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Nata

Client:

LumCAT: 2-1680-M

Luminaire: 92.70.124.00

Report No:

Voltage(V): 33.2500

Test No: GC2019082904

Current(A): 0.2970

LampCAT: XICATO XOB LES 9.8MM

Power (W): 9.8700

Lamp flux(lm): 902.0

PF: 0.0000

Number of Lamps: 1

Ballast type: DC

Length(mm): 70

Width(mm): 70

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 814.88, Efficiency(%): 90.34% , Luminous Efficacy(lm/W): 82.56

Central intensity(cd): 2804.273, Maximum intensity(cd): 2804.273

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=24.8

[C90/270]Total=24.8

Field angle(10%Imax): [C0/180]Total=64.2

[C90/270]Total=64.2

Maximum s/h(1/2): C0_180=0.42 C90_270=0.42

Maximum s/h(1/4): C0_180=0.41 C90_270=0.41

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 90.34%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 98.582%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	2804.273	0.000	0	.000%	.000%
1.0	2797.172	2.680	2.68	.297%	.329%
2.0	2769.539	7.990	10.67	.886%	1.309%
3.0	2724.750	13.141	23.811	1.457%	2.922%
4.0	2661.188	18.028	41.839	1.999%	5.134%
5.0	2576.250	22.531	64.37	2.498%	7.899%
6.0	2471.133	26.525	90.896	2.941%	11.154%
7.0	2350.828	29.930	120.825	3.318%	14.827%
8.0	2208.656	32.631	153.457	3.618%	18.832%
9.0	2042.367	34.452	187.909	3.820%	23.060%
10.0	1855.125	35.271	223.18	3.910%	27.388%
11.0	1647.731	35.001	258.181	3.880%	31.683%
12.0	1484.965	34.245	292.425	3.797%	35.886%
13.0	1276.320	32.769	325.195	3.633%	39.907%
14.0	1108.638	30.527	355.722	3.384%	43.653%
15.0	964.434	28.460	384.182	3.155%	47.146%
16.0	799.305	25.844	410.026	2.865%	50.317%
17.0	698.625	23.327	433.353	2.586%	53.180%
18.0	607.022	21.527	454.88	2.387%	55.822%
19.0	528.820	19.761	474.641	2.191%	58.247%
20.0	468.851	18.260	492.902	2.024%	60.488%
21.0	425.946	17.182	510.083	1.905%	62.596%
22.0	391.676	16.430	526.514	1.822%	64.612%
23.0	369.612	15.974	542.488	1.771%	66.573%
24.0	352.132	15.780	558.268	1.749%	68.509%
25.0	338.245	15.698	573.965	1.740%	70.436%
26.0	328.085	15.729	589.694	1.744%	72.366%
27.0	318.797	15.826	605.52	1.755%	74.308%
28.0	310.479	15.932	621.452	1.766%	76.263%
29.0	303.328	16.059	637.511	1.780%	78.234%
30.0	297.056	16.210	653.721	1.797%	80.223%
31.0	291.628	16.382	670.104	1.816%	82.233%
32.0	282.157	16.438	686.542	1.822%	84.251%
33.0	270.260	16.274	702.816	1.804%	86.248%
34.0	250.861	15.771	718.587	1.748%	88.183%
35.0	227.616	14.860	733.447	1.647%	90.007%
36.0	201.488	13.663	747.109	1.515%	91.683%
37.0	172.357	12.193	759.302	1.352%	93.180%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	140.435	10.441	769.743	1.157%	94.461%
39.0	108.260	8.489	778.231	.941%	95.503%
40.0	81.014	6.601	784.833	.732%	96.313%
41.0	56.095	4.882	789.715	.541%	96.912%
42.0	34.615	3.296	793.011	.365%	97.316%
43.0	19.259	1.996	795.006	.221%	97.561%
44.0	10.877	1.137	796.144	.126%	97.701%
45.0	8.156	0.731	796.875	.081%	97.790%
46.0	6.863	0.587	797.463	.065%	97.863%
47.0	5.815	0.504	797.967	.056%	97.924%
48.0	5.463	0.456	798.423	.051%	97.980%
49.0	5.266	0.441	798.863	.049%	98.034%
50.0	5.041	0.430	799.293	.048%	98.087%
51.0	4.922	0.422	799.715	.047%	98.139%
52.0	4.809	0.418	800.132	.046%	98.190%
53.0	4.669	0.412	800.544	.046%	98.241%
54.0	4.570	0.407	800.952	.045%	98.291%
55.0	4.472	0.404	801.355	.045%	98.340%
56.0	4.380	0.400	801.755	.044%	98.389%
57.0	4.296	0.397	802.152	.044%	98.438%
58.0	4.219	0.394	802.546	.044%	98.486%
59.0	4.155	0.392	802.937	.043%	98.534%
60.0	4.085	0.389	803.327	.043%	98.582%
61.0	4.036	0.388	803.714	.043%	98.630%
62.0	3.980	0.386	804.1	.043%	98.677%
63.0	3.916	0.384	804.484	.043%	98.724%
64.0	3.888	0.383	804.867	.042%	98.771%
65.0	3.846	0.383	805.25	.042%	98.818%
66.0	3.825	0.383	805.633	.042%	98.865%
67.0	3.783	0.383	806.015	.042%	98.912%
68.0	3.769	0.383	806.398	.042%	98.959%
69.0	3.727	0.382	806.78	.042%	99.006%
70.0	3.713	0.382	807.162	.042%	99.053%
71.0	3.684	0.382	807.545	.042%	99.100%
72.0	3.663	0.382	807.927	.042%	99.147%
73.0	3.649	0.382	808.309	.042%	99.194%
74.0	3.635	0.383	808.692	.042%	99.241%
75.0	3.628	0.384	809.076	.043%	99.288%

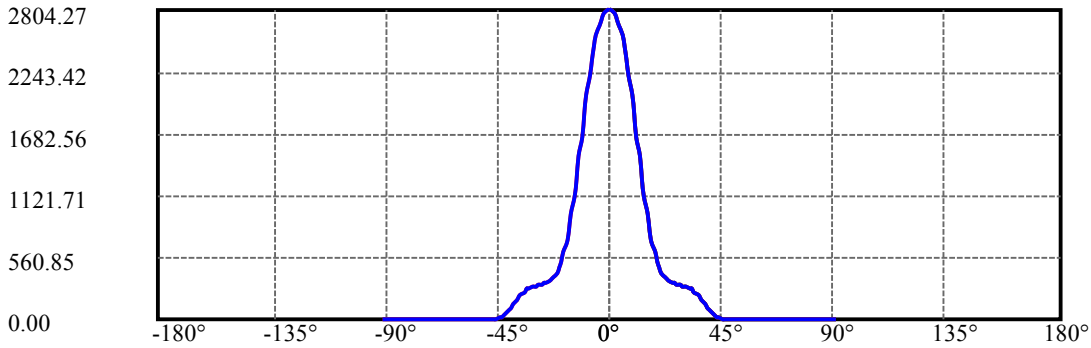
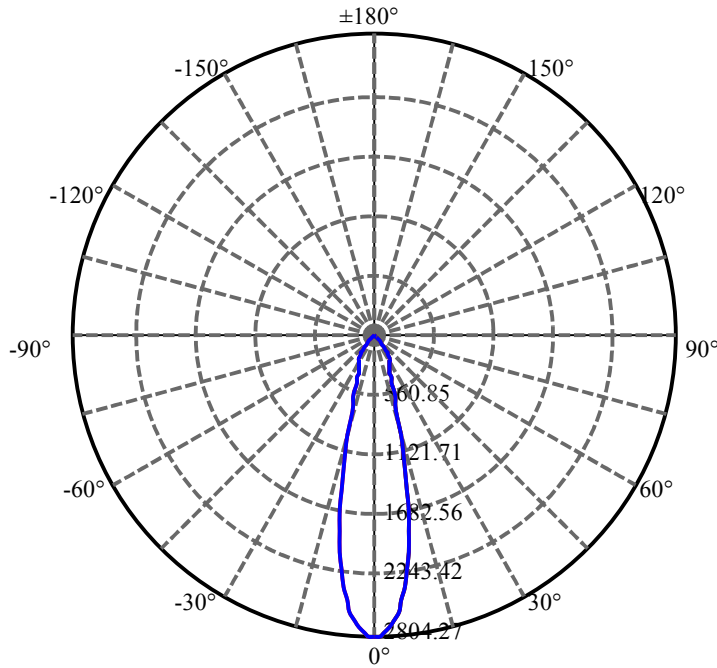
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	3.628	0.385	809.461	.043%	99.335%
77.0	3.614	0.386	809.847	.043%	99.382%
78.0	3.607	0.387	810.234	.043%	99.430%
79.0	3.579	0.386	810.62	.043%	99.477%
80.0	3.593	0.387	811.006	.043%	99.525%
81.0	3.579	0.388	811.394	.043%	99.572%
82.0	3.572	0.388	811.782	.043%	99.620%
83.0	3.572	0.388	812.17	.043%	99.667%
84.0	3.558	0.388	812.559	.043%	99.715%
85.0	3.551	0.388	812.947	.043%	99.763%
86.0	3.551	0.388	813.335	.043%	99.810%
87.0	3.523	0.387	813.722	.043%	99.858%
88.0	3.530	0.386	814.108	.043%	99.905%
89.0	3.516	0.386	814.495	.043%	99.953%
90.0	3.523	0.386	814.881	.043%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	653.72	72.47%	80.22%
0-40	784.83	87.01%	96.31%
0-60	803.33	89.06%	98.58%
0-90	814.49	90.30%	99.95%
0-120	814.49	90.30%	99.95%
0-180	814.88	90.34%	100.00%
60-90	11.56	1.28%	1.42%
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%
0-29.89	651.90	72.27%	80.00%

ZONAL LUMEN SUMMARY

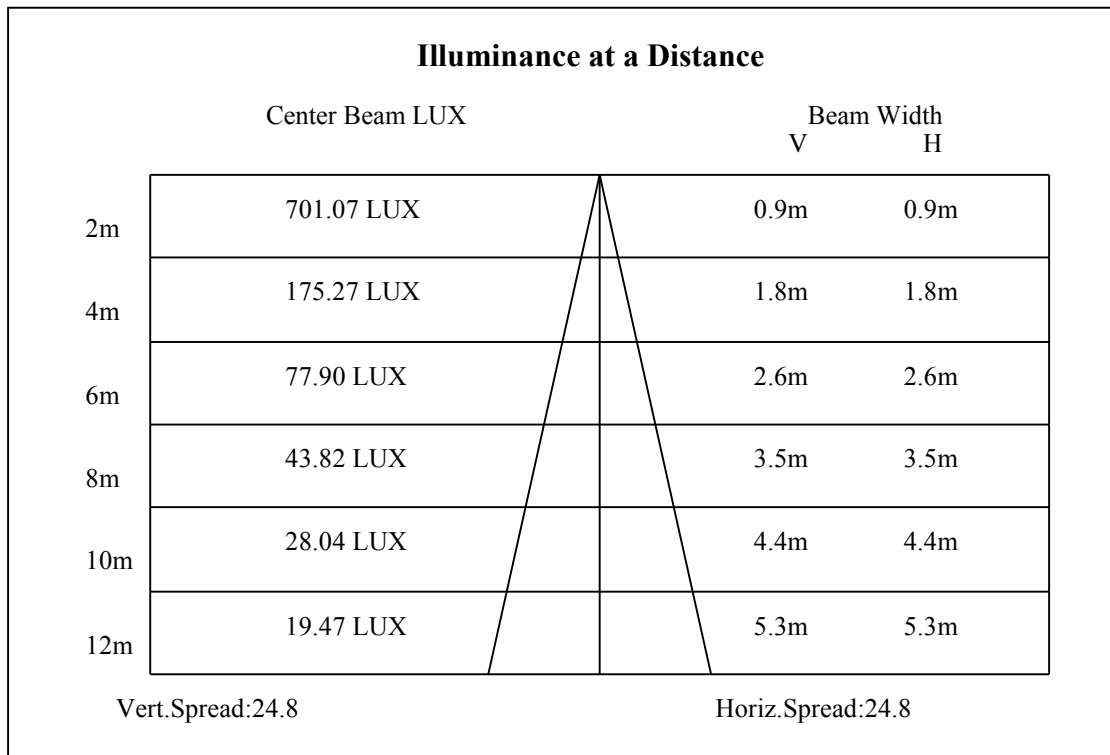
0-10	223.18
10-20	269.72
20-30	160.82
30-40	131.11
40-50	14.46
50-60	4.03
60-70	3.84
70-80	3.84
80-90	3.49
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

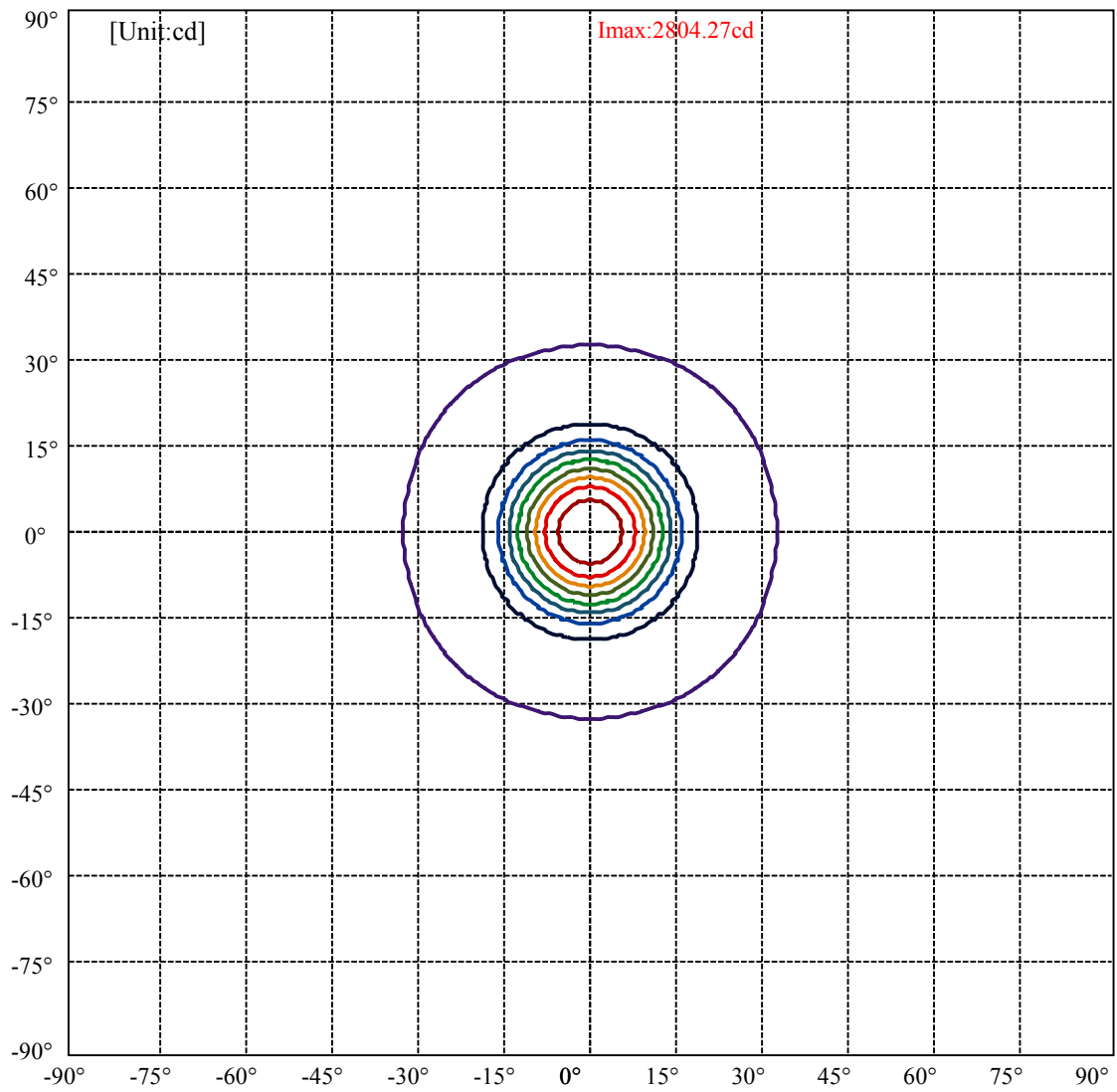


C0(Max): —————
C0/C180: —————
C90/C270: —————

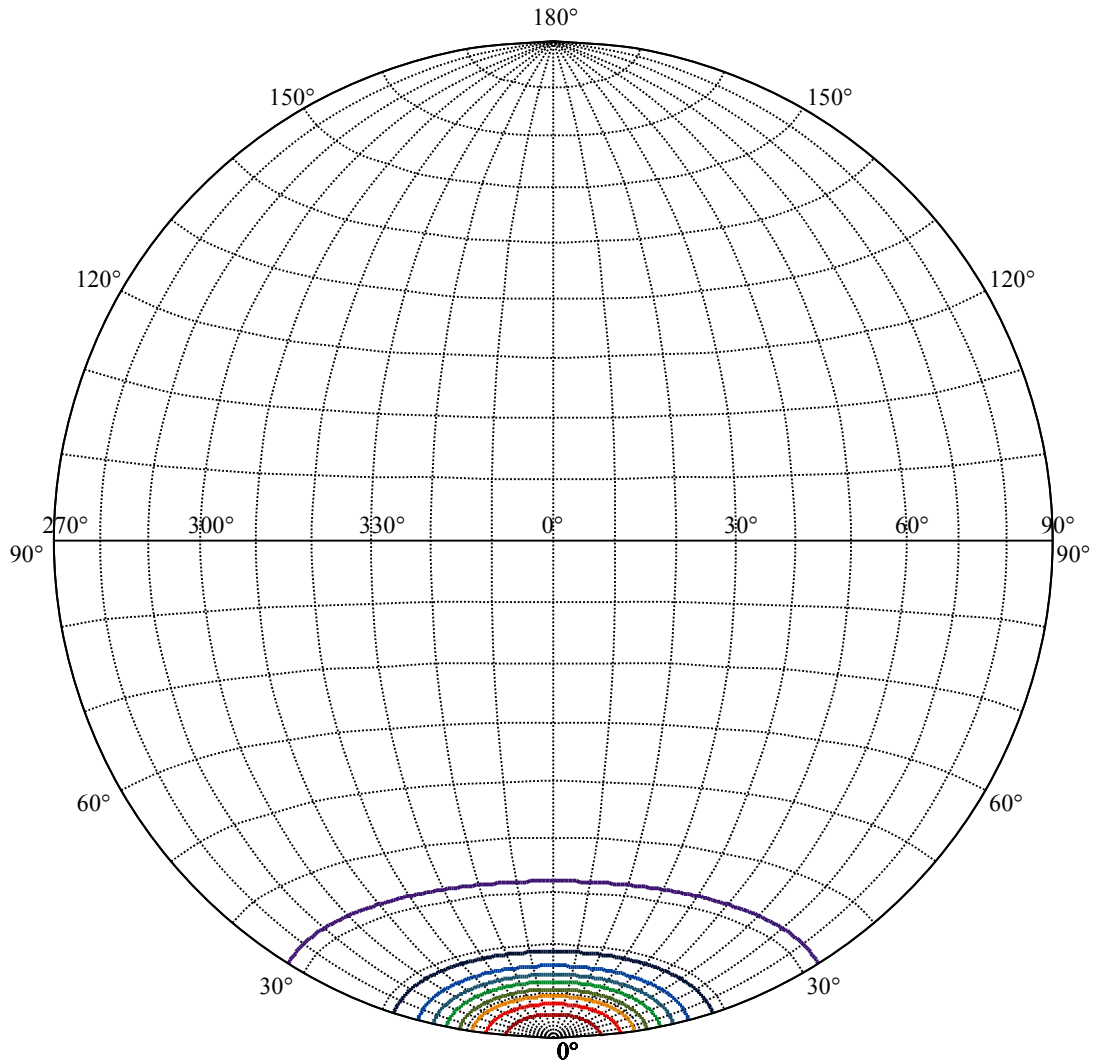
Field angle(10%Imax):C0/180Left:32.1 Right:32.1
:C90/270Left:32.1 Right:32.1

Beam Angle(50%Imax):C0/180Left:12.4 Right:12.4
:C90/270Left:12.4 Right:12.4





(10%Imax) 280.427	—
(20%Imax) 560.855	—
(30%Imax) 841.282	—
(40%Imax) 1121.71	—
(50%Imax) 1402.14	—
(60%Imax) 1682.56	—
(70%Imax) 1962.99	—
(80%Imax) 2243.42	—
(90%Imax) 2523.85	—



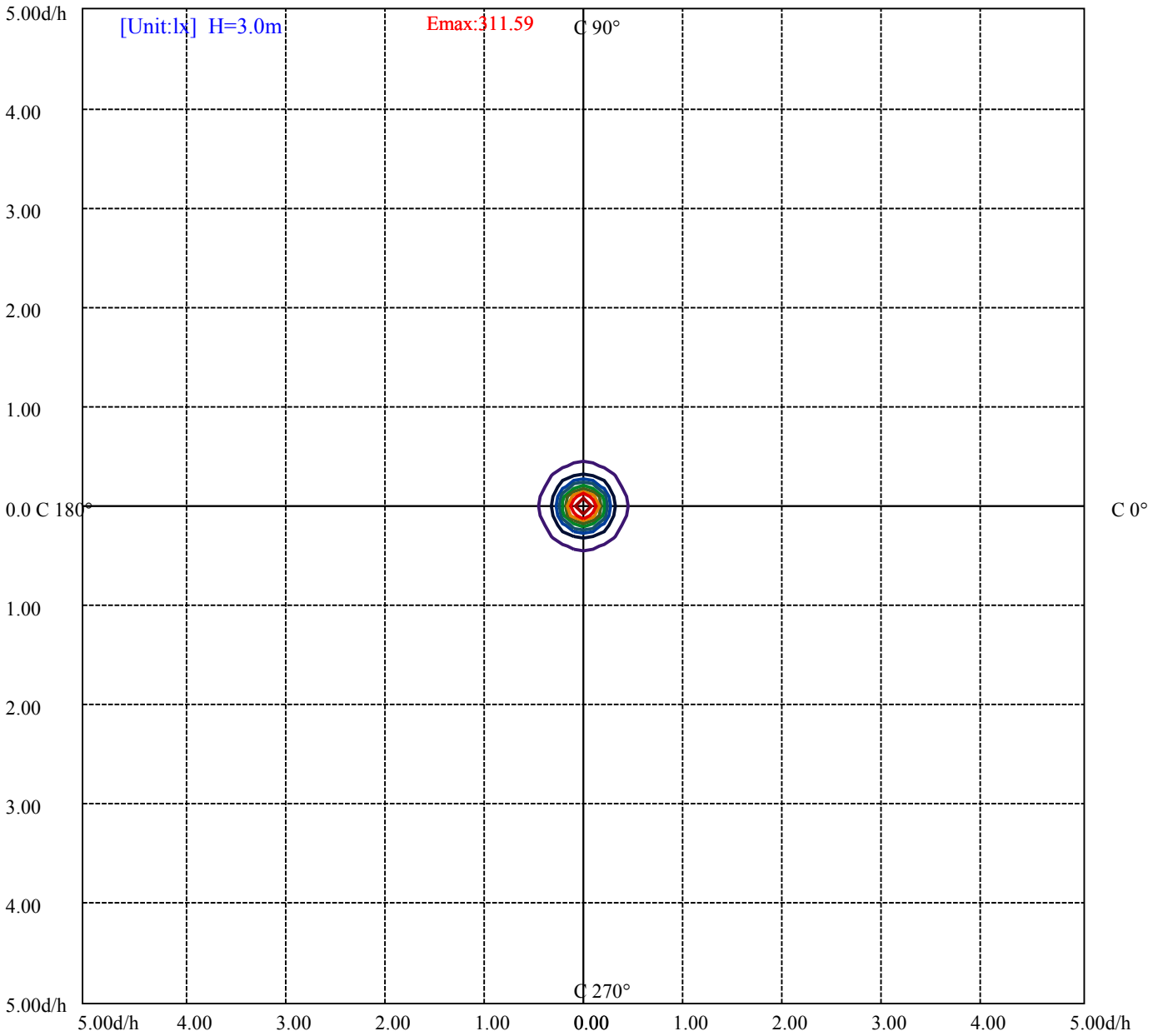
House

[Unit:cd]

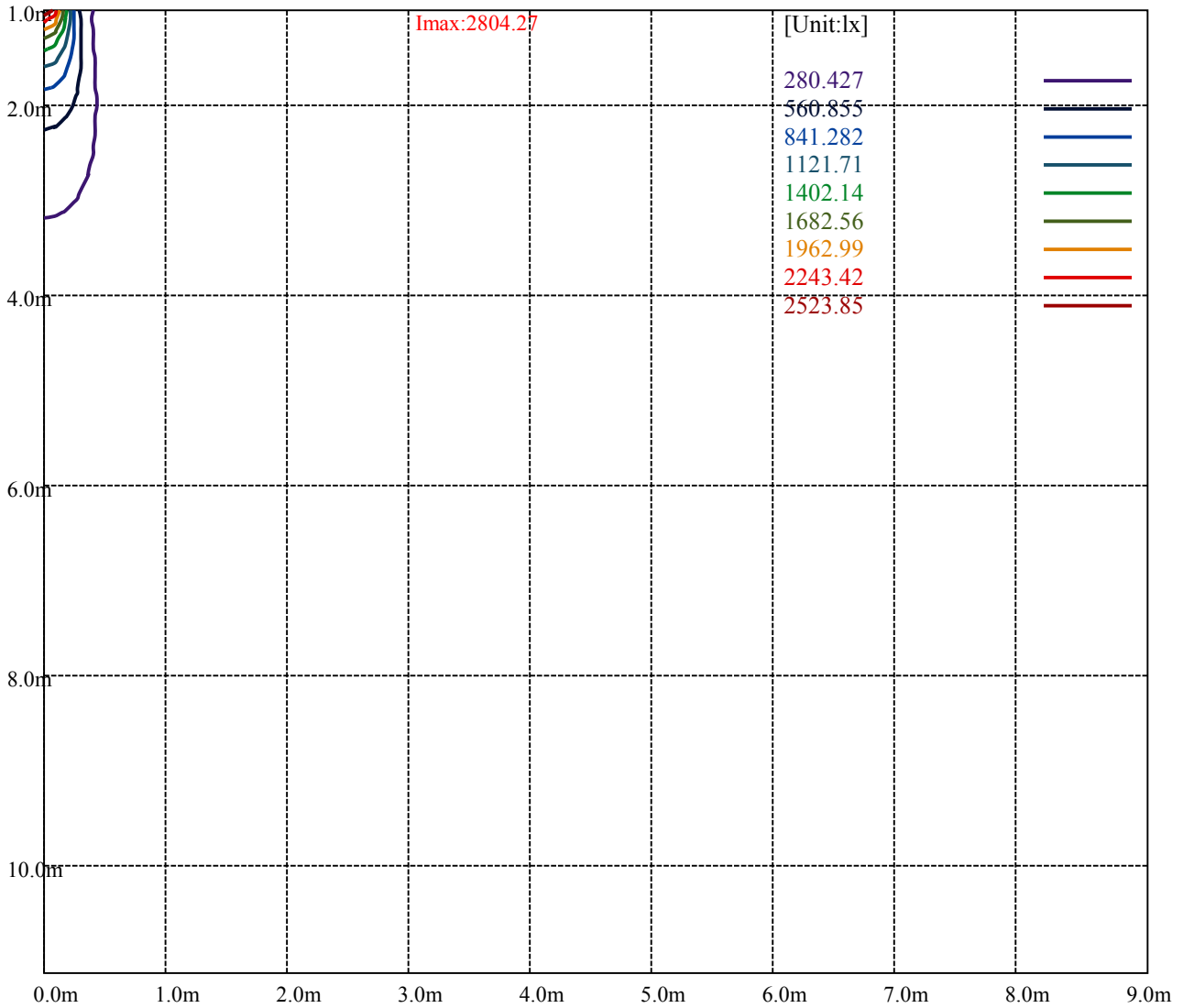
Road

Imax:2804.27

(10%Imax) 280.427	—
(20%Imax) 560.855	—
(30%Imax) 841.282	—
(40%Imax) 1121.71	—
(50%Imax) 1402.14	—
(60%Imax) 1682.56	—
(70%Imax) 1962.99	—
(80%Imax) 2243.42	—
(90%Imax) 2523.85	—



- (10%Emax) 31.15856
- (20%Emax) 62.31711
- (30%Emax) 93.47578
- (40%Emax) 124.6344
- (50%Emax) 155.7933
- (60%Emax) 186.9511
- (70%Emax) 218.11
- (80%Emax) 249.2689
- (90%Emax) 280.4278



Luminance Table

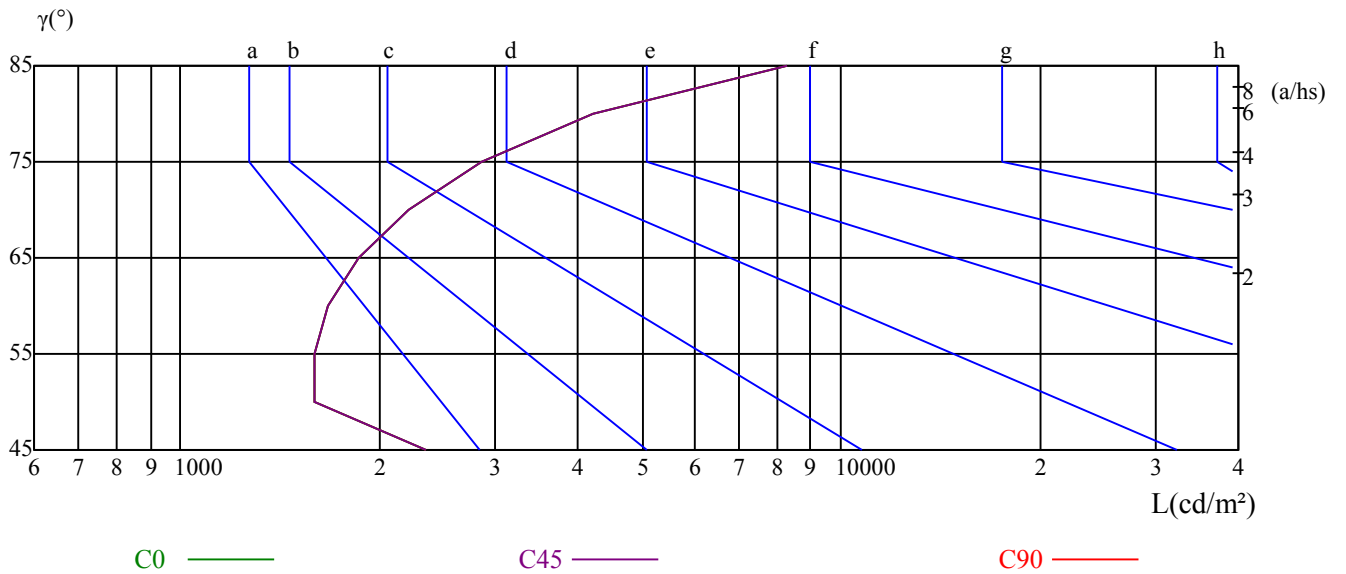
γ	45	50	55	60	65	70	75	80	85
C0	2354	1601	1591	1667	1857	2215	2861	4223	8314
C45	2354	1601	1591	1667	1857	2215	2861	4223	8314
C90	2354	1601	1591	1667	1857	2215	2861	4223	8314

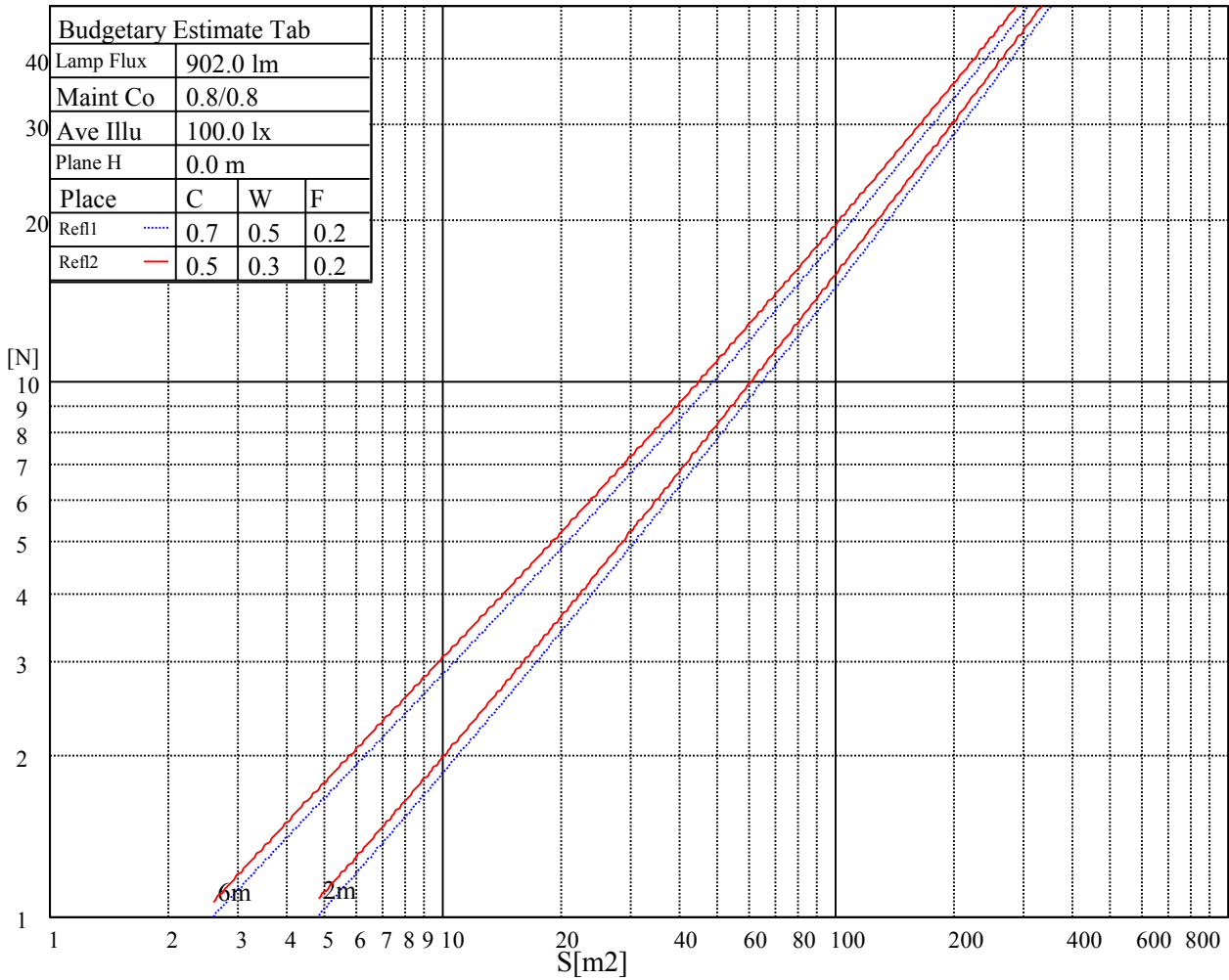
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
1857	1857	1857	2861	2861	2861	8314	8314	8314

Glare Table

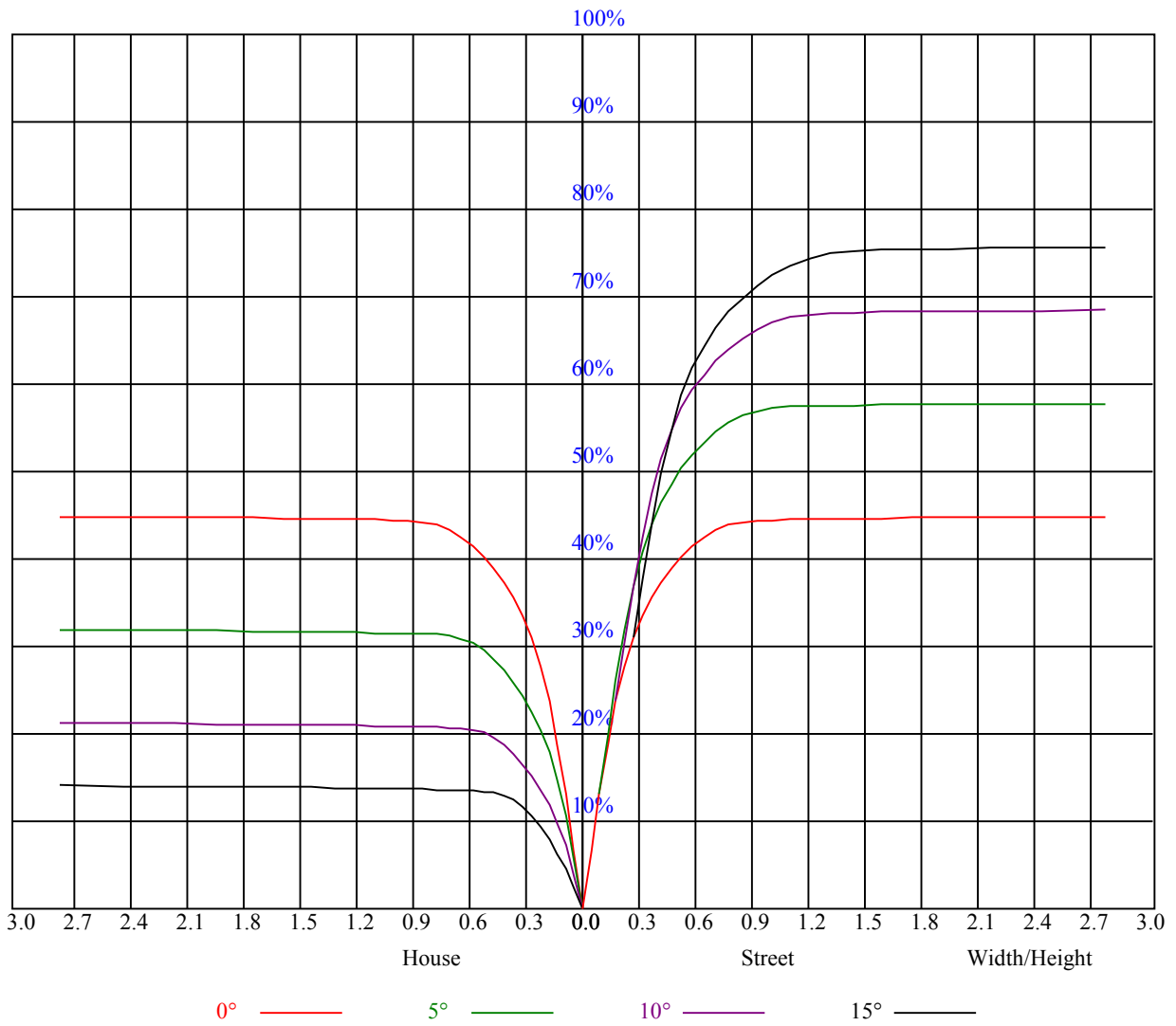
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

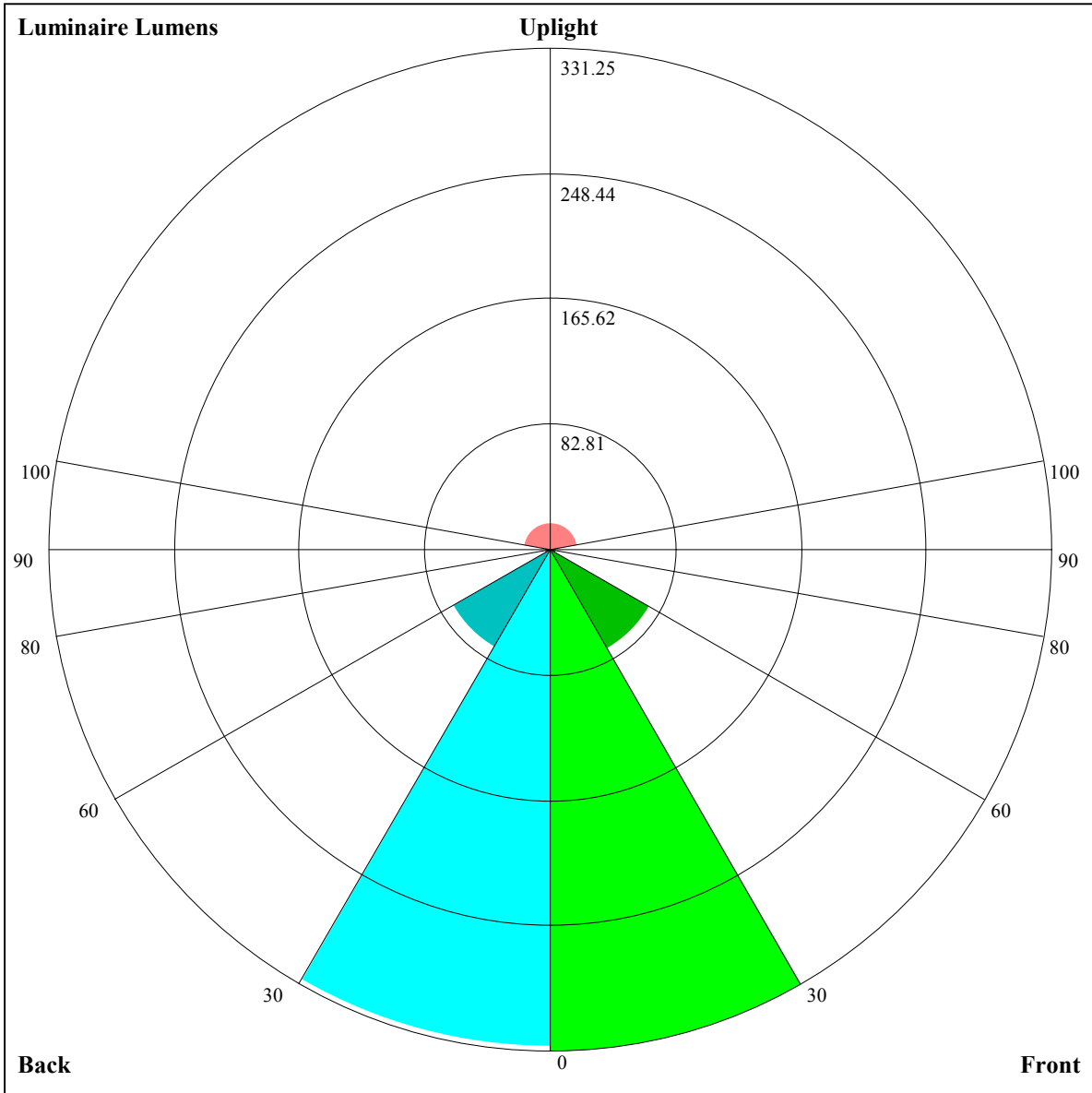
Luminance Limiting Curve





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	1.08	1.08	1.08	1.05	1.05	1.05	1.00	1.00	1.00	0.96	0.96	0.96	0.92	0.92	0.92	0.90
1	1.01	0.99	0.97	0.99	0.97	0.95	0.95	0.94	0.92	0.92	0.91	0.90	0.89	0.88	0.87	0.86
2	0.95	0.92	0.89	0.93	0.91	0.88	0.91	0.88	0.86	0.88	0.86	0.84	0.86	0.84	0.83	0.81
3	0.90	0.86	0.83	0.89	0.85	0.82	0.86	0.83	0.81	0.84	0.82	0.80	0.82	0.80	0.79	0.77
4	0.85	0.81	0.78	0.84	0.80	0.77	0.82	0.79	0.76	0.81	0.78	0.76	0.79	0.77	0.75	0.74
5	0.81	0.77	0.74	0.80	0.76	0.73	0.79	0.75	0.73	0.78	0.74	0.72	0.76	0.74	0.71	0.70
6	0.78	0.73	0.70	0.77	0.73	0.70	0.76	0.72	0.69	0.74	0.71	0.69	0.73	0.70	0.68	0.67
7	0.74	0.70	0.67	0.74	0.69	0.66	0.73	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.65	0.64
8	0.71	0.67	0.64	0.71	0.66	0.64	0.70	0.66	0.63	0.69	0.66	0.63	0.68	0.65	0.63	0.62
9	0.68	0.64	0.61	0.68	0.64	0.61	0.67	0.63	0.61	0.67	0.63	0.61	0.66	0.63	0.60	0.59
10	0.66	0.62	0.59	0.66	0.61	0.59	0.65	0.61	0.58	0.64	0.61	0.58	0.64	0.60	0.58	0.57





Luminaire Lumens:

FL=331.25,FM=75.29,FH=3.85,FVH=1.94

BL=328.12,BM=74.64,BH=3.84,BVH=1.94

UL=3.84,UH=18.29

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	2804.63	2798.44	2778.75	2747.25	2698.88	2621.25	2505.38	2382.19	2217.38
45.0	2806.88	2819.25	2816.44	2808.56	2787.19	2763.00	2732.63	2676.38	2596.50
90.0	2809.13	2823.19	2821.50	2813.06	2807.44	2795.06	2775.94	2738.25	2679.75
135.0	2797.88	2813.06	2815.31	2806.88	2790.00	2769.19	2730.94	2679.75	2599.31
180.0	2804.63	2798.44	2778.19	2745.56	2695.50	2613.94	2493.56	2359.13	2183.63
225.0	2804.06	2771.44	2718.00	2615.06	2500.88	2360.25	2203.31	1991.25	1805.63
270.0	2809.13	2783.25	2723.63	2638.69	2502.56	2336.63	2152.69	1975.50	1789.88
315.0	2797.88	2770.31	2704.50	2622.94	2507.06	2350.69	2174.63	2004.19	1797.19
360.0	2804.63	2798.44	2778.75	2747.25	2698.88	2621.25	2505.38	2382.19	2217.38
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	2033.44	1857.94	1649.81	1455.75	1242.56	1045.69	891.56	760.50	628.88
45.0	2473.31	2324.25	2163.94	2010.94	1760.06	1566.00	1395.56	1141.88	972.00
90.0	2590.88	2435.06	2279.81	2109.94	1900.69	1683.00	1486.13	1103.91	1082.03
135.0	2462.06	2319.75	2136.38	1955.25	1743.75	1549.13	1329.19	1143.56	959.63
180.0	2012.06	1803.94	1587.38	1393.88	1115.33	971.94	847.07	724.61	592.88
225.0	1615.50	1366.31	1105.14	997.76	829.18	692.55	597.43	513.56	461.25
270.0	1545.19	1347.19	1157.06	960.19	793.13	670.50	574.31	488.25	441.56
315.0	1606.50	1386.56	1102.33	996.02	825.86	690.30	594.23	518.18	459.79
360.0	2033.44	1857.94	1649.81	1455.75	1242.56	1045.69	891.56	760.50	628.88
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	550.13	489.38	434.81	406.13	384.75	365.63	351.00	341.44	329.63
45.0	840.94	683.44	577.69	513.56	445.50	408.38	385.31	362.25	348.19
90.0	897.24	742.50	632.14	536.74	461.87	425.08	394.20	365.74	352.01
135.0	799.88	680.63	576.56	498.94	446.63	408.38	377.44	358.88	344.81
180.0	525.66	466.31	419.57	388.86	367.82	349.88	336.66	326.64	317.87
225.0	420.75	392.74	373.44	356.68	343.13	333.79	325.74	316.97	311.63
270.0	405.56	384.75	366.19	351.56	340.88	332.44	322.88	317.25	310.50
315.0	416.03	390.83	370.41	355.11	342.84	333.34	323.83	316.80	310.05
360.0	550.13	489.38	434.81	406.13	384.75	365.63	351.00	341.44	329.63
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	321.75	313.88	306.56	299.81	293.63	288.00	284.06	275.34	261.90
45.0	336.94	325.13	317.25	310.50	302.63	295.31	291.38	284.06	276.47
90.0	339.92	327.54	318.38	311.46	304.37	296.66	290.59	285.41	280.29
135.0	331.88	321.75	314.44	306.56	300.94	294.75	288.56	284.63	280.69
180.0	311.63	304.48	297.23	291.49	287.04	282.04	277.14	271.86	252.90
225.0	303.75	297.23	291.66	286.37	280.35	269.66	245.03	204.86	163.01
270.0	301.50	297.00	290.81	284.63	284.06	261.23	237.77	186.41	143.61
315.0	303.02	296.83	290.31	285.64	280.01	269.61	247.56	214.31	162.06
360.0	321.75	313.88	306.56	299.81	293.63	288.00	284.06	275.34	261.90
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	231.69	193.84	150.69	96.92	58.28	29.14	13.56	11.03	8.44
45.0	271.13	263.03	240.02	207.23	162.28	119.59	73.18	35.89	16.88
90.0	275.18	268.99	254.14	220.67	176.74	132.92	90.39	44.66	21.21
135.0	273.21	266.68	247.05	205.71	164.03	118.86	66.60	34.09	16.59
180.0	222.58	184.89	136.74	89.94	53.04	22.95	12.83	9.79	7.03
225.0	114.13	69.08	36.51	15.92	11.42	8.83	6.92	6.36	5.63
270.0	105.92	55.97	23.96	13.61	10.24	7.59	6.30	5.85	5.63
315.0	118.07	76.39	34.37	16.09	12.09	8.89	7.14	6.41	5.63
360.0	231.69	193.84	150.69	96.92	58.28	29.14	13.56	11.03	8.44

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	6.69	5.96	5.57	5.40	5.23	5.06	4.95	4.84	4.67
45.0	11.76	8.61	6.47	5.91	5.57	5.40	5.23	5.12	4.95
90.0	12.99	10.52	7.54	6.58	6.24	5.46	5.34	5.18	5.01
135.0	11.53	8.55	6.41	5.74	5.51	5.34	5.23	5.06	4.89
180.0	5.85	5.40	5.18	5.06	4.95	4.84	4.73	4.61	4.50
225.0	5.46	5.29	5.12	5.01	4.84	4.73	4.61	4.56	4.44
270.0	5.51	5.29	5.18	5.01	4.89	4.78	4.67	4.61	4.44
315.0	5.46	5.29	5.06	5.01	4.89	4.73	4.61	4.50	4.44
360.0	6.69	5.96	5.57	5.40	5.23	5.06	4.95	4.84	4.67
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	4.61	4.50	4.39	4.28	4.22	4.16	4.05	3.99	3.99
45.0	4.84	4.73	4.61	4.56	4.44	4.33	4.28	4.16	4.16
90.0	4.89	4.78	4.67	4.56	4.44	4.39	4.28	4.22	4.11
135.0	4.78	4.67	4.56	4.50	4.39	4.28	4.22	4.16	4.05
180.0	4.39	4.33	4.28	4.16	4.11	4.05	3.99	3.94	3.88
225.0	4.33	4.22	4.16	4.11	4.05	3.99	3.94	3.94	3.88
270.0	4.39	4.28	4.22	4.11	4.05	3.99	3.94	3.94	3.88
315.0	4.33	4.28	4.16	4.11	4.05	4.05	3.99	3.94	3.88
360.0	4.61	4.50	4.39	4.28	4.22	4.16	4.05	3.99	3.99
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	3.88	3.88	3.83	3.77	3.77	3.77	3.71	3.66	3.66
45.0	4.11	3.99	3.94	3.94	3.88	3.88	3.83	3.83	3.77
90.0	4.05	3.99	3.99	3.94	3.88	3.83	3.77	3.77	3.77
135.0	3.99	3.94	3.94	3.88	3.83	3.83	3.77	3.77	3.71
180.0	3.83	3.83	3.77	3.77	3.71	3.71	3.66	3.60	3.60
225.0	3.83	3.83	3.77	3.77	3.77	3.77	3.71	3.71	3.71
270.0	3.83	3.83	3.77	3.77	3.71	3.71	3.71	3.71	3.66
315.0	3.83	3.83	3.77	3.77	3.71	3.66	3.66	3.66	3.60
360.0	3.88	3.88	3.83	3.77	3.77	3.77	3.71	3.66	3.66
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	3.66	3.60	3.60	3.60	3.60	3.60	3.60	3.54	3.54
45.0	3.77	3.71	3.71	3.71	3.71	3.71	3.71	3.66	3.66
90.0	3.71	3.71	3.66	3.66	3.66	3.66	3.60	3.60	3.60
135.0	3.66	3.66	3.66	3.66	3.66	3.60	3.60	3.54	3.60
180.0	3.60	3.60	3.60	3.54	3.54	3.54	3.54	3.54	3.54
225.0	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66
270.0	3.66	3.66	3.60	3.60	3.60	3.60	3.60	3.54	3.60
315.0	3.60	3.60	3.60	3.60	3.60	3.54	3.54	3.54	3.54
360.0	3.66	3.60	3.60	3.60	3.60	3.60	3.60	3.54	3.54
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	3.54	3.54	3.54	3.54	3.54	3.49	3.49	3.49	3.49
45.0	3.66	3.66	3.66	3.60	3.60	3.60	3.54	3.60	3.54
90.0	3.60	3.54	3.60	3.54	3.54	3.54	3.54	3.54	3.54
135.0	3.54	3.54	3.54	3.54	3.54	3.49	3.49	3.54	3.49
180.0	3.54	3.54	3.54	3.49	3.49	3.49	3.49	3.49	3.49
225.0	3.66	3.66	3.66	3.71	3.66	3.71	3.54	3.54	3.54
270.0	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54
315.0	3.54	3.54	3.49	3.49	3.49	3.54	3.54	3.49	3.49
360.0	3.54	3.54	3.54	3.54	3.54	3.49	3.49	3.49	3.49

Intensity data(cd)

C/γ(°)	90.0
0.0	3.49
45.0	3.54
90.0	3.54
135.0	3.54
180.0	3.49
225.0	3.54
270.0	3.54
315.0	3.49
360.0	3.49