31	8842.06
90.0	22908.97	21769.30	19589.07	17381.31	14942.31	10807.02	9778.02	7992.54	6369.47
135.0	23277.85	22066.61	20139.63	17596.03	15107.48	12624.43	9855.10	8021.72	6557.22
180.0	22953.01	21791.32	19622.10	17375.80	14887.25	10955.67	9664.05	7882.42	6284.14
225.0	23448.52	23294.36	22600.65	21290.31	19556.03	16979.39	14132.98	10900.62	9405.84
270.0	22908.97	23569.64	23784.36	23509.08	22688.74	21114.13	18796.25	16340.74	13477.81
315.0	23277.85	23993.58	24169.76	23883.47	23189.76	21747.28	19567.04	16902.31	14265.11
360.0	22953.01	23635.71	23916.50	23641.22	22897.96	21339.86	19093.56	16665.57	14061.40
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	11616.90	8996.22	7096.77	5797.44	4789.91	3815.41	3215.29	2785.85	2345.40
45.0	7069.24	5802.94	4718.33	3964.06	3303.38	2813.38	2378.44	2100.40	1805.30
90.0	5237.52	4258.06	3507.64	2987.91	2518.83	2159.31	1909.36	1715.56	1528.92
135.0	5142.27	4261.37	3573.16	2973.05	2802.37	2211.07	1933.03	1748.04	1575.16
180.0	5055.83	4198.05	3448.18	2943.87	2488.55	2137.84	1894.49	1704.55	1519.56
225.0	7713.95	6171.82	4971.59	4165.57	3447.08	2879.45	2474.23	2152.71	1849.90
270.0	10879.14	8886.10	7052.72	5775.42	4652.27	3787.88	3187.77	2813.38	2270.53
315.0	10710.67	9083.76	7087.96	5727.52	4586.20	3724.01	3149.23	2699.42	2243.55
360.0	11616.90	8996.22	7096.77	5797.44	4789.91	3815.41	3215.29	2785.85	2345.40
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1980.93	1762.36	1591.68	1430.37	1331.26	1250.88	1176.56	1119.30	1074.70
45.0	1629.12	1485.42	1348.33	1264.65	1198.03	1136.91	1084.06	1045.52	1009.73
90.0	1412.20	1319.15	1227.21	1166.09	1093.64	1062.81	1023.50	992.01	959.96
135.0	1441.38	1341.72	1249.23	1176.00	1123.70	1080.76	1028.45	995.42	965.69
180.0	1403.39	1311.44	1227.76	1161.14	1097.05	1060.17	1021.13	987.55	957.32
225.0	1669.86	1527.26	1409.99	1296.58	1224.45	1165.54	1096.50	1058.73	1023.72
270.0	1957.26	1746.94	1567.46	1425.96	1325.76	1254.18	1166.65	1117.64	1073.60
315.0	1965.51	1753.55	1570.76	1430.37	1327.41	1235.47	1164.44	1098.32	1055.71
360.0	1980.93	1762.36	1591.68	1430.37	1331.26	1250.88	1176.56	1119.30	1074.70
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	1032.86	999.27	973.95	946.42	919.99	872.09	784.55	690.41	576.44
45.0	981.66	951.37	920.54	882.00	806.58	704.72	601.22	491.10	346.30
90.0	933.81	899.68	847.65	758.13	662.33	547.32	427.95	324.39	215.38
135.0	937.06	901.82	844.01	759.23	649.67	553.32	436.60	339.70	279.14
180.0	934.09	896.70	825.35	732.42	634.19	506.13	404.11	305.78	191.27
225.0	988.32	958.75	936.45	901.27	841.32	749.76	640.31	530.74	403.56
270.0	1029.00	994.32	970.09	940.36	913.39	877.05	783.45	690.41	590.76
315.0	1023.22	988.81	957.21	935.52	912.50	843.68	776.57	684.90	545.94
360.0	1032.86	999.27	973.95	946.42	919.99	872.09	784.55	690.41	576.44
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	458.07	350.71	286.29	133.68	68.99	38.43	27.47	24.11	21.47
45.0	281.89	153.83	95.30	44.43	33.80	30.89	26.26	25.11	24.50
90.0	121.84	59.52	33.86	25.88	22.41	19.60	18.83	18.33	18.00
135.0	131.47	67.61	36.50	28.30	24.94	22.30	21.42	21.14	20.76
180.0	114.02	57.31	32.26	26.98	24.72	22.24	21.64	21.20	20.70
225.0	284.04	192.48	117.60	56.82	38.43	34.30	30.23	27.42	26.81
270.0	461.92	355.66	278.59	136.93	73.39	42.17	30.61	26.87	23.73
315.0	452.67	349.55	240.76	146.84	82.86	43.16	33.31	29.18	25.22
360.0	458.07	350.71	286.29	133.68	68.99	38.43	27.47	24.11	21.47

Intensity data(cd)

C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	20.15	19.66	19.38	18.88	18.39	17.84	17.40	16.96	16.63
45.0	23.78	23.01	22.46	21.58	20.92	20.37	19.82	19.32	18.94
90.0	17.62	17.12	16.74	16.35	16.02	15.75	15.53	15.36	15.25
135.0	20.21	19.43	18.88	18.28	17.78	17.29	16.96	16.57	16.30
180.0	20.21	19.55	18.88	18.44	18.00	17.51	17.18	16.85	16.52
225.0	26.10	25.33	24.61	23.62	22.68	21.80	20.98	20.32	19.71
270.0	22.24	21.86	21.47	20.81	20.26	19.43	18.77	18.28	17.73
315.0	23.95	23.45	22.96	22.35	21.75	20.92	20.37	19.99	19.60
360.0	20.15	19.66	19.38	18.88	18.39	17.84	17.40	16.96	16.63
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	16.35	16.02	15.91	15.80	15.75	15.75	15.75	15.75	15.64
45.0	18.50	18.17	18.00	17.78	17.62	17.40	17.18	17.01	16.85
90.0	15.14	15.09	15.03	14.98	14.98	14.98	14.92	14.81	14.70
135.0	16.08	16.02	16.02	16.02	15.97	16.02	15.91	15.80	15.64
180.0	16.41	16.30	16.30	16.24	16.24	16.13	16.08	15.91	15.75
225.0	18.99	18.55	18.17	17.84	17.67	17.40	17.18	16.96	16.79
270.0	17.23	16.85	16.57	16.30	16.19	16.13	16.13	16.13	16.13
315.0	19.21	18.88	18.61	18.39	18.22	18.11	18.17	18.11	18.00
360.0	16.35	16.02	15.91	15.80	15.75	15.75	15.75	15.75	15.64
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	15.64	15.58	15.36	15.20	15.09	14.87	14.76	14.70	14.59
45.0	16.63	16.35	16.08	15.80	15.47	15.31	15.14	14.98	14.81
90.0	14.65	14.53	14.42	14.31	14.26	14.15	14.15	14.04	13.93
135.0	15.47	15.25	15.03	14.87	14.65	14.53	14.42	14.31	14.20
180.0	15.58	15.36	15.14	14.92	14.81	14.65	14.53	14.37	14.31
225.0	16.52	16.13	15.80	15.58	15.31	14.98	14.76	14.65	14.48
270.0	16.02	15.86	15.69	15.47	15.31	15.09	14.81	14.65	14.48
315.0	17.89	17.62	17.29	16.96	16.57	16.19	15.80	15.53	15.31
360.0	15.64	15.58	15.36	15.20	15.09	14.87	14.76	14.70	14.59
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	14.48	14.31	14.31	14.15	13.93	13.82	13.76	13.71	13.65
45.0	14.53	14.37	14.09	13.82	13.76	13.60	13.54	13.49	13.43
90.0	13.76	13.65	13.54	13.49	13.43	13.38	13.32	13.27	13.32
135.0	14.04	13.87	13.82	13.71	13.71	13.65	13.65	13.54	13.60
180.0	14.09	13.98	13.82	13.76	13.71	13.65	13.65	13.60	13.54
225.0	14.37	14.20	13.98	13.82	13.71	13.65	13.54	13.49	13.43
270.0	14.26	14.15	13.98	13.82	13.60	13.49	13.49	13.43	13.38
315.0	14.98	14.76	14.53	14.26	14.04	13.87	13.82	13.76	13.76
360.0	14.48	14.31	14.31	14.15	13.93	13.82	13.76	13.71	13.65
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	13.65	13.60	13.54	13.54	13.49	13.49	13.43	13.38	13.32
45.0	13.38	13.38	13.32	13.27	13.21	13.16	13.10	12.99	12.88
90.0	13.27	13.21	13.21	13.16	13.16	13.10	13.05	12.99	12.94
135.0	13.54	13.54	13.54	13.43	13.82	13.21	13.16	13.10	13.10
180.0	13.54	13.54	13.49	13.43	13.43	13.32	13.27	13.21	13.16
225.0	13.32	13.32	13.21	13.21	13.16	13.21	13.21	12.99	12.99
270.0	13.38	13.27	13.32	13.27	13.21	13.16	13.27	13.10	13.10
315.0	13.71	13.65	13.60	13.60	13.65	13.49	13.38	13.21	13.21
360.0	13.65	13.60	13.54	13.54	13.49	13.49	13.43	13.38	13.32

Intensity data(cd)

C/γ(°)	90.0
0.0	13.27
45.0	12.83
90.0	12.88
135.0	13.05
180.0	13.16
225.0	12.88
270.0	12.99
315.0	13.10
360.0	13.27