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## Nata

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Client:

LumCAT: LM01D08524BK

Luminaire: 92.70.074.00

Report No:

Voltage(V): 34.7000

Test No: GC2019072306

Current(A): 0.2970

LampCAT: CREE CXA1830

Power (W): 10.3100

Lamp flux(lm): 1109.0

PF: 0.0000

Number of Lamps: 1

Ballast type: DC

Length(mm): 85

Width(mm): 85

Phm Type: C

Height(mm): 0

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## Photometric Results

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Lumens(lm): 991.97, Efficiency(%): 89.45% , Luminous Efficacy(lm/W): 96.21

Central intensity(cd): 3964.219, Maximum intensity(cd): 3964.219

Angle of maximum intensity: C=0.0  $\gamma$ =0.0

Beam Angle(50%Imax): [C0/180]Total=28.4

[C90/270]Total=28.4

Field angle(10%Imax): [C0/180]Total=42.2

[C90/270]Total=42.2

Maximum s/h(1/2): C0\_180=0.48 C90\_270=0.48

Maximum s/h(1/4): C0\_180=0.43 C90\_270=0.43

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 89.45%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 95.525%

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Equipment: GMS1980  
Temperature(°C): 25.0

Date: 2019/7/23  
Humidity(%): 65.0%

Operator: NT07  
Distance(m): 7.50

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3964.219	0.000	0	.000%	.000%
1.0	3954.234	3.789	3.789	.342%	.382%
2.0	3932.789	11.320	15.109	1.021%	1.523%
3.0	3900.727	18.735	33.844	1.689%	3.412%
4.0	3867.820	26.004	59.848	2.345%	6.033%
5.0	3826.688	33.101	92.949	2.985%	9.370%
6.0	3763.828	39.890	132.84	3.597%	13.391%
7.0	3666.797	46.122	178.961	4.159%	18.041%
8.0	3546.703	51.626	230.587	4.655%	23.245%
9.0	3375.352	56.099	286.686	5.059%	28.901%
10.0	3137.906	58.943	345.629	5.315%	34.843%
11.0	2897.648	60.308	405.937	5.438%	40.922%
12.0	2623.219	60.351	466.288	5.442%	47.006%
13.0	2315.531	58.611	524.898	5.285%	52.915%
14.0	2029.711	55.619	580.517	5.015%	58.521%
15.0	1745.016	51.821	632.338	4.673%	63.745%
16.0	1408.373	46.206	678.544	4.166%	68.403%
17.0	1129.043	39.514	718.058	3.563%	72.387%
18.0	903.980	33.520	751.579	3.023%	75.766%
19.0	690.722	27.745	779.323	2.502%	78.563%
20.0	530.796	22.357	801.68	2.016%	80.817%
21.0	407.152	18.010	819.691	1.624%	82.632%
22.0	326.109	14.735	834.426	1.329%	84.118%
23.0	257.709	12.250	846.676	1.105%	85.353%
24.0	198.942	9.984	856.66	.900%	86.359%
25.0	158.288	8.123	864.783	.732%	87.178%
26.0	123.370	6.649	871.431	.600%	87.848%
27.0	96.743	5.385	876.816	.486%	88.391%
28.0	77.302	4.406	881.223	.397%	88.835%
29.0	62.831	3.666	884.889	.331%	89.205%
30.0	53.170	3.132	888.021	.282%	89.521%
31.0	46.139	2.764	890.785	.249%	89.799%
32.0	41.020	2.497	893.282	.225%	90.051%
33.0	37.188	2.304	895.586	.208%	90.283%
34.0	33.912	2.152	897.737	.194%	90.500%
35.0	31.092	2.019	899.756	.182%	90.704%
36.0	28.737	1.905	901.661	.172%	90.896%
37.0	27.162	1.823	903.484	.164%	91.080%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	25.980	1.774	905.258	.160%	91.258%
39.0	25.235	1.748	907.006	.158%	91.435%
40.0	24.905	1.749	908.755	.158%	91.611%
41.0	24.848	1.772	910.527	.160%	91.789%
42.0	24.799	1.804	912.33	.163%	91.971%
43.0	24.778	1.836	914.167	.166%	92.156%
44.0	24.961	1.877	916.044	.169%	92.346%
45.0	25.200	1.928	917.972	.174%	92.540%
46.0	25.481	1.982	919.954	.179%	92.740%
47.0	25.629	2.033	921.987	.183%	92.945%
48.0	25.643	2.073	924.059	.187%	93.154%
49.0	25.481	2.099	926.159	.189%	93.365%
50.0	25.158	2.111	928.27	.190%	93.578%
51.0	24.680	2.109	930.379	.190%	93.791%
52.0	23.984	2.088	932.467	.188%	94.001%
53.0	23.203	2.053	934.52	.185%	94.208%
54.0	22.254	2.004	936.523	.181%	94.410%
55.0	21.361	1.947	938.47	.176%	94.606%
56.0	20.602	1.896	940.366	.171%	94.798%
57.0	19.948	1.854	942.22	.167%	94.984%
58.0	19.427	1.821	944.041	.164%	95.168%
59.0	18.844	1.789	945.83	.161%	95.348%
60.0	18.225	1.751	947.581	.158%	95.525%
61.0	17.557	1.708	949.289	.154%	95.697%
62.0	16.903	1.660	950.95	.150%	95.864%
63.0	16.270	1.613	952.563	.145%	96.027%
64.0	15.595	1.564	954.127	.141%	96.185%
65.0	15.012	1.515	955.641	.137%	96.337%
66.0	14.534	1.474	957.115	.133%	96.486%
67.0	14.133	1.441	958.557	.130%	96.631%
68.0	13.830	1.417	959.973	.128%	96.774%
69.0	13.690	1.404	961.377	.127%	96.916%
70.0	13.802	1.412	962.789	.127%	97.058%
71.0	14.027	1.438	964.228	.130%	97.203%
72.0	14.147	1.465	965.693	.132%	97.351%
73.0	14.224	1.484	967.176	.134%	97.500%
74.0	13.964	1.482	968.658	.134%	97.650%
75.0	13.760	1.465	970.123	.132%	97.797%

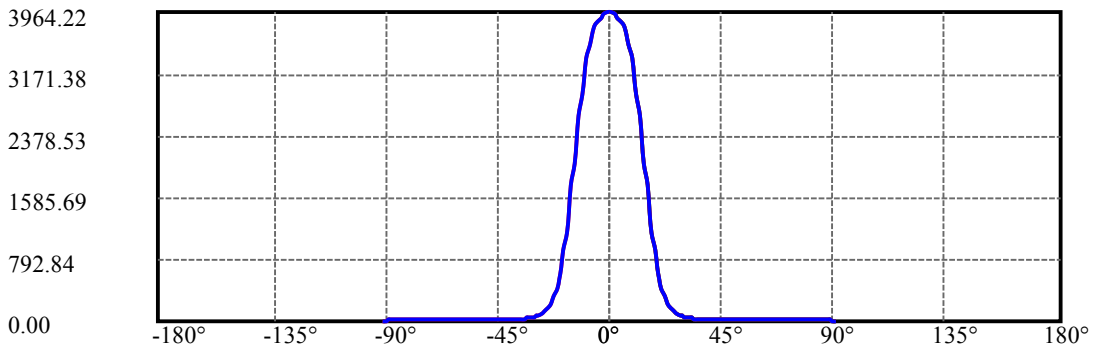
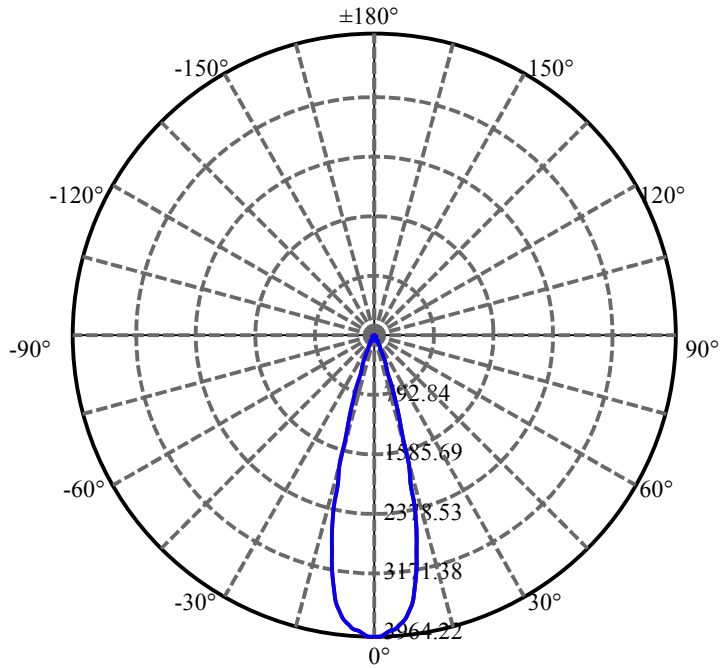
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	13.753	1.461	971.584	.132%	97.945%
77.0	13.838	1.471	973.055	.133%	98.093%
78.0	13.929	1.486	974.541	.134%	98.243%
79.0	13.971	1.499	976.04	.135%	98.394%
80.0	14.070	1.512	977.552	.136%	98.546%
81.0	14.252	1.532	979.083	.138%	98.701%
82.0	14.147	1.540	980.623	.139%	98.856%
83.0	13.760	1.517	982.14	.137%	99.009%
84.0	13.465	1.483	983.624	.134%	99.158%
85.0	13.409	1.467	985.09	.132%	99.306%
86.0	13.395	1.465	986.555	.132%	99.454%
87.0	12.909	1.440	987.995	.130%	99.599%
88.0	12.368	1.385	989.38	.125%	99.739%
89.0	11.946	1.333	990.712	.120%	99.873%
90.0	11.046	1.261	991.973	.114%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	888.02	80.07%	89.52%
0-40	908.75	81.94%	91.61%
0-60	947.58	85.44%	95.52%
0-90	990.71	89.33%	99.87%
0-120	990.71	89.33%	99.87%
0-180	991.97	89.45%	100.00%
60-90	44.88	4.05%	4.52%
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%
0-19.64	793.58	71.56%	80.00%

ZONAL LUMEN SUMMARY

0-10	345.63
10-20	456.05
20-30	86.34
30-40	20.73
40-50	19.52
50-60	19.31
60-70	15.21
70-80	14.76
80-90	13.16
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: —————

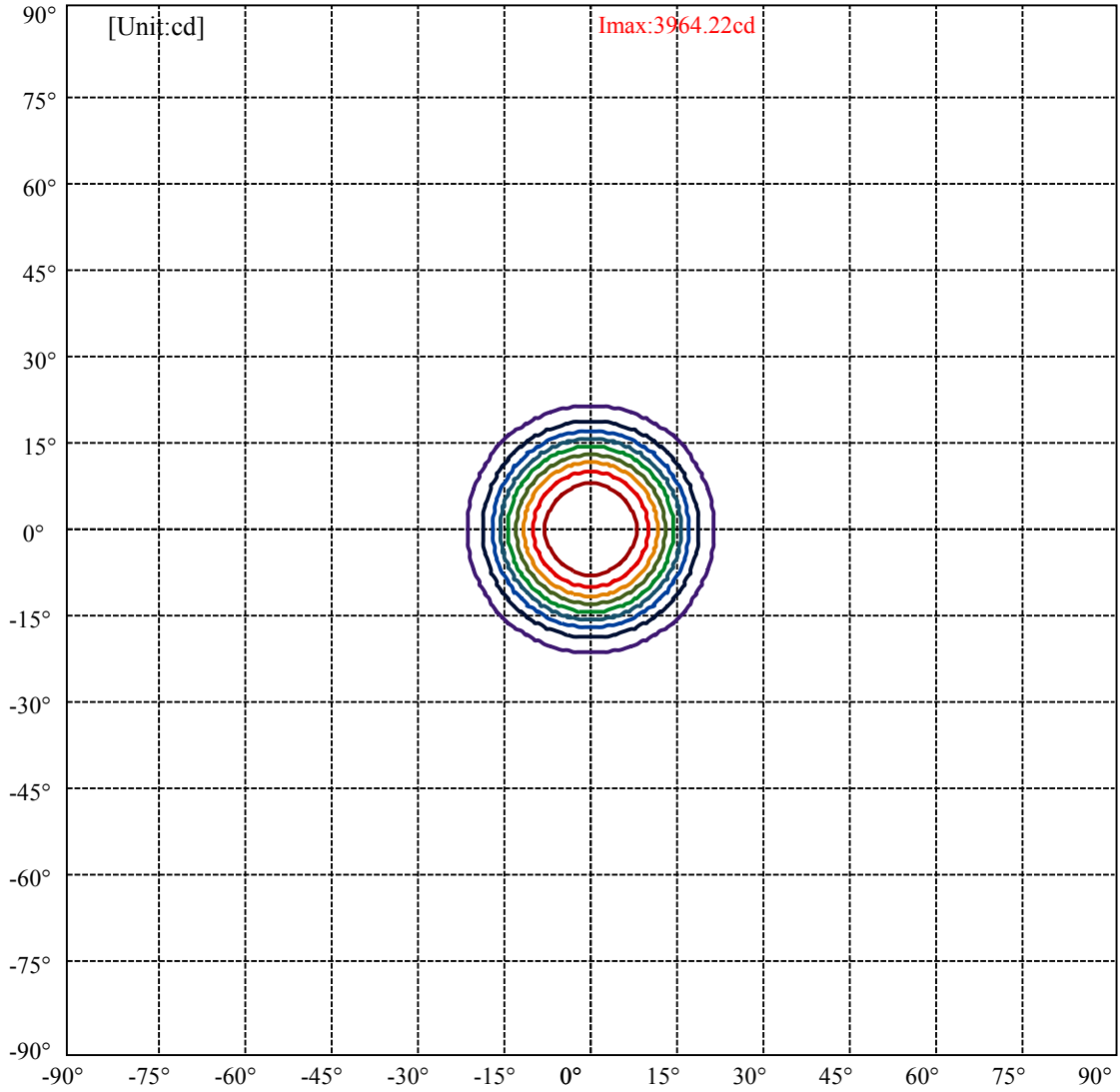
Field angle(10%Imax):C0/180Left:21.1 Right:21.1

:C90/270Left:21.1 Right:21.1

Beam Angle(50%Imax):C0/180Left:14.2 Right:14.2

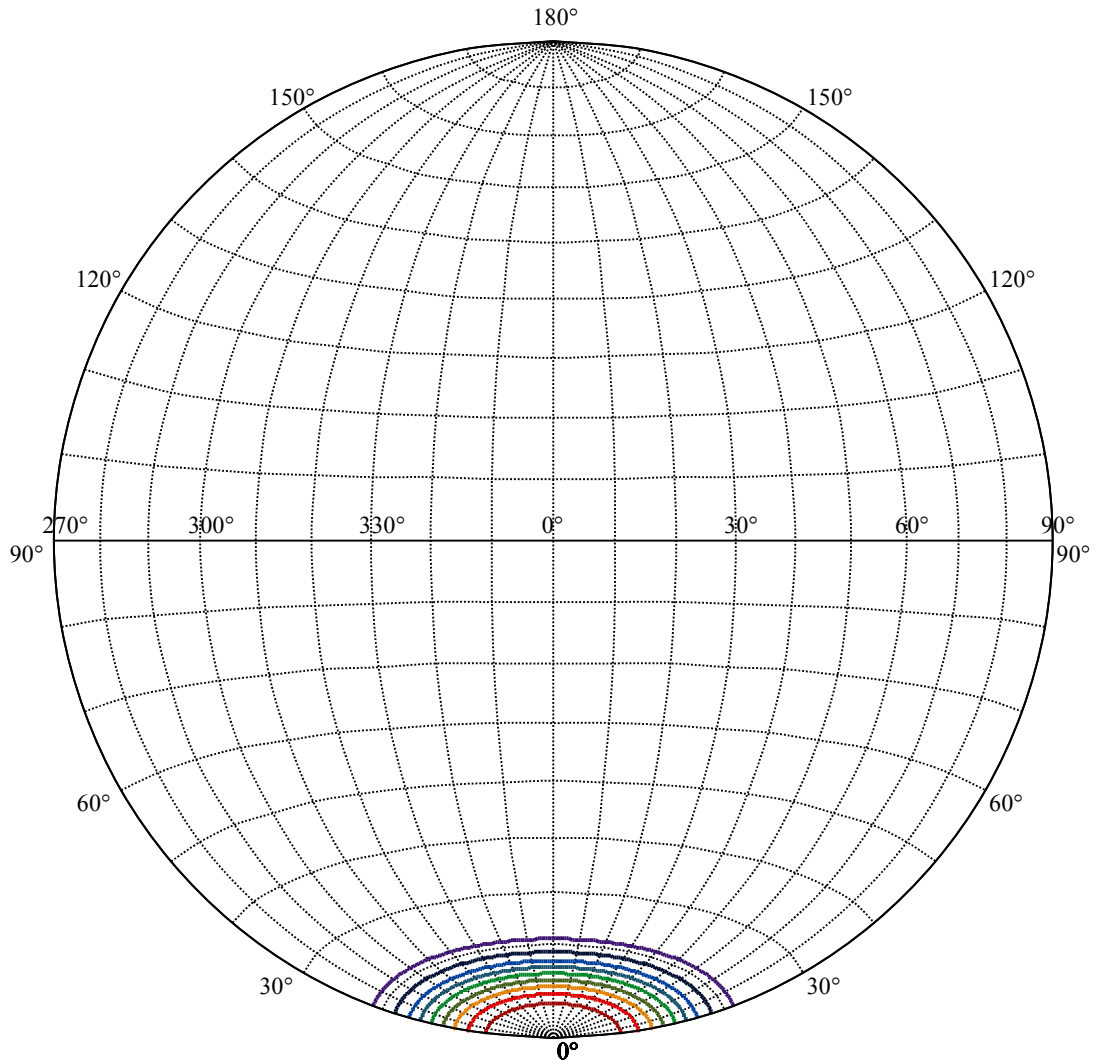
:C90/270Left:14.2 Right:14.2





(10%Imax) 396.422	—
(20%Imax) 792.844	—
(30%Imax) 1189.27	—
(40%Imax) 1585.69	—
(50%Imax) 1982.11	—
(60%Imax) 2378.53	—
(70%Imax) 2774.95	—
(80%Imax) 3171.38	—
(90%Imax) 3567.8	—





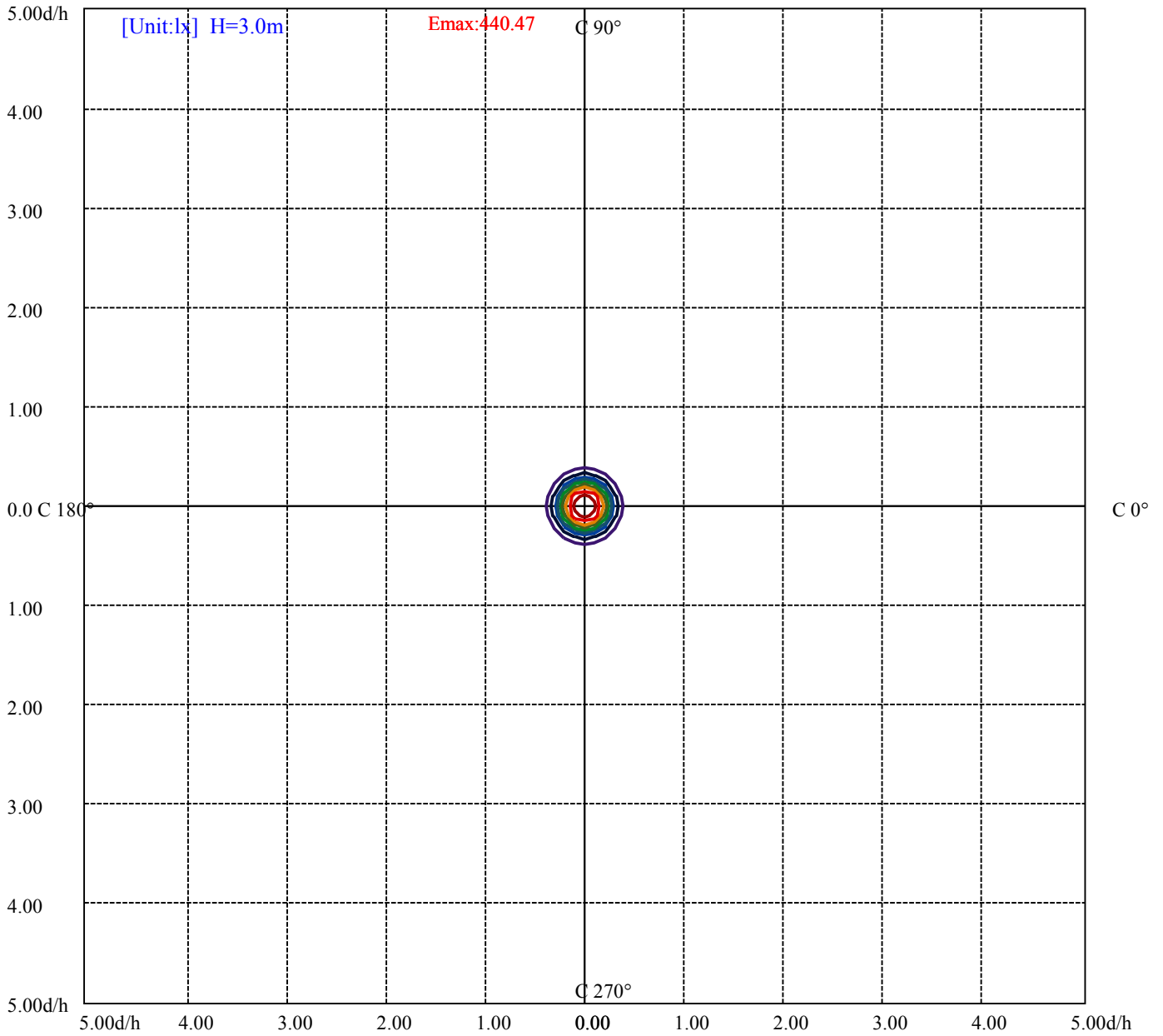
House

[Unit:cd]

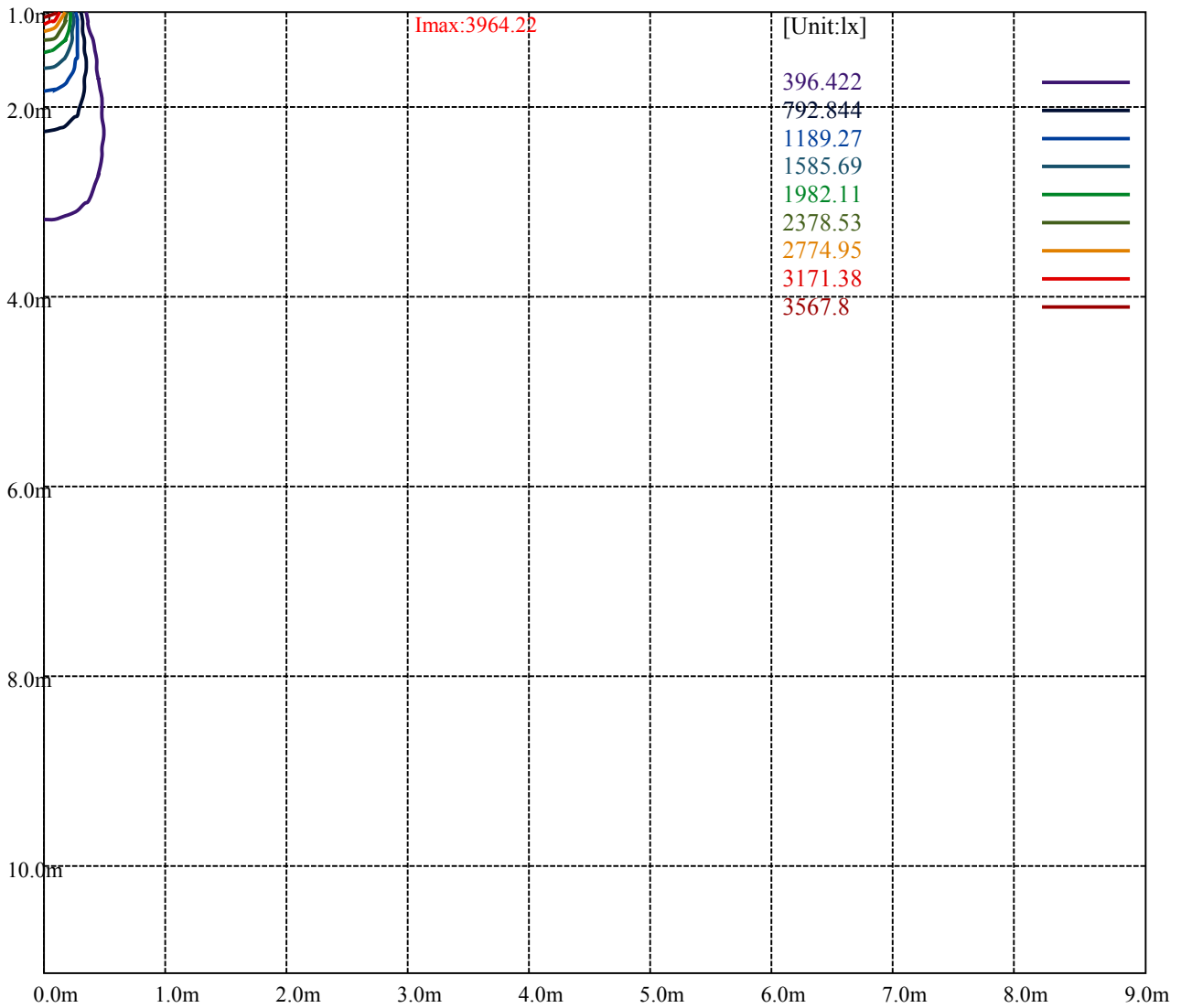
Road

**Imax:3964.22**

(10%Imax) 396.422	—
(20%Imax) 792.844	—
(30%Imax) 1189.27	—
(40%Imax) 1585.69	—
(50%Imax) 1982.11	—
(60%Imax) 2378.53	—
(70%Imax) 2774.95	—
(80%Imax) 3171.38	—
(90%Imax) 3567.8	—



(10%Emax) 44.04689	—
(20%Emax) 88.09367	—
(30%Emax) 132.1411	—
(40%Emax) 176.1878	—
(50%Emax) 220.2344	—
(60%Emax) 264.2811	—
(70%Emax) 308.3278	—
(80%Emax) 352.3745	—
(90%Emax) 396.4222	—



Luminance Table

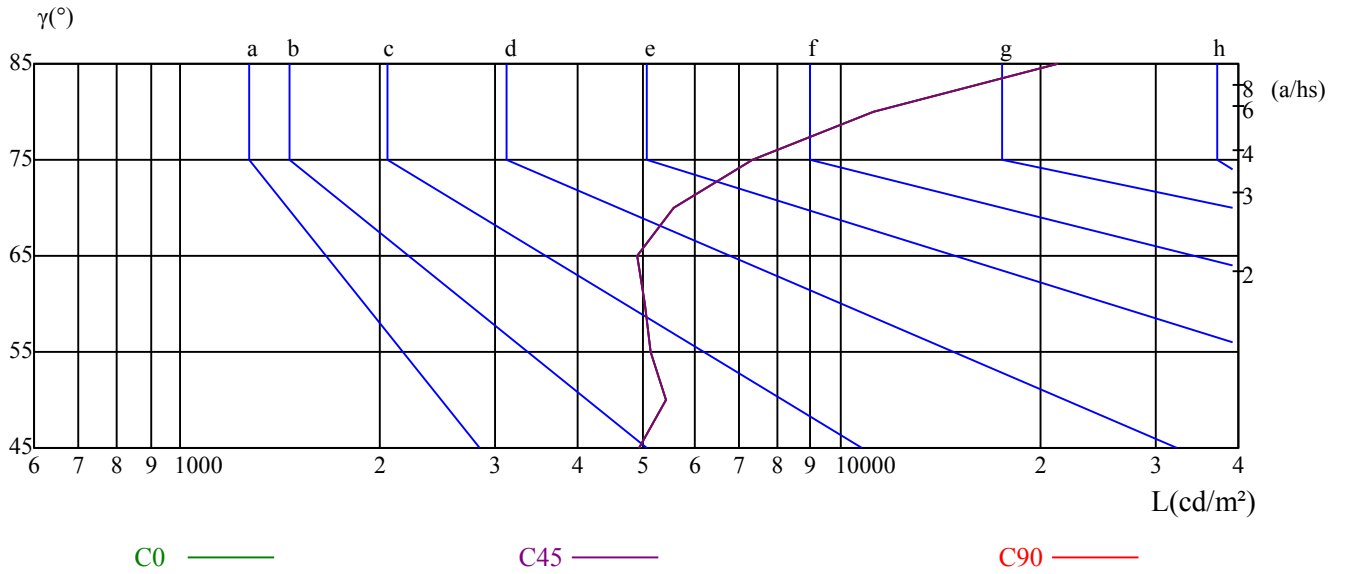
$\gamma$	45	50	55	60	65	70	75	80	85
C0	4933	5417	5155	5045	4916	5586	7358	11214	21294
C45	4933	5417	5155	5045	4916	5586	7358	11214	21294
C90	4933	5417	5155	5045	4916	5586	7358	11214	21294

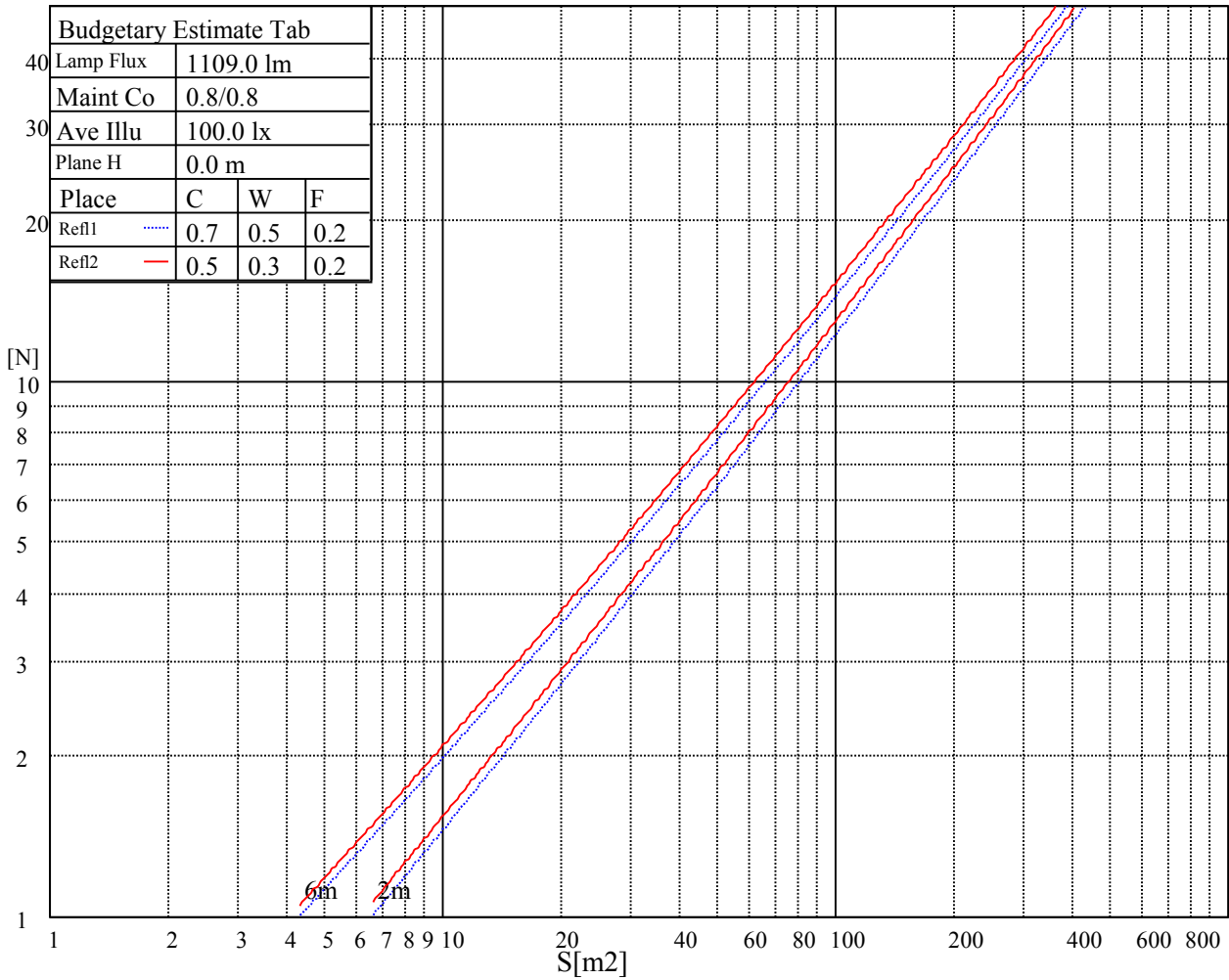
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4916	4916	4916	7358	7358	7358	21294	21294	21294

Glare Table

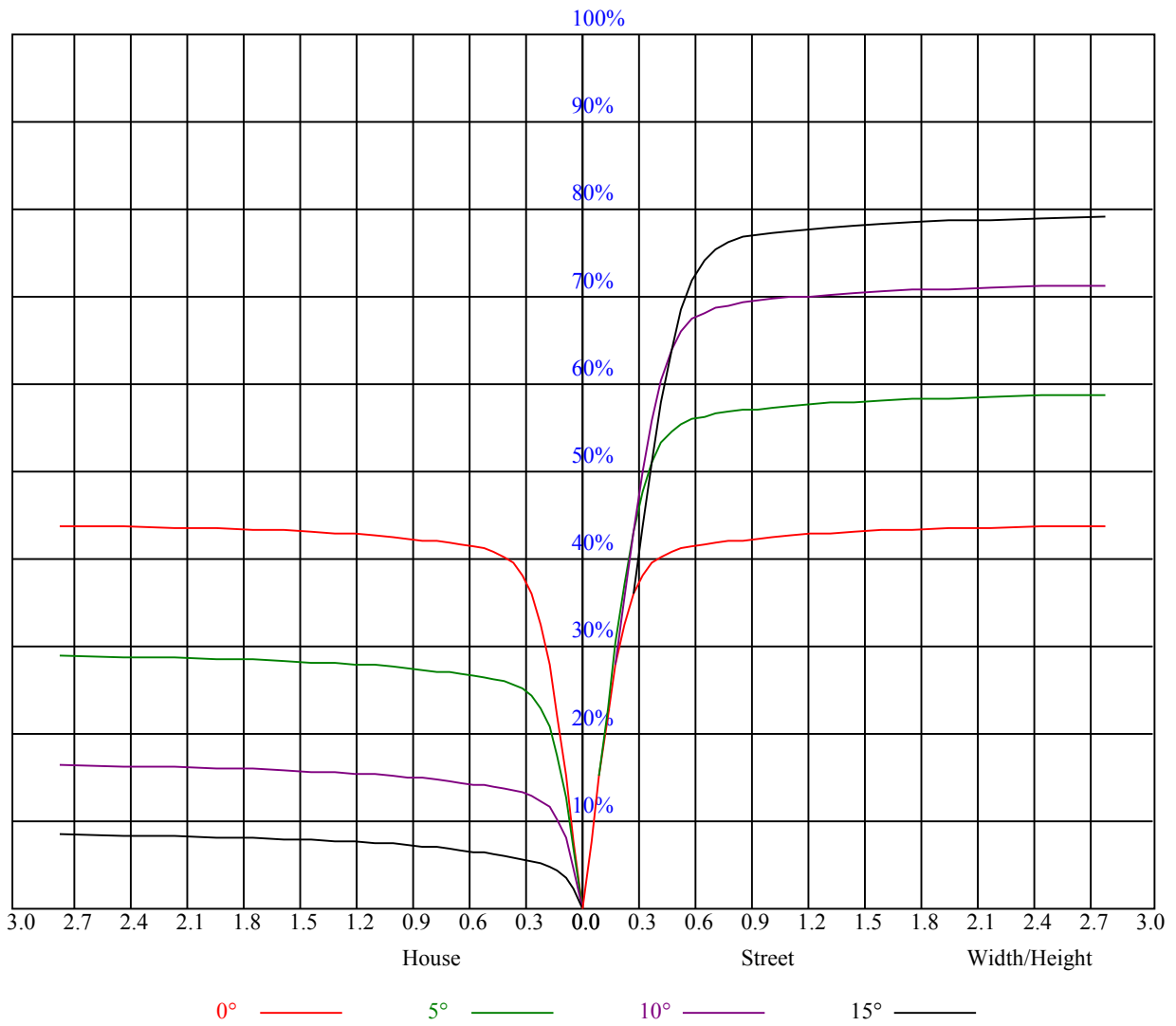
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

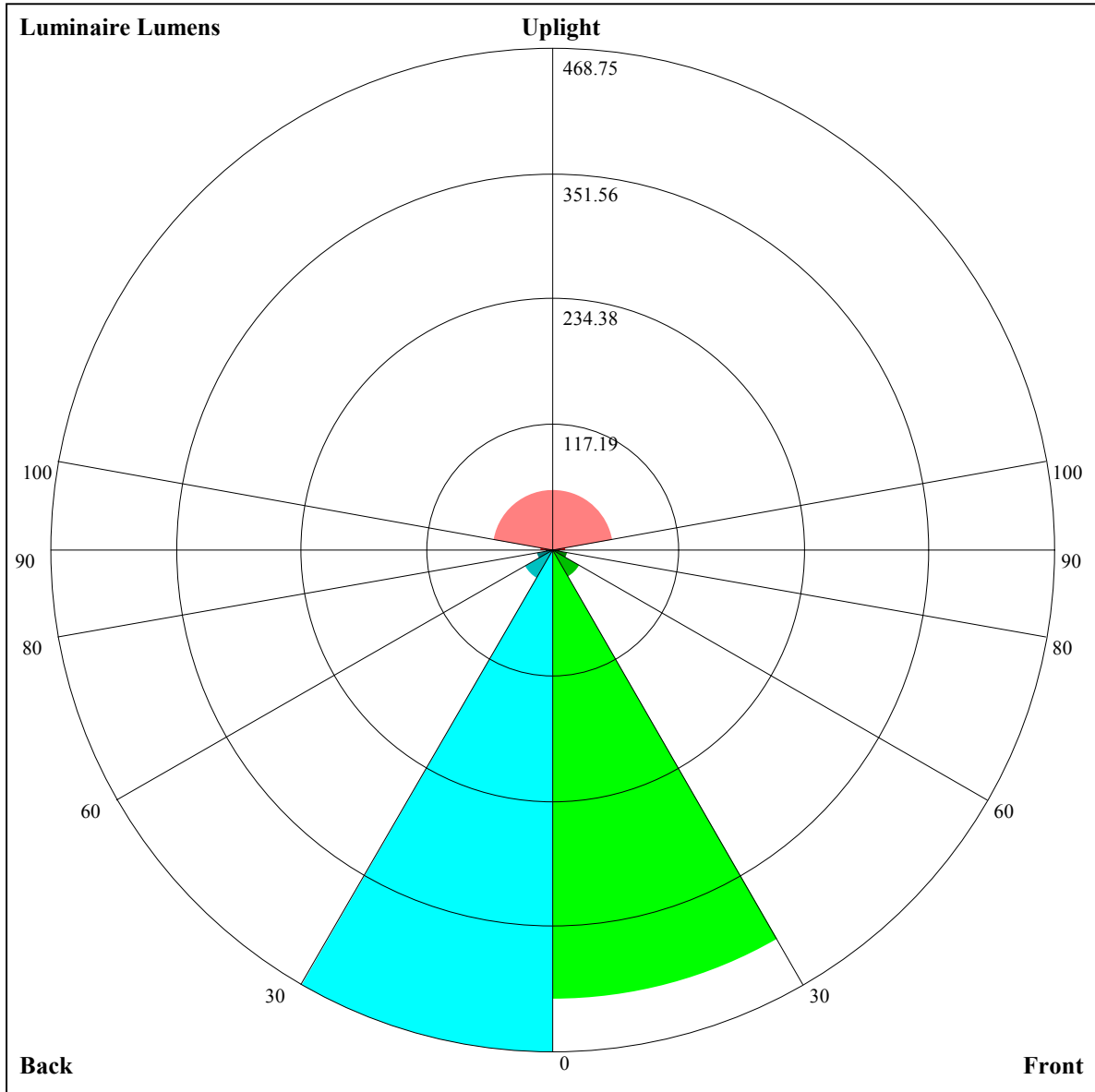
Luminance Limiting Curve





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	1.06	1.06	1.06	1.04	1.04	1.04	0.99	0.99	0.99	0.95	0.95	0.95	0.91	0.91	0.91	0.89
1	1.00	0.98	0.96	0.98	0.96	0.94	0.94	0.93	0.91	0.91	0.90	0.89	0.88	0.87	0.86	0.84
2	0.94	0.91	0.89	0.93	0.90	0.88	0.90	0.88	0.86	0.87	0.85	0.84	0.85	0.83	0.82	0.81
3	0.90	0.86	0.83	0.89	0.85	0.83	0.86	0.84	0.81	0.84	0.82	0.80	0.82	0.80	0.79	0.78
4	0.86	0.82	0.79	0.85	0.81	0.79	0.83	0.80	0.78	0.82	0.79	0.77	0.80	0.78	0.76	0.75
5	0.83	0.79	0.76	0.82	0.78	0.75	0.81	0.77	0.75	0.79	0.76	0.74	0.78	0.76	0.74	0.73
6	0.80	0.76	0.73	0.79	0.76	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.76	0.73	0.71	0.70
7	0.77	0.73	0.71	0.77	0.73	0.70	0.76	0.72	0.70	0.75	0.72	0.70	0.74	0.71	0.69	0.68
8	0.75	0.71	0.68	0.75	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.68	0.72	0.70	0.68	0.67
9	0.73	0.69	0.66	0.73	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.66	0.70	0.68	0.66	0.65
10	0.71	0.67	0.65	0.71	0.67	0.65	0.70	0.67	0.64	0.69	0.66	0.64	0.69	0.66	0.64	0.63





Luminaire Lumens:

FL=419.2,FM=28.84,FH=14.54,FVH=7.09

BL=468.75,BM=30.81,BH=15.34,BVH=7.27

UL=12.05,UH=57.35

BUG Rating:B1-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	3974.06	3936.38	3860.44	3751.31	3652.88	3556.13	3449.81	3325.50	3204.56
45.0	3965.06	3967.88	3943.69	3879.56	3821.06	3764.81	3688.31	3605.06	3486.38
90.0	3967.31	3977.44	3978.56	3971.25	3968.44	3952.13	3906.56	3836.25	3714.19
135.0	3950.44	3981.38	4007.81	4042.69	4079.25	4098.38	4094.44	4053.94	3971.25
180.0	3974.06	3992.06	4023.56	4072.50	4096.13	4101.19	4083.19	4001.06	3901.50
225.0	3965.06	3956.06	3963.38	3965.63	3944.81	3907.69	3843.56	3708.56	3563.44
270.0	3967.31	3930.75	3878.44	3828.94	3772.69	3716.44	3638.81	3528.56	3396.94
315.0	3950.44	3891.94	3806.44	3693.94	3607.31	3516.75	3405.94	3275.44	3135.38
360.0	3974.06	3936.38	3860.44	3751.31	3652.88	3556.13	3449.81	3325.50	3204.56
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3030.19	2801.25	2580.75	2346.75	2035.69	1794.94	1562.63	1260.00	1018.69
45.0	3329.44	3139.88	2918.81	2621.25	2354.63	2094.75	1816.31	1537.31	1280.25
90.0	3531.94	3293.44	3031.31	2721.38	2444.63	2121.75	1796.63	1508.06	1119.60
135.0	3834.56	3633.19	3400.88	3133.69	2778.19	2469.38	2151.56	1745.44	1444.50
180.0	3759.19	3497.63	3245.63	2971.69	2641.50	2287.13	1969.88	1623.38	1111.28
225.0	3388.50	3082.50	2817.00	2548.69	2193.19	1911.94	1627.31	1120.28	1063.24
270.0	3201.19	2967.75	2733.19	2468.25	2145.94	1890.56	1634.63	1376.44	1069.88
315.0	2927.81	2687.63	2453.63	2174.06	1930.50	1667.25	1401.19	1096.09	924.92
360.0	3030.19	2801.25	2580.75	2346.75	2035.69	1794.94	1562.63	1260.00	1018.69
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	796.50	581.63	420.75	317.25	287.44	180.00	141.81	108.45	86.34
45.0	996.75	729.00	559.13	416.25	317.81	287.44	181.86	144.45	115.48
90.0	907.82	705.21	547.37	406.52	328.56	264.54	201.15	160.03	128.59
135.0	1162.69	889.88	698.06	561.94	441.56	351.56	289.69	252.84	177.98
180.0	1053.17	819.28	658.24	520.99	416.70	341.16	278.83	215.38	172.29
225.0	822.49	634.89	503.04	403.37	319.61	251.44	201.32	151.99	121.44
270.0	848.25	662.06	480.38	371.81	291.38	223.71	172.18	136.69	106.88
315.0	644.18	503.83	379.41	259.09	205.82	161.83	124.71	96.47	77.96
360.0	796.50	581.63	420.75	317.25	287.44	180.00	141.81	108.45	86.34
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	67.95	56.31	49.50	44.83	40.56	37.35	34.31	31.05	28.58
45.0	86.91	71.44	59.96	50.34	44.72	40.89	37.07	33.64	31.05
90.0	100.24	78.36	64.41	53.61	47.08	41.57	37.74	34.88	32.12
135.0	136.41	107.16	82.35	66.49	53.55	46.01	41.23	37.18	33.81
180.0	135.96	103.67	79.09	63.17	51.81	44.55	40.50	36.73	33.75
225.0	96.47	77.68	61.71	53.21	46.97	41.63	37.35	34.09	31.11
270.0	86.57	69.47	58.16	51.08	45.17	40.50	36.96	33.98	30.83
315.0	63.45	54.34	47.48	42.64	39.26	35.66	32.34	29.76	27.51
360.0	67.95	56.31	49.50	44.83	40.56	37.35	34.31	31.05	28.58
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	26.66	25.26	24.41	23.96	23.68	23.79	23.85	24.02	24.24
45.0	28.29	26.72	25.65	25.03	24.64	24.53	24.53	24.41	24.47
90.0	29.76	28.07	26.83	25.93	25.54	25.43	25.31	25.31	25.48
135.0	31.11	29.59	27.73	26.55	26.10	26.16	26.16	26.10	26.21
180.0	30.83	28.58	27.23	26.33	26.04	26.10	26.04	26.10	26.38
225.0	28.80	27.28	26.04	25.48	25.26	25.09	24.92	24.86	25.09
270.0	28.86	27.23	25.93	25.03	24.53	24.08	23.91	23.68	23.85
315.0	25.59	24.58	24.02	23.57	23.46	23.63	23.68	23.74	23.96
360.0	26.66	25.26	24.41	23.96	23.68	23.79	23.85	24.02	24.24

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	24.53	24.81	24.92	24.86	24.64	24.30	23.74	22.89	21.99
45.0	24.64	24.81	24.81	24.81	24.58	24.19	23.79	22.95	22.22
90.0	25.76	26.04	26.16	26.16	25.99	25.59	24.98	24.30	23.63
135.0	26.55	26.94	27.17	27.34	27.28	27.00	26.49	25.71	24.81
180.0	26.72	27.23	27.56	27.73	27.62	27.34	26.83	25.99	25.26
225.0	25.26	25.48	25.71	25.76	25.71	25.48	25.14	24.58	23.74
270.0	23.91	24.13	24.13	23.96	23.74	23.46	23.12	22.84	22.16
315.0	24.24	24.41	24.58	24.53	24.30	23.91	23.34	22.61	21.83
360.0	24.53	24.81	24.92	24.86	24.64	24.30	23.74	22.89	21.99
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	21.15	20.31	19.69	19.29	18.84	18.45	17.89	17.33	16.76
45.0	21.54	20.70	19.91	19.41	18.90	18.39	17.78	17.04	16.43
90.0	22.50	21.88	21.26	20.48	20.03	19.41	18.68	17.94	17.21
135.0	23.91	23.01	22.11	21.38	20.87	20.14	19.29	18.51	17.83
180.0	24.13	22.95	22.39	21.83	21.15	20.76	20.31	19.80	19.52
225.0	22.78	21.77	20.93	20.14	19.46	18.73	18.00	17.27	16.37
270.0	21.32	20.42	19.29	18.45	18.17	17.49	16.99	16.54	15.75
315.0	20.70	19.86	19.24	18.62	18.00	17.38	16.88	16.03	15.36
360.0	21.15	20.31	19.69	19.29	18.84	18.45	17.89	17.33	16.76
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	16.20	15.58	15.19	14.79	14.51	14.29	14.23	14.23	14.68
45.0	15.53	14.85	14.23	13.67	13.05	12.83	12.60	12.43	12.94
90.0	16.43	15.69	15.13	14.51	14.18	13.89	13.67	13.95	14.46
135.0	16.99	16.03	15.30	14.68	14.12	13.67	13.39	13.39	13.95
180.0	19.41	19.13	18.56	18.23	17.83	17.55	17.49	17.27	16.76
225.0	15.75	14.96	14.29	13.78	13.44	13.05	13.05	13.89	13.95
270.0	15.19	14.51	13.95	13.56	13.22	12.77	12.60	12.43	12.43
315.0	14.68	14.01	13.44	13.05	12.71	12.60	12.49	12.83	13.05
360.0	16.20	15.58	15.19	14.79	14.51	14.29	14.23	14.23	14.68
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	15.02	15.02	14.46	13.84	13.73	13.73	13.78	13.84	13.95
45.0	13.56	13.89	13.95	13.78	13.56	13.56	13.73	13.67	13.67
90.0	14.57	14.85	14.57	14.51	14.57	14.91	15.13	15.30	15.69
135.0	14.18	14.74	14.63	14.29	14.34	14.29	14.18	14.18	14.34
180.0	15.98	15.41	14.85	14.74	14.57	14.68	14.68	14.74	14.74
225.0	14.29	14.06	13.89	13.61	13.67	13.61	13.61	13.67	13.67
270.0	12.43	12.71	12.71	12.77	13.05	13.33	13.50	13.44	13.28
315.0	13.16	13.11	12.66	12.54	12.54	12.60	12.83	12.94	13.22
360.0	15.02	15.02	14.46	13.84	13.73	13.73	13.78	13.84	13.95
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	13.56	12.94	12.54	12.38	12.43	12.54	12.66	11.98	11.70
45.0	13.73	13.95	13.67	13.16	13.22	13.50	13.73	13.16	12.71
90.0	15.64	15.53	14.91	14.57	14.40	14.18	13.56	12.88	12.60
135.0	14.51	14.63	14.85	14.34	14.23	14.23	13.50	12.88	12.38
180.0	14.79	14.34	14.23	14.06	13.84	13.84	12.83	12.38	11.93
225.0	14.51	14.74	13.78	13.73	13.67	13.28	12.60	12.26	11.48
270.0	13.22	13.11	13.05	12.94	12.66	12.60	12.15	11.59	11.25
315.0	14.06	13.95	13.05	12.54	12.83	12.99	12.26	11.81	11.53
360.0	13.56	12.94	12.54	12.38	12.43	12.54	12.66	11.98	11.70

Intensity data(cd)

C/ $\gamma$ (°)	90.0
0.0	11.19
45.0	12.26
90.0	11.87
135.0	11.36
180.0	10.63
225.0	9.84
270.0	10.41
315.0	10.80
360.0	11.19