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Nata

Client:

LumCAT: LM01D08515BK

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: 1.0000

Number of Lamps: 1

Ballast type: DC

Length(mm): 0

Width(mm): 0

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 1014.64, Efficiency(%): 91.49% , Luminous Efficacy(lm/W): 98.41

Central intensity(cd): 9655.172, Maximum intensity(cd): 9655.172

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=14.8

[C90/270]Total=14.8

Field angle(10%Imax): [C0/180]Total=31.2

[C90/270]Total=31.2

Maximum s/h(1/2): C0_180=0.26 C90_270=0.26

Maximum s/h(1/4): C0_180=0.27 C90_270=0.27

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 91.49%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 95.561%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	9655.172	0.000	0	.000%	.000%
1.0	9561.094	9.195	9.195	.829%	.906%
2.0	9263.602	27.019	36.214	2.436%	3.569%
3.0	8738.508	43.055	79.269	3.882%	7.813%
4.0	8046.000	56.183	135.452	5.066%	13.350%
5.0	7216.031	65.656	201.108	5.920%	19.821%
6.0	6206.977	70.541	271.65	6.361%	26.773%
7.0	5194.758	70.770	342.42	6.381%	33.748%
8.0	4363.453	68.406	410.826	6.168%	40.490%
9.0	3556.055	64.183	475.01	5.787%	46.816%
10.0	2849.906	57.972	532.981	5.227%	52.529%
11.0	2361.797	52.076	585.057	4.696%	57.662%
12.0	1927.828	46.892	631.949	4.228%	62.283%
13.0	1553.484	41.314	673.263	3.725%	66.355%
14.0	1277.698	36.239	709.502	3.268%	69.927%
15.0	1073.334	32.276	741.778	2.910%	73.108%
16.0	890.353	28.774	770.552	2.595%	75.943%
17.0	733.704	25.291	795.842	2.281%	78.436%
18.0	600.152	21.992	817.835	1.983%	80.604%
19.0	486.415	18.904	836.739	1.705%	82.467%
20.0	388.090	16.006	852.745	1.443%	84.044%
21.0	314.663	13.494	866.239	1.217%	85.374%
22.0	235.125	11.048	877.287	.996%	86.463%
23.0	181.800	8.748	886.035	.789%	87.325%
24.0	136.427	6.958	892.993	.627%	88.011%
25.0	102.600	5.435	898.428	.490%	88.547%
26.0	80.986	4.334	902.762	.391%	88.974%
27.0	65.890	3.593	906.355	.324%	89.328%
28.0	54.218	3.041	909.396	.274%	89.628%
29.0	47.517	2.662	912.058	.240%	89.890%
30.0	42.455	2.429	914.487	.219%	90.129%
31.0	37.659	2.229	916.716	.201%	90.349%
32.0	33.891	2.050	918.766	.185%	90.551%
33.0	30.930	1.910	920.676	.172%	90.739%
34.0	28.266	1.791	922.467	.162%	90.916%
35.0	26.290	1.694	924.161	.153%	91.083%
36.0	24.870	1.629	925.79	.147%	91.243%
37.0	24.012	1.594	927.385	.144%	91.400%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	23.646	1.591	928.975	.143%	91.557%
39.0	23.597	1.613	930.588	.145%	91.716%
40.0	23.667	1.648	932.236	.149%	91.879%
41.0	23.808	1.691	933.927	.152%	92.045%
42.0	24.012	1.737	935.664	.157%	92.217%
43.0	24.265	1.788	937.452	.161%	92.393%
44.0	24.455	1.839	939.291	.166%	92.574%
45.0	24.588	1.885	941.176	.170%	92.760%
46.0	24.616	1.924	943.1	.174%	92.949%
47.0	24.532	1.955	945.055	.176%	93.142%
48.0	24.314	1.975	947.03	.178%	93.337%
49.0	24.005	1.984	949.014	.179%	93.532%
50.0	23.520	1.981	950.995	.179%	93.728%
51.0	23.006	1.968	952.964	.177%	93.922%
52.0	22.472	1.952	954.915	.176%	94.114%
53.0	21.938	1.932	956.847	.174%	94.304%
54.0	21.375	1.909	958.756	.172%	94.492%
55.0	20.827	1.884	960.64	.170%	94.678%
56.0	20.313	1.859	962.499	.168%	94.861%
57.0	19.737	1.831	964.33	.165%	95.042%
58.0	19.097	1.796	966.126	.162%	95.219%
59.0	18.471	1.756	967.882	.158%	95.392%
60.0	17.831	1.715	969.597	.155%	95.561%
61.0	17.079	1.666	971.263	.150%	95.725%
62.0	16.446	1.615	972.879	.146%	95.884%
63.0	15.884	1.572	974.451	.142%	96.039%
64.0	15.286	1.529	975.981	.138%	96.190%
65.0	14.850	1.491	977.472	.134%	96.337%
66.0	14.569	1.468	978.94	.132%	96.482%
67.0	14.273	1.450	980.39	.131%	96.625%
68.0	14.077	1.436	981.826	.129%	96.766%
69.0	14.063	1.436	983.262	.129%	96.908%
70.0	14.168	1.450	984.712	.131%	97.050%
71.0	14.379	1.475	986.187	.133%	97.196%
72.0	14.365	1.495	987.682	.135%	97.343%
73.0	14.414	1.505	989.187	.136%	97.492%
74.0	14.484	1.519	990.706	.137%	97.641%
75.0	14.456	1.529	992.235	.138%	97.792%

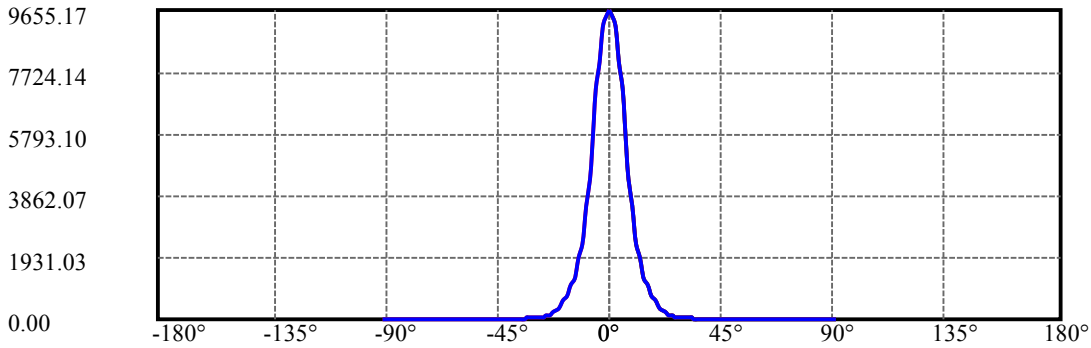
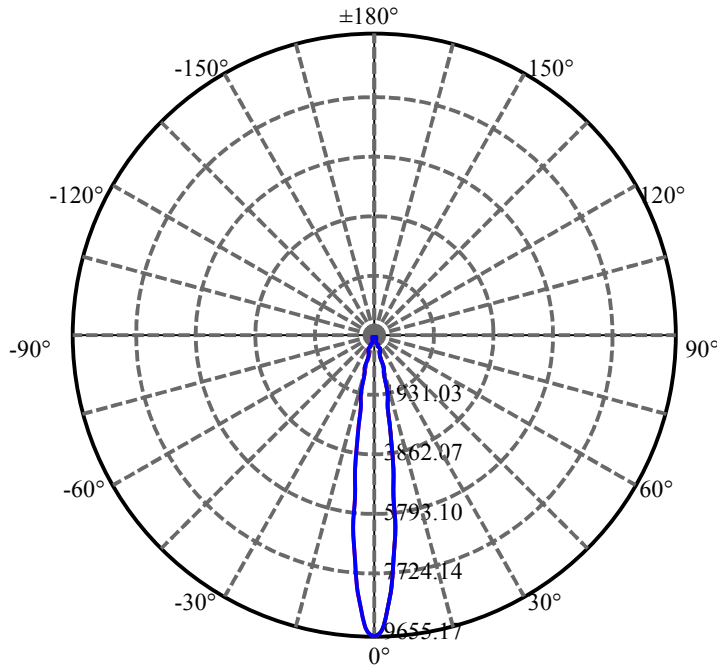
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	14.513	1.538	993.773	.139%	97.944%
77.0	14.534	1.549	995.321	.140%	98.096%
78.0	14.470	1.553	996.874	.140%	98.249%
79.0	14.414	1.552	998.426	.140%	98.402%
80.0	14.428	1.555	999.981	.140%	98.555%
81.0	14.576	1.568	1001.549	.141%	98.710%
82.0	14.428	1.573	1003.122	.142%	98.865%
83.0	13.936	1.542	1004.664	.139%	99.017%
84.0	13.662	1.503	1006.168	.136%	99.165%
85.0	13.648	1.490	1007.658	.134%	99.312%
86.0	13.570	1.488	1009.146	.134%	99.459%
87.0	13.022	1.455	1010.601	.131%	99.602%
88.0	12.558	1.401	1012.002	.126%	99.740%
89.0	12.129	1.353	1013.355	.122%	99.874%
90.0	11.271	1.283	1014.638	.116%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	914.49	82.46%	90.13%
0-40	932.24	84.06%	91.88%
0-60	969.60	87.43%	95.56%
0-90	1013.36	91.38%	99.87%
0-120	1013.36	91.38%	99.87%
0-180	1014.64	91.49%	100.00%
60-90	45.47	4.10%	4.48%
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%
0-17.72	811.71	73.19%	80.00%

ZONAL LUMEN SUMMARY

0-10	532.98
10-20	319.76
20-30	61.74
30-40	17.75
40-50	18.76
50-60	18.60
60-70	15.11
70-80	15.27
80-90	13.37
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



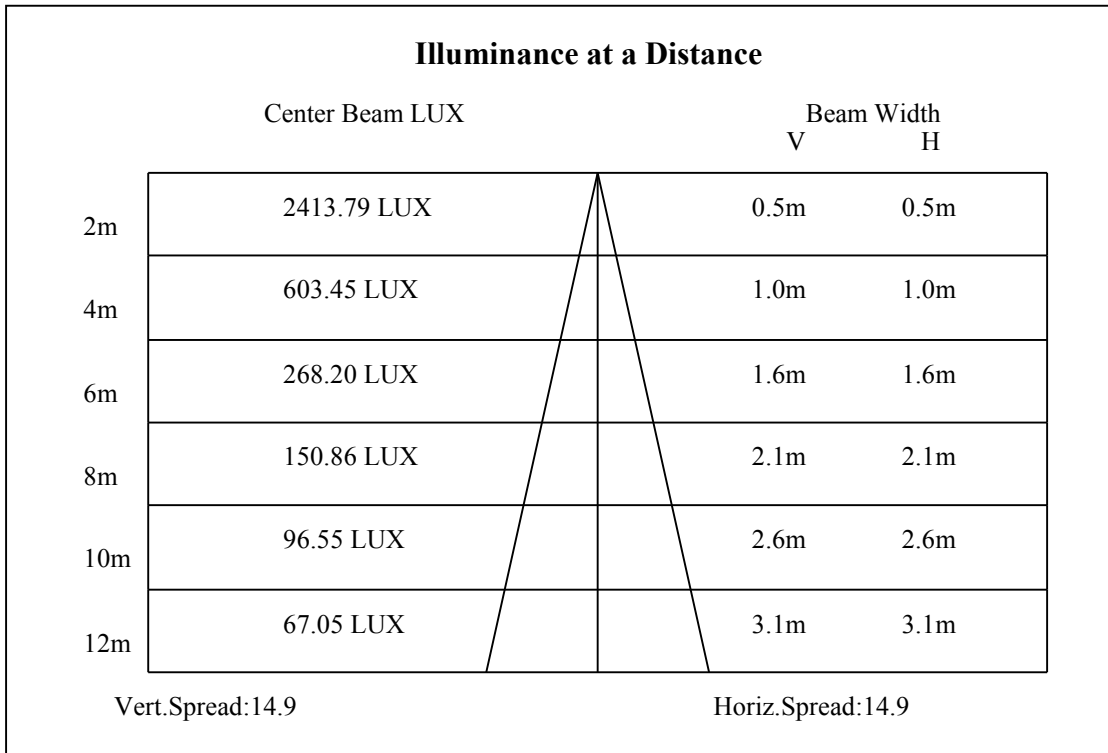
C0(Max): —————

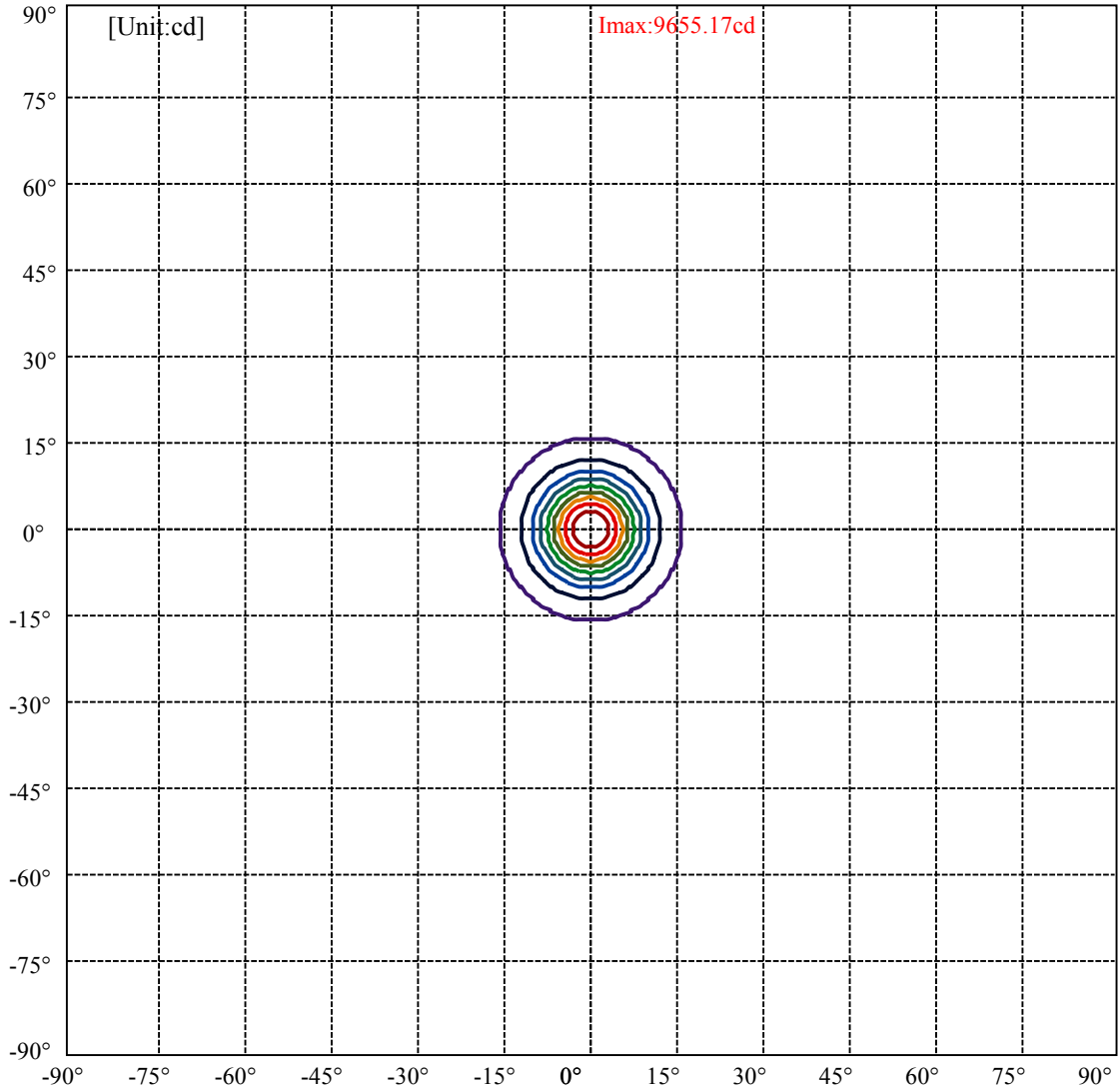
C0/C180: —————

C90/C270: —————

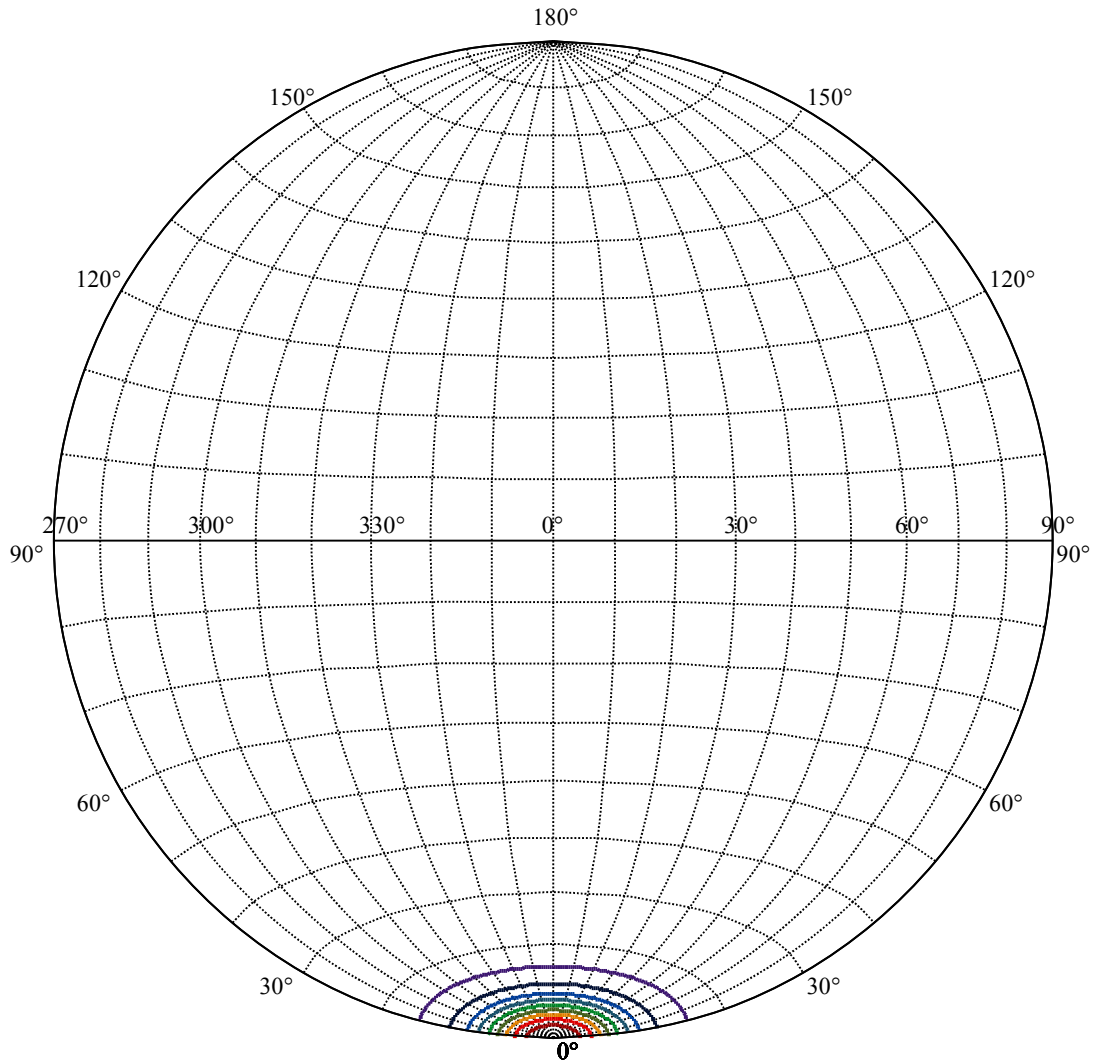
Field angle(10%Imax):C0/180Left:15.6 Right:15.6
:C90/270Left:15.6 Right:15.6

Beam Angle(50%Imax):C0/180Left:7.4 Right:7.4
:C90/270Left:7.4 Right:7.4





(10%Imax) 965.517	—
(20%Imax) 1931.03	—
(30%Imax) 2896.55	—
(40%Imax) 3862.07	—
(50%Imax) 4827.59	—
(60%Imax) 5793.1	—
(70%Imax) 6758.62	—
(80%Imax) 7724.14	—
(90%Imax) 8689.65	—



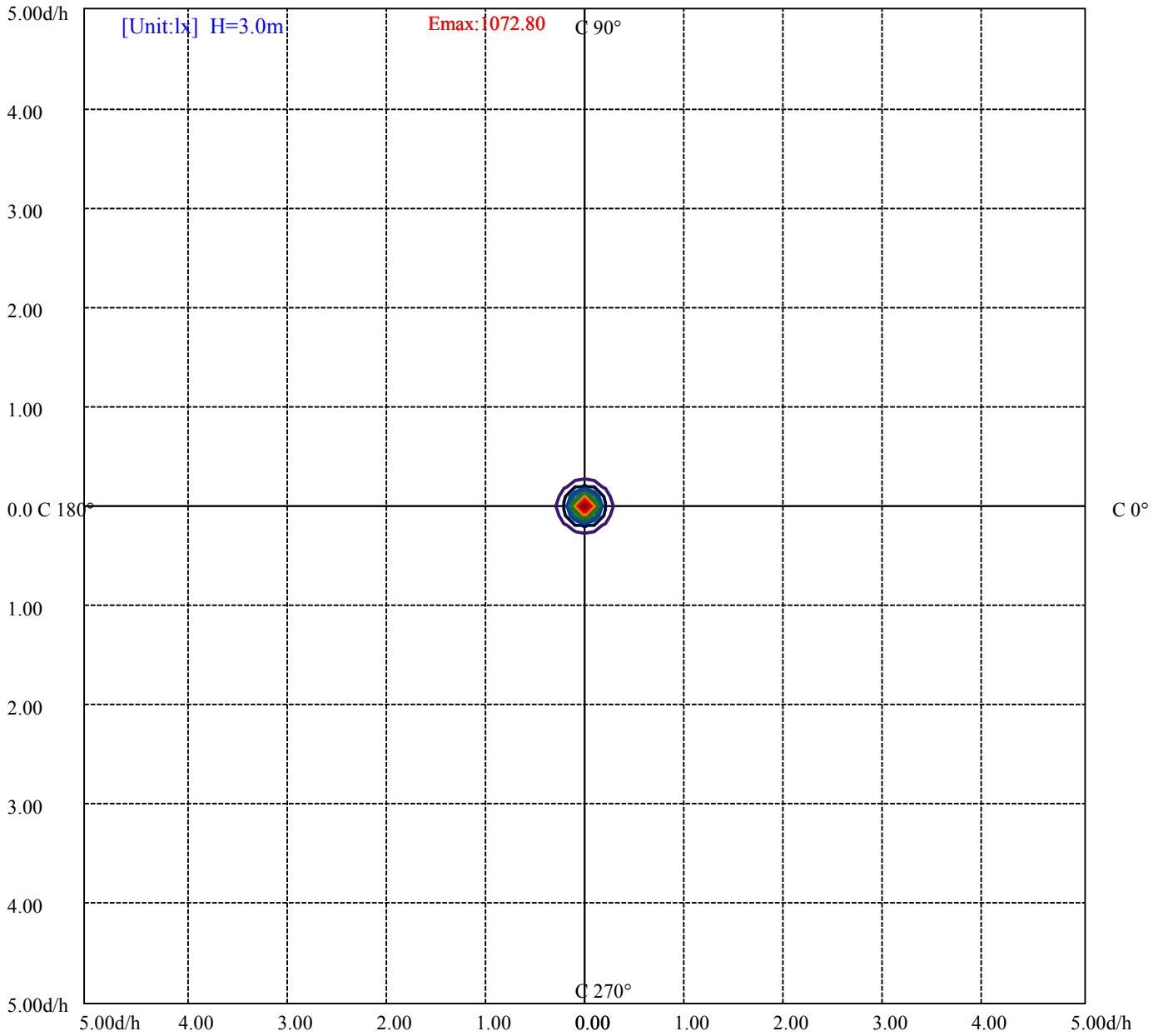
House

[Unit:cd]

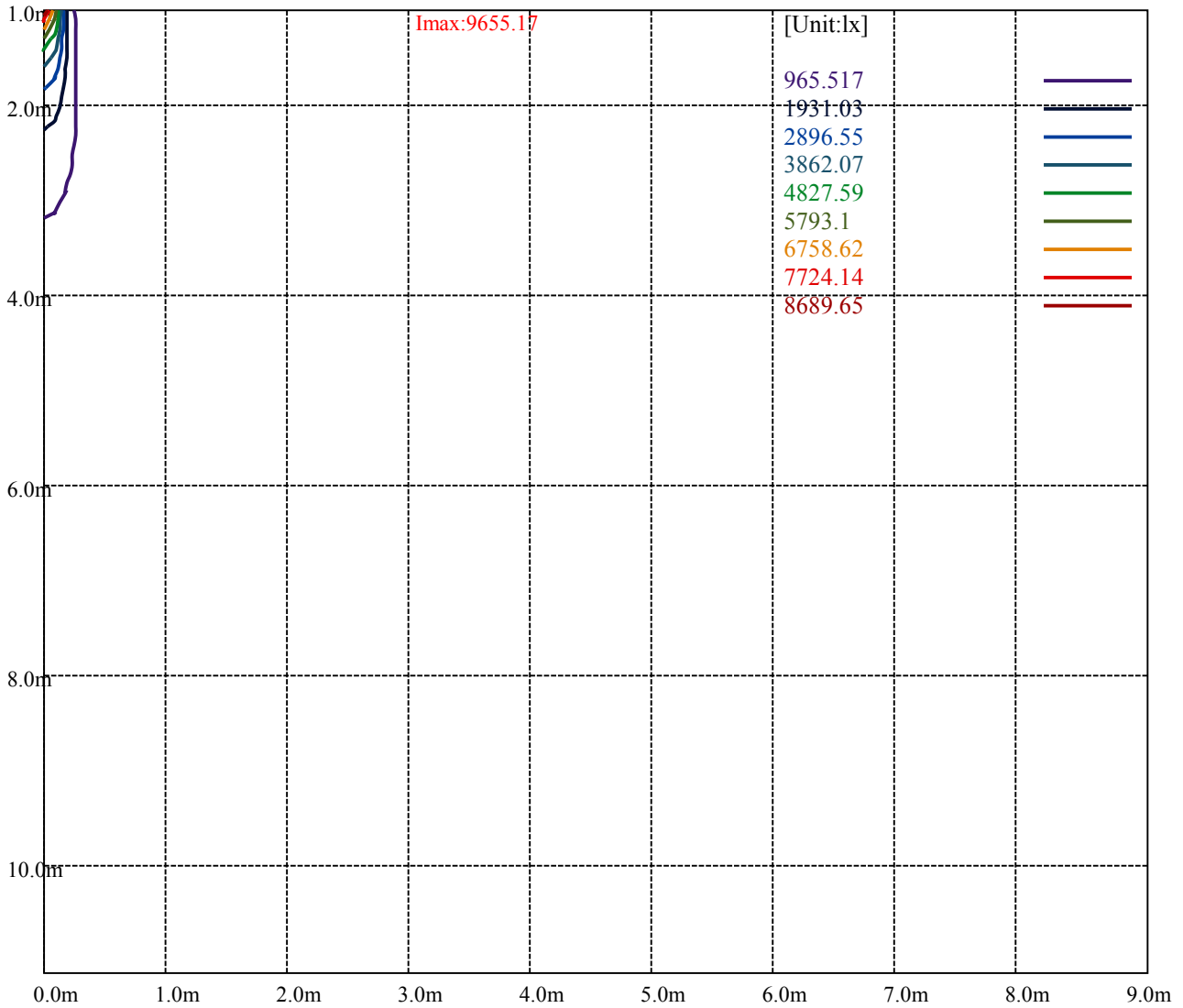
Road

Imax:9655.17

(10%Imax)	965.517	—
(20%Imax)	1931.03	—
(30%Imax)	2896.55	—
(40%Imax)	3862.07	—
(50%Imax)	4827.59	—
(60%Imax)	5793.1	—
(70%Imax)	6758.62	—
(80%Imax)	7724.14	—
(90%Imax)	8689.65	—



(10%Emax) 107.2796	—
(20%Emax) 214.5589	—
(30%Emax) 321.8389	—
(40%Emax) 429.1178	—
(50%Emax) 536.3978	—
(60%Emax) 643.6766	—
(70%Emax) 750.9567	—
(80%Emax) 858.2366	—
(90%Emax) 965.5155	—



Luminance Table

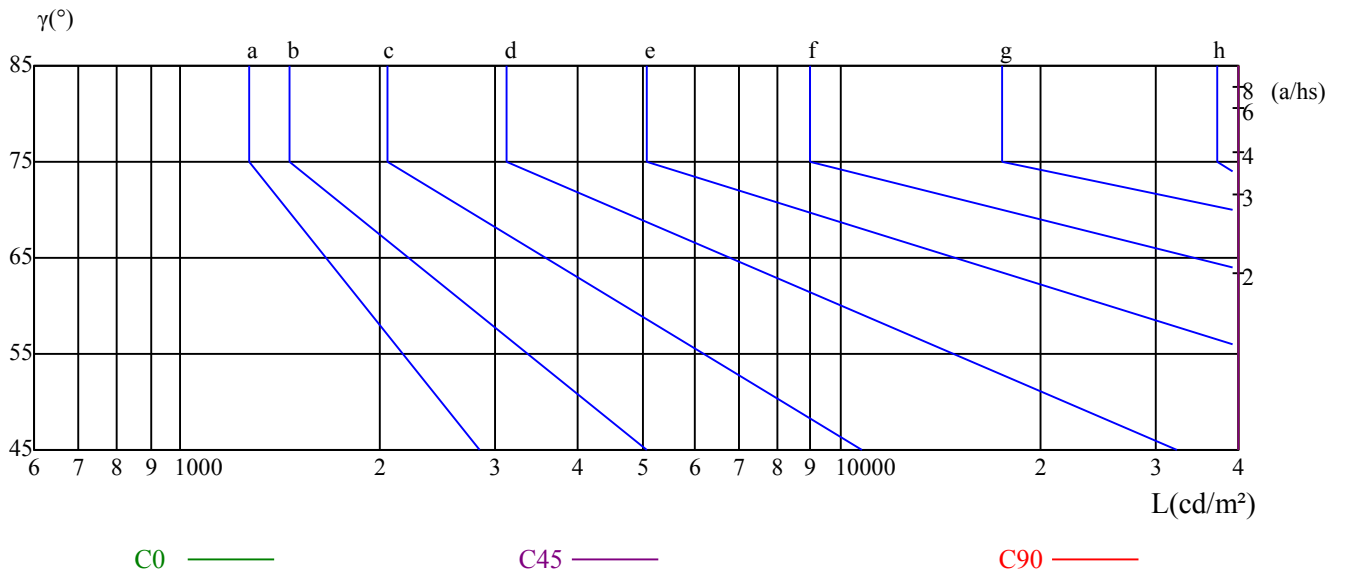
γ	45	50	55	60	65	70	75	80	85
C0	82924	61238	51038	56484	52412	51011	60090	103135	147773
C45	82924	61238	51038	56484	52412	51011	60090	103135	147773
C90	82924	61238	51038	56484	52412	51011	60090	103135	147773

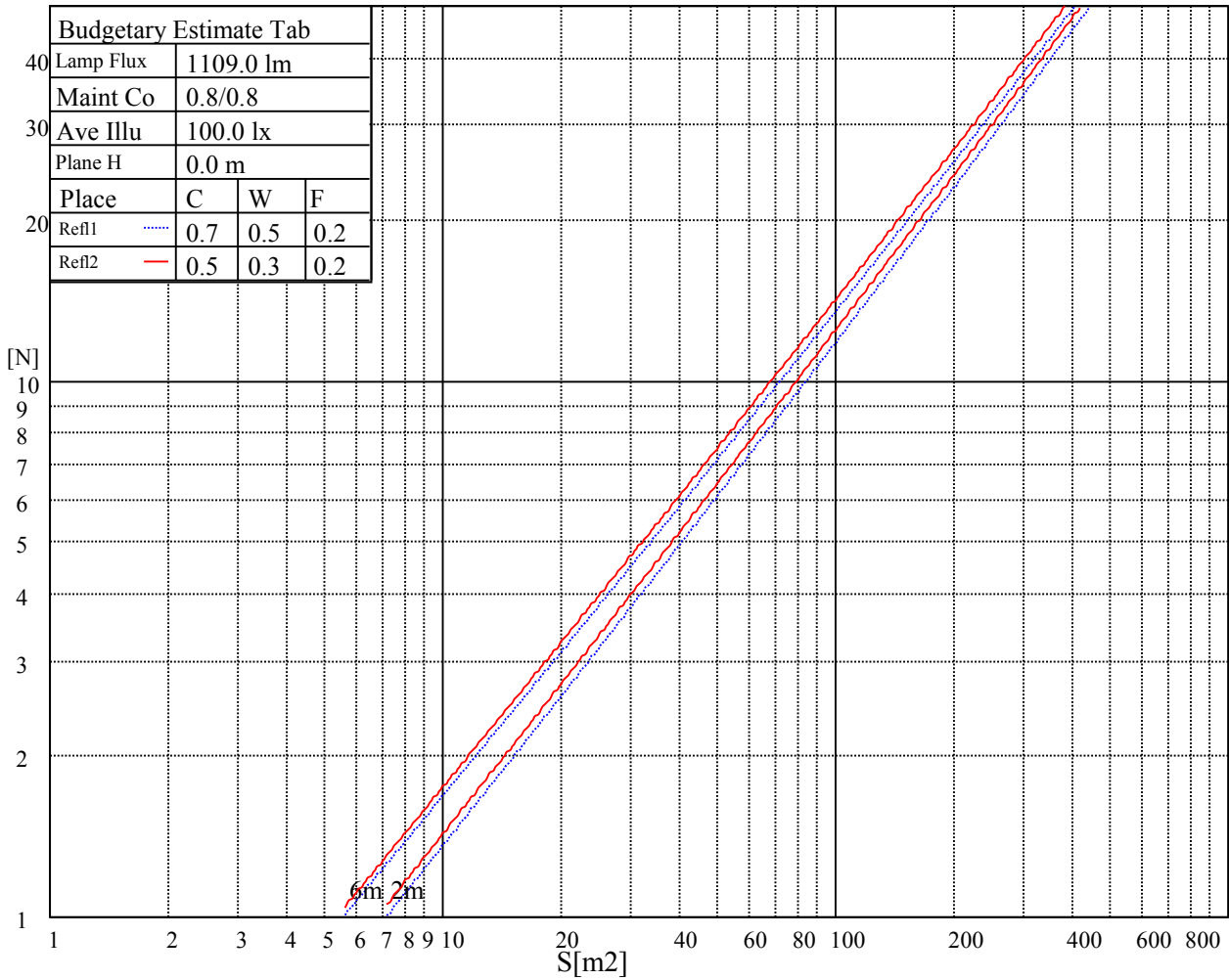
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
52412	52412	52412	60090	60090	60090	147773	147773	147773

Glare Table

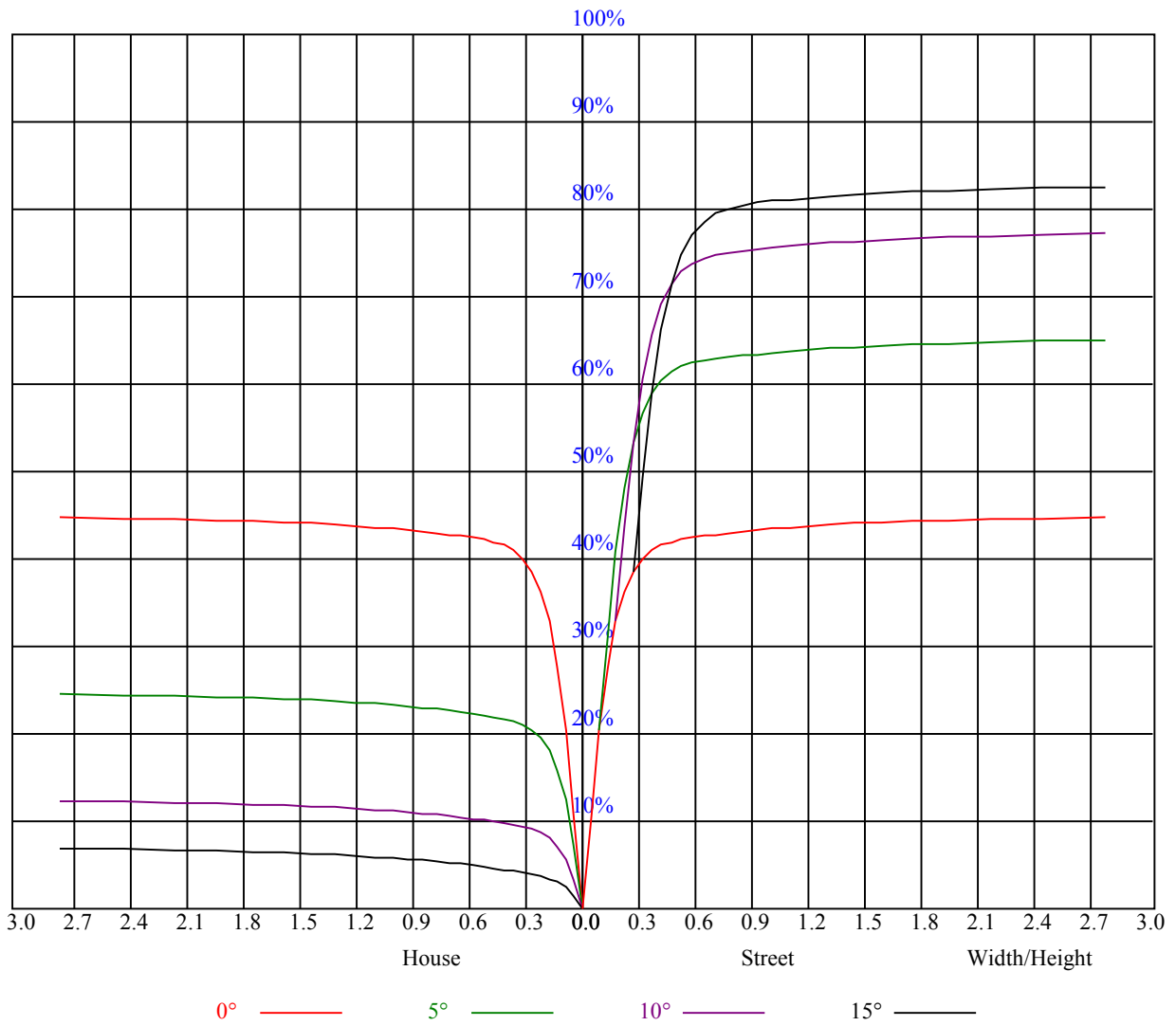
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

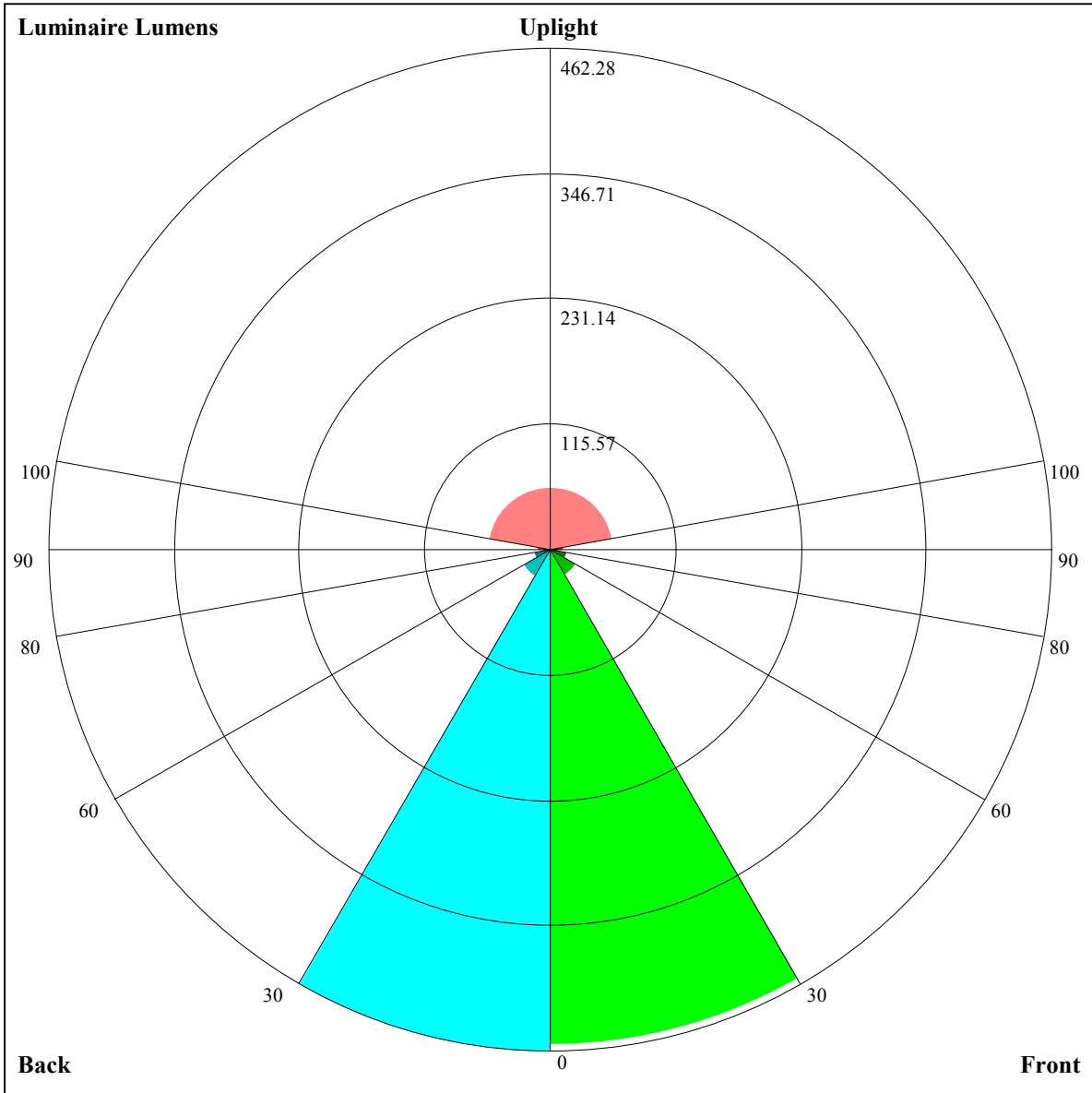
Luminance Limiting Curve





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	1.09	1.09	1.09	1.06	1.06	1.06	1.02	1.02	1.02	0.97	0.97	0.97	0.93	0.93	0.93	0.91
1	1.02	1.00	0.99	1.00	0.99	0.97	0.97	0.95	0.94	0.93	0.92	0.91	0.90	0.89	0.89	0.87
2	0.98	0.95	0.92	0.96	0.93	0.91	0.93	0.91	0.89	0.90	0.89	0.87	0.88	0.87	0.85	0.84
3	0.94	0.90	0.87	0.92	0.89	0.87	0.90	0.87	0.85	0.88	0.86	0.84	0.86	0.84	0.83	0.82
4	0.90	0.87	0.84	0.89	0.86	0.83	0.87	0.85	0.82	0.86	0.83	0.81	0.84	0.82	0.81	0.79
5	0.87	0.84	0.81	0.87	0.83	0.81	0.85	0.82	0.80	0.84	0.81	0.79	0.83	0.80	0.79	0.78
6	0.85	0.81	0.79	0.84	0.81	0.78	0.83	0.80	0.78	0.82	0.79	0.77	0.81	0.79	0.77	0.76
7	0.83	0.79	0.77	0.82	0.79	0.76	0.81	0.78	0.76	0.80	0.78	0.76	0.80	0.77	0.75	0.75
8	0.81	0.77	0.75	0.81	0.77	0.75	0.80	0.77	0.75	0.79	0.76	0.74	0.78	0.76	0.74	0.73
9	0.79	0.76	0.73	0.79	0.76	0.73	0.78	0.75	0.73	0.78	0.75	0.73	0.77	0.75	0.73	0.72
10	0.78	0.74	0.72	0.77	0.74	0.72	0.77	0.74	0.72	0.76	0.74	0.72	0.76	0.73	0.72	0.71





Luminaire Lumens:

FL=455.96,FM=26.87,FH=14.79,FVH=7.11

BL=462.28,BM=27.95,BH=15.36,BVH=7.35

UL=12.3,UH=58.52

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	9712.13	9648.00	9349.31	8798.06	8114.63	7278.75	6125.63	5236.31	4399.31
45.0	9581.63	9700.88	9572.06	9242.44	8608.50	7731.56	6804.56	5717.25	4815.00
90.0	9672.75	9643.50	9423.56	8916.75	8115.19	7217.44	6242.63	5049.56	4211.44
135.0	9654.19	9697.50	9523.13	9088.88	8499.38	7716.38	6577.31	5617.13	4719.94
180.0	9712.13	9576.00	9216.56	8703.00	7977.38	7183.69	6188.06	5006.25	4249.69
225.0	9581.63	9298.69	8852.63	8133.19	7423.88	6611.63	5645.81	4686.75	3897.00
270.0	9672.75	9509.06	9126.00	8584.31	7966.69	7152.19	6230.81	5380.31	4556.25
315.0	9654.19	9415.13	9045.56	8441.44	7662.38	6836.63	5841.00	4864.50	4059.00
360.0	9712.13	9648.00	9349.31	8798.06	8114.63	7278.75	6125.63	5236.31	4399.31
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3489.19	2881.13	2363.06	1871.44	1480.50	1216.13	976.50	802.69	641.25
45.0	4033.13	3197.81	2619.56	2072.81	1627.88	1307.25	1046.25	788.06	629.44
90.0	3480.19	2720.81	2215.13	1797.19	1408.50	1104.58	892.91	700.26	561.26
135.0	3745.13	3083.06	2513.25	1992.38	1593.56	1310.63	1061.44	887.63	719.44
180.0	3484.13	2666.25	2268.56	1915.31	1536.75	1335.38	1119.83	983.93	806.91
225.0	3222.56	2568.94	2174.06	1843.88	1550.81	1324.69	1116.11	982.80	843.24
270.0	3637.69	3036.94	2552.06	2111.63	1764.56	1518.19	1311.75	1094.63	942.19
315.0	3356.44	2644.31	2188.69	1818.00	1465.31	1104.75	1061.89	882.84	725.91
360.0	3489.19	2881.13	2363.06	1871.44	1480.50	1216.13	976.50	802.69	641.25
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	513.00	414.56	318.94	291.38	185.68	143.49	105.58	84.15	69.36
45.0	499.50	373.50	284.06	244.63	161.33	118.80	93.99	74.93	63.39
90.0	432.06	328.28	254.87	189.39	140.34	108.68	86.34	67.61	58.22
135.0	577.69	468.00	365.63	290.81	217.46	164.31	120.66	95.01	76.28
180.0	676.52	561.66	449.66	353.36	283.73	213.69	160.82	124.59	94.39
225.0	706.67	586.91	489.04	389.76	304.43	237.26	179.44	126.00	96.08
270.0	789.75	672.19	547.31	451.69	357.19	291.94	215.44	151.54	113.01
315.0	606.04	486.23	395.21	306.28	230.85	176.23	129.15	96.98	77.18
360.0	513.00	414.56	318.94	291.38	185.68	143.49	105.58	84.15	69.36
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	57.83	50.34	44.94	40.05	36.23	32.85	29.87	27.73	25.88
45.0	54.51	47.98	43.03	38.64	33.81	30.77	28.24	25.99	24.58
90.0	51.41	44.49	40.05	36.00	31.61	28.86	26.72	24.75	23.63
135.0	63.51	53.10	47.08	42.41	36.90	33.64	30.77	28.41	26.78
180.0	75.54	61.65	52.71	46.80	42.24	37.41	34.37	31.78	29.08
225.0	74.31	58.95	50.57	45.28	40.50	36.39	33.02	29.76	27.45
270.0	85.95	64.63	55.01	48.54	42.30	38.03	34.37	30.15	27.56
315.0	64.07	52.59	46.74	41.91	37.69	33.19	30.09	27.56	25.37
360.0	57.83	50.34	44.94	40.05	36.23	32.85	29.87	27.73	25.88
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	24.36	23.40	23.06	23.34	23.51	23.91	24.30	24.58	24.86
45.0	23.23	22.33	21.94	21.94	22.22	22.44	22.89	23.40	23.74
90.0	22.61	22.05	21.83	22.05	22.39	22.61	23.06	23.63	23.91
135.0	25.54	24.81	24.53	24.41	24.41	24.47	24.58	24.69	24.81
180.0	27.45	26.44	25.82	25.43	25.26	25.26	25.31	25.54	25.76
225.0	25.82	25.20	24.92	24.64	24.53	24.53	24.47	24.53	24.69
270.0	25.71	24.19	23.51	23.23	23.12	23.12	23.18	23.29	23.23
315.0	24.24	23.68	23.57	23.74	23.91	24.13	24.30	24.47	24.64
360.0	24.36	23.40	23.06	23.34	23.51	23.91	24.30	24.58	24.86

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	25.03	25.03	24.92	24.53	24.02	23.29	22.61	21.99	21.38
45.0	24.08	24.24	24.30	24.19	23.91	23.46	22.84	22.16	21.43
90.0	24.13	24.13	24.08	23.74	23.46	22.89	22.11	21.43	20.93
135.0	24.86	24.98	24.86	24.81	24.41	24.02	23.51	22.78	22.16
180.0	25.99	26.16	26.16	26.10	25.93	25.54	25.14	24.69	24.24
225.0	24.75	24.69	24.58	24.41	24.13	23.74	23.40	23.01	22.61
270.0	23.34	23.18	23.01	22.78	22.50	22.11	21.83	21.49	21.04
315.0	24.53	24.53	24.36	23.96	23.68	23.12	22.61	22.22	21.71
360.0	25.03	25.03	24.92	24.53	24.02	23.29	22.61	21.99	21.38
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	20.81	20.42	19.97	19.46	18.90	18.45	17.89	17.27	16.71
45.0	20.81	20.19	19.58	19.13	18.62	18.11	17.55	16.88	16.31
90.0	20.08	19.35	19.01	18.39	17.89	17.33	16.76	16.03	15.53
135.0	21.66	21.04	20.53	19.97	19.24	18.62	17.94	17.16	16.54
180.0	23.68	23.23	22.78	22.11	21.43	20.76	20.25	19.41	18.84
225.0	22.05	21.49	20.93	20.19	19.29	18.51	17.66	16.76	16.03
270.0	20.59	20.08	19.52	19.01	18.34	17.66	16.99	16.20	15.41
315.0	21.32	20.81	20.19	19.63	19.07	18.34	17.61	16.93	16.20
360.0	20.81	20.42	19.97	19.46	18.90	18.45	17.89	17.27	16.71
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	16.26	15.69	15.41	15.08	14.79	14.57	14.40	14.57	15.24
45.0	15.75	15.08	14.68	14.34	14.01	13.78	13.56	13.33	13.44
90.0	14.96	14.51	13.95	13.78	13.56	13.44	13.50	13.73	14.51
135.0	15.75	15.08	14.51	14.12	13.78	13.44	13.22	12.99	12.88
180.0	18.45	17.89	17.66	17.55	17.27	17.04	16.93	16.99	17.16
225.0	15.41	14.74	14.29	13.95	13.56	13.50	13.56	13.67	13.67
270.0	14.91	14.23	13.78	13.50	13.28	13.16	13.39	13.61	13.73
315.0	15.58	15.08	14.51	14.23	13.95	13.67	13.95	14.46	14.40
360.0	16.26	15.69	15.41	15.08	14.79	14.57	14.40	14.57	15.24
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	15.02	14.63	14.23	14.01	14.12	14.18	14.12	14.06	14.46
45.0	13.89	13.50	13.33	12.88	12.77	12.99	13.16	13.22	13.33
90.0	14.57	14.51	13.95	13.39	13.11	13.11	13.05	12.99	12.88
135.0	12.94	12.94	13.33	13.50	13.78	13.89	13.84	13.84	14.06
180.0	16.99	17.33	17.89	17.94	17.83	17.55	17.16	16.65	16.20
225.0	13.89	14.40	14.74	15.02	15.13	15.08	15.02	15.02	14.85
270.0	13.73	14.12	14.46	14.74	14.96	14.91	14.91	14.91	15.02
315.0	13.89	13.89	13.95	14.18	14.40	14.57	14.51	14.63	14.63
360.0	15.02	14.63	14.23	14.01	14.12	14.18	14.12	14.06	14.46
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	14.96	14.63	13.78	13.44	13.39	13.44	13.22	12.88	12.66
45.0	13.61	13.39	12.77	12.60	12.83	12.88	12.77	11.87	11.53
90.0	12.94	12.77	12.38	12.26	12.21	12.32	11.70	11.42	11.31
135.0	14.85	15.24	14.23	13.16	13.16	13.28	12.60	12.26	12.04
180.0	15.81	15.53	15.19	15.08	14.96	14.85	14.34	13.95	13.28
225.0	14.85	14.74	14.74	14.74	14.74	14.23	13.73	13.28	11.98
270.0	15.08	14.91	14.40	14.12	13.89	13.67	12.71	12.09	12.04
315.0	14.51	14.23	14.01	13.89	14.01	13.89	13.11	12.71	12.21
360.0	14.96	14.63	13.78	13.44	13.39	13.44	13.22	12.88	12.66

Intensity data(cd)

C/γ(°)	90.0
0.0	11.70
45.0	11.42
90.0	10.97
135.0	11.14
180.0	11.42
225.0	11.19
270.0	11.03
315.0	11.31
360.0	11.70