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## Nata

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Client:

LumCAT: LN01D06315BF

Luminaire: 92.70.129.00

Report No:

Voltage(V): 32.8100

Test No: GC2019072210

Current(A): 0.1970

LampCAT: CREE CXA1830

Power (W): 6.4600

Lamp flux(lm): 953.0

PF: 0.0000

Number of Lamps: 1

Ballast type: DC

Length(mm): 0

Width(mm): 0

Phm Type: C

Height(mm): 0

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## Photometric Results

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Lumens(lm): 878.67, Efficiency(%): 92.20% , Luminous Efficacy(lm/W): 136.02

Central intensity(cd): 4397.625, Maximum intensity(cd): 4397.625

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

Beam Angle(50%Imax): [C0/180]Total=19.4

[C90/270]Total=19.4

Field angle(10%Imax): [C0/180]Total=41.6

[C90/270]Total=41.6

Maximum s/h(1/2): C0\_180=0.33 C90\_270=0.33

Maximum s/h(1/4): C0\_180=0.34 C90\_270=0.34

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 92.20%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 93.962%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4397.625	0.000	0	.000%	.000%
1.0	4374.141	4.197	4.197	.440%	.478%
2.0	4290.258	12.436	16.633	1.305%	1.893%
3.0	4156.805	20.203	36.836	2.120%	4.192%
4.0	3978.422	27.231	64.067	2.857%	7.291%
5.0	3732.398	33.172	97.238	3.481%	11.066%
6.0	3461.273	37.805	135.043	3.967%	15.369%
7.0	3144.797	41.004	176.047	4.303%	20.036%
8.0	2805.891	42.588	218.635	4.469%	24.882%
9.0	2448.352	42.583	261.218	4.468%	29.729%
10.0	2113.172	41.280	302.498	4.332%	34.427%
11.0	1779.652	38.897	341.395	4.082%	38.853%
12.0	1522.561	36.098	377.493	3.788%	42.962%
13.0	1273.577	33.183	410.676	3.482%	46.738%
14.0	1084.704	30.186	440.862	3.167%	50.174%
15.0	938.461	27.775	468.637	2.914%	53.335%
16.0	808.770	25.602	494.239	2.686%	56.248%
17.0	713.630	23.708	517.946	2.488%	58.946%
18.0	623.911	22.053	540	2.314%	61.456%
19.0	551.391	20.448	560.447	2.146%	63.783%
20.0	483.047	18.933	579.38	1.987%	65.938%
21.0	428.266	17.499	596.88	1.836%	67.930%
22.0	380.384	16.250	613.13	1.705%	69.779%
23.0	333.176	14.972	628.102	1.571%	71.483%
24.0	293.787	13.708	641.81	1.438%	73.043%
25.0	256.985	12.523	654.333	1.314%	74.468%
26.0	228.628	11.463	665.796	1.203%	75.773%
27.0	205.573	10.623	676.419	1.115%	76.982%
28.0	179.838	9.758	686.177	1.024%	78.092%
29.0	160.931	8.915	695.092	.936%	79.107%
30.0	145.610	8.277	703.369	.868%	80.049%
31.0	132.110	7.729	711.097	.811%	80.928%
32.0	120.178	7.228	718.325	.758%	81.751%
33.0	110.306	6.790	725.115	.713%	82.524%
34.0	101.032	6.396	731.511	.671%	83.252%
35.0	92.798	6.020	737.531	.632%	83.937%
36.0	84.741	5.653	743.183	.593%	84.580%
37.0	78.089	5.311	748.494	.557%	85.184%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	71.592	4.996	753.49	.524%	85.753%
39.0	65.890	4.693	758.183	.492%	86.287%
40.0	61.601	4.446	762.629	.467%	86.793%
41.0	57.874	4.254	766.884	.446%	87.277%
42.0	54.619	4.087	770.971	.429%	87.743%
43.0	51.834	3.943	774.914	.414%	88.191%
44.0	49.711	3.833	778.747	.402%	88.627%
45.0	47.742	3.745	782.492	.393%	89.054%
46.0	45.956	3.664	786.156	.385%	89.471%
47.0	43.882	3.573	789.729	.375%	89.877%
48.0	41.695	3.459	793.189	.363%	90.271%
49.0	39.312	3.327	796.515	.349%	90.650%
50.0	37.055	3.184	799.699	.334%	91.012%
51.0	34.770	3.039	802.738	.319%	91.358%
52.0	32.695	2.895	805.633	.304%	91.687%
53.0	30.881	2.766	808.399	.290%	92.002%
54.0	29.398	2.657	811.056	.279%	92.304%
55.0	28.287	2.575	813.63	.270%	92.598%
56.0	27.239	2.509	816.14	.263%	92.883%
57.0	26.325	2.449	818.589	.257%	93.162%
58.0	25.432	2.393	820.982	.251%	93.434%
59.0	24.687	2.343	823.325	.246%	93.701%
60.0	23.927	2.297	825.622	.241%	93.962%
61.0	23.224	2.250	827.872	.236%	94.218%
62.0	22.641	2.210	830.082	.232%	94.470%
63.0	22.155	2.179	832.261	.229%	94.718%
64.0	21.628	2.148	834.409	.225%	94.962%
65.0	21.136	2.116	836.526	.222%	95.203%
66.0	20.749	2.090	838.615	.219%	95.441%
67.0	20.370	2.068	840.683	.217%	95.676%
68.0	20.039	2.047	842.73	.215%	95.909%
69.0	19.688	2.027	844.757	.213%	96.140%
70.0	19.392	2.007	846.764	.211%	96.368%
71.0	19.083	1.989	848.752	.209%	96.595%
72.0	18.802	1.970	850.722	.207%	96.819%
73.0	18.527	1.952	852.674	.205%	97.041%
74.0	18.253	1.934	854.608	.203%	97.261%
75.0	17.944	1.913	856.52	.201%	97.479%

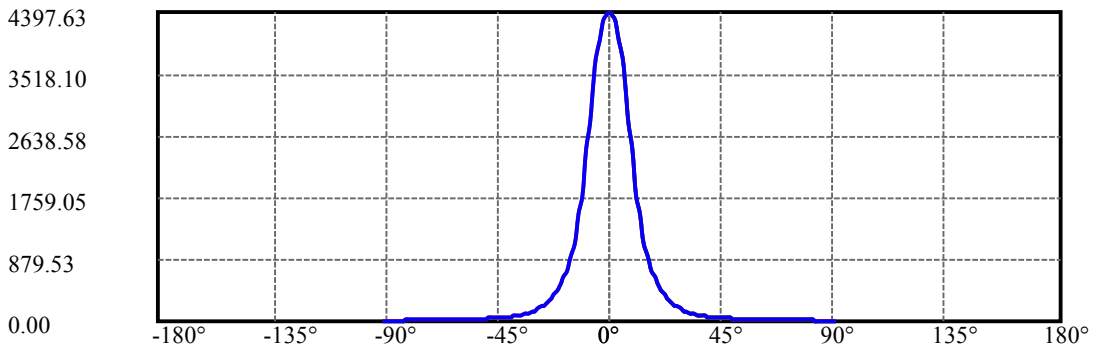
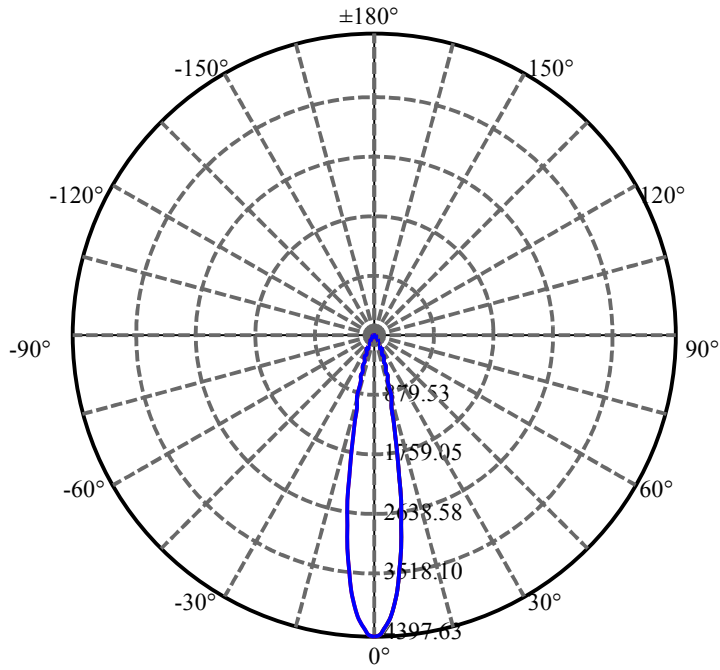
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	17.634	1.889	858.409	.198%	97.694%
77.0	17.325	1.864	860.273	.196%	97.906%
78.0	16.826	1.828	862.101	.192%	98.114%
79.0	16.207	1.775	863.876	.186%	98.316%
80.0	15.511	1.710	865.586	.179%	98.510%
81.0	14.421	1.619	867.204	.170%	98.695%
82.0	13.549	1.517	868.721	.159%	98.867%
83.0	12.839	1.435	870.156	.151%	99.031%
84.0	12.459	1.378	871.534	.145%	99.187%
85.0	12.284	1.350	872.884	.142%	99.341%
86.0	12.073	1.331	874.216	.140%	99.493%
87.0	11.018	1.264	875.479	.133%	99.636%
88.0	10.055	1.154	876.634	.121%	99.768%
89.0	9.401	1.066	877.7	.112%	99.889%
90.0	8.367	0.974	878.674	.102%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	703.37	73.81%	80.05%
0-40	762.63	80.02%	86.79%
0-60	825.62	86.63%	93.96%
0-90	877.70	92.10%	99.89%
0-120	877.70	92.10%	99.89%
0-180	878.67	92.20%	100.00%
60-90	54.37	5.71%	6.19%
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%
0-29.95	702.94	73.76%	80.00%

ZONAL LUMEN SUMMARY

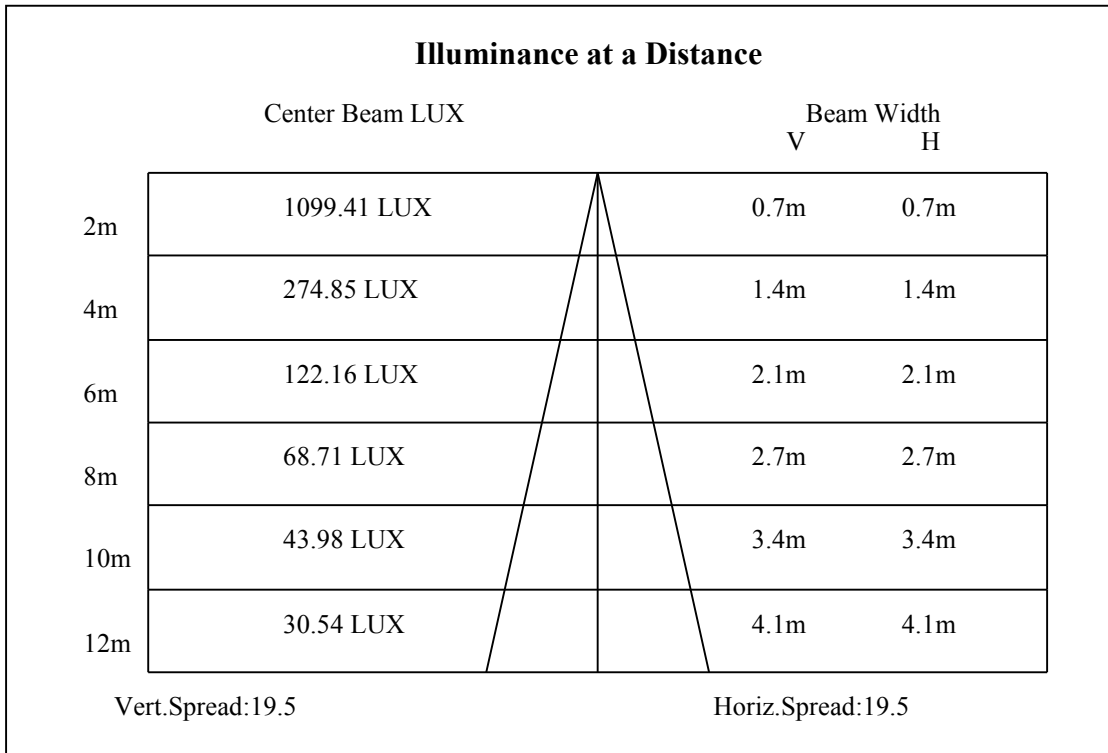
0-10	302.50
10-20	276.88
20-30	123.99
30-40	59.26
40-50	37.07
50-60	25.92
60-70	21.14
70-80	18.82
80-90	12.11
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

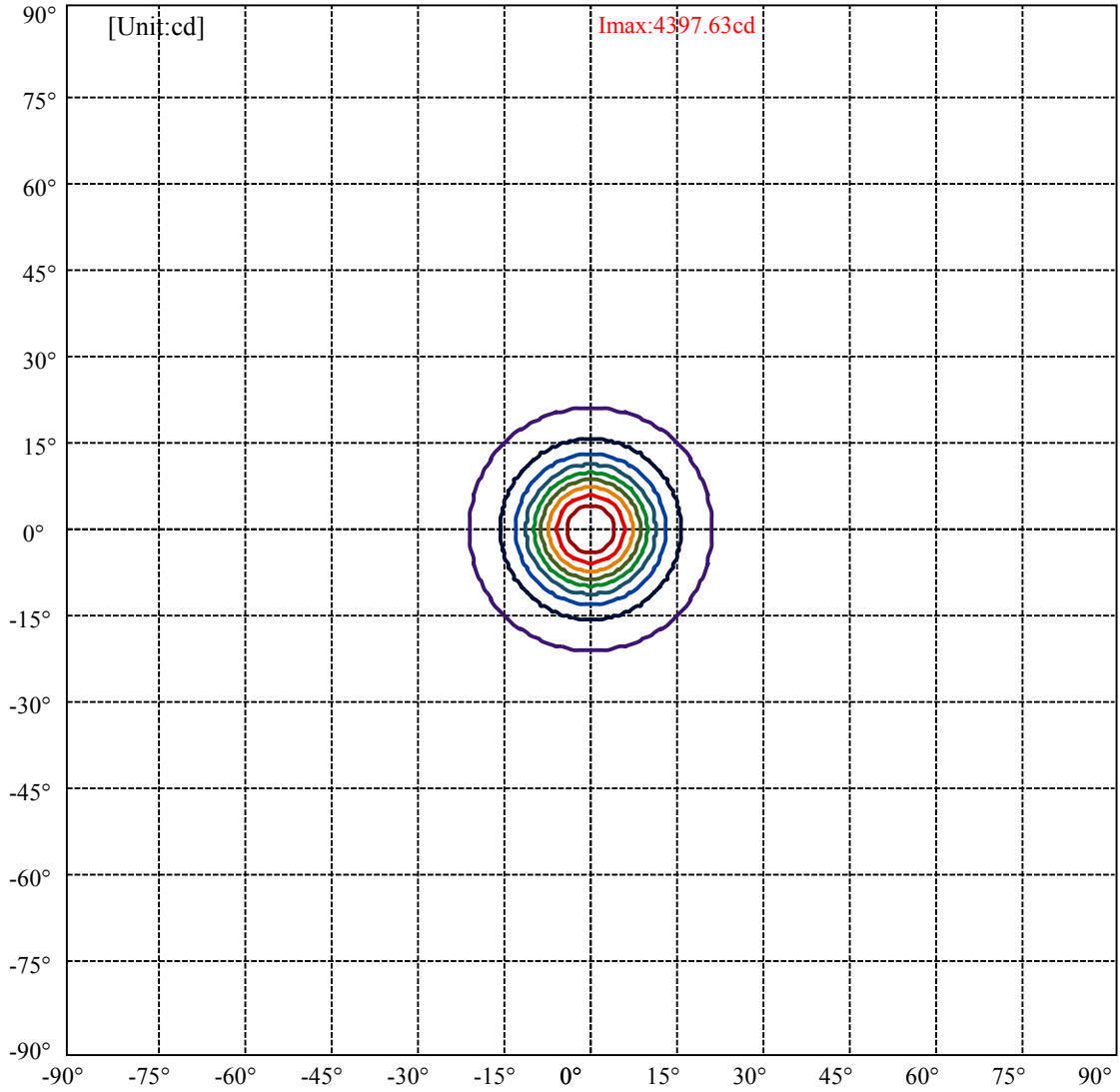


C0(Max): —————  
 C0/C180: —————  
 C90/C270: —————

Field angle(10%Imax):C0/180Left:20.8 Right:20.8  
 :C90/270Left:20.8 Right:20.8

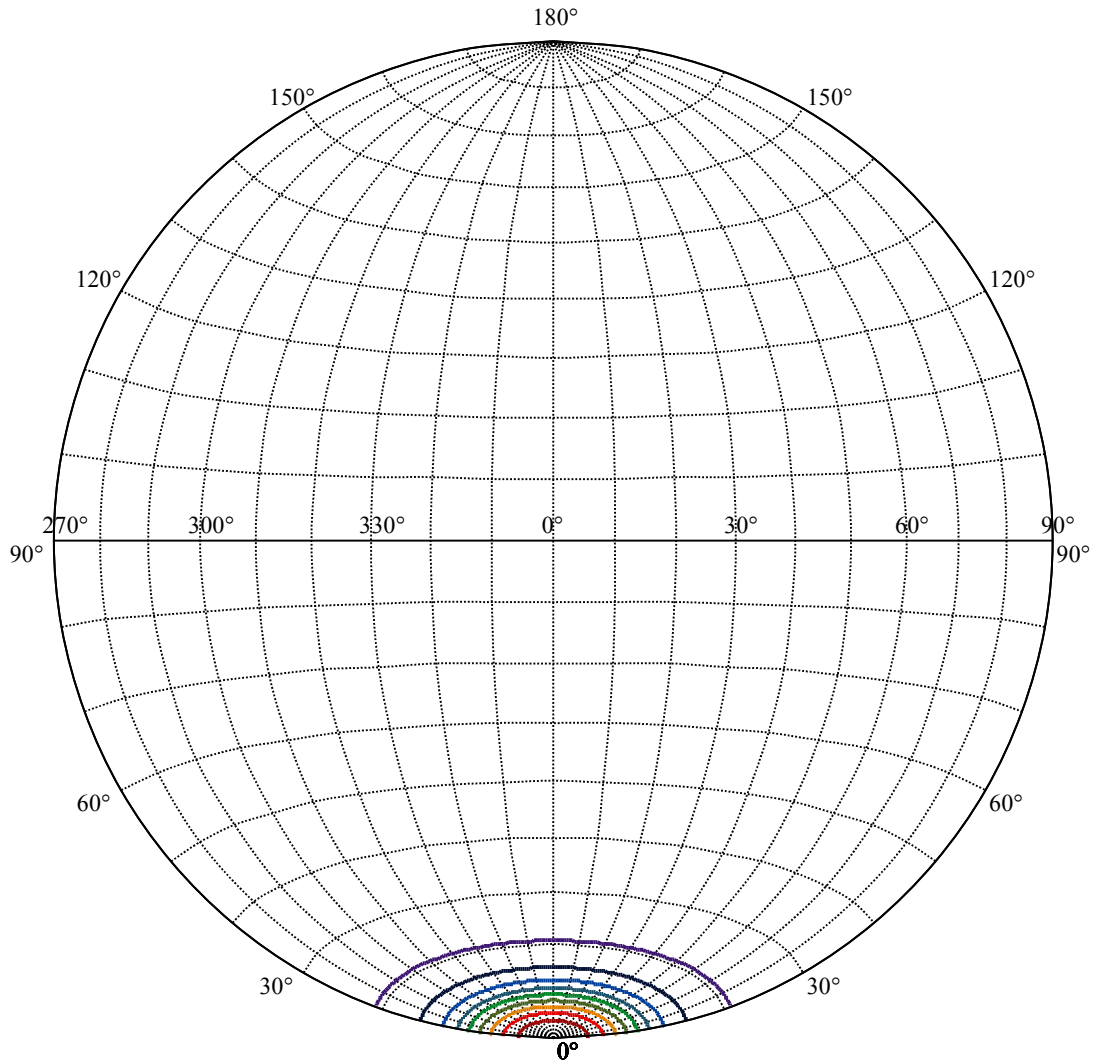
Beam Angle(50%Imax):C0/180Left:9.7 Right:9.7  
 :C90/270Left:9.7 Right:9.7





(10%Imax) 439.763	—
(20%Imax) 879.525	—
(30%Imax) 1319.29	—
(40%Imax) 1759.05	—
(50%Imax) 2198.81	—
(60%Imax) 2638.58	—
(70%Imax) 3078.34	—
(80%Imax) 3518.1	—
(90%Imax) 3957.86	—





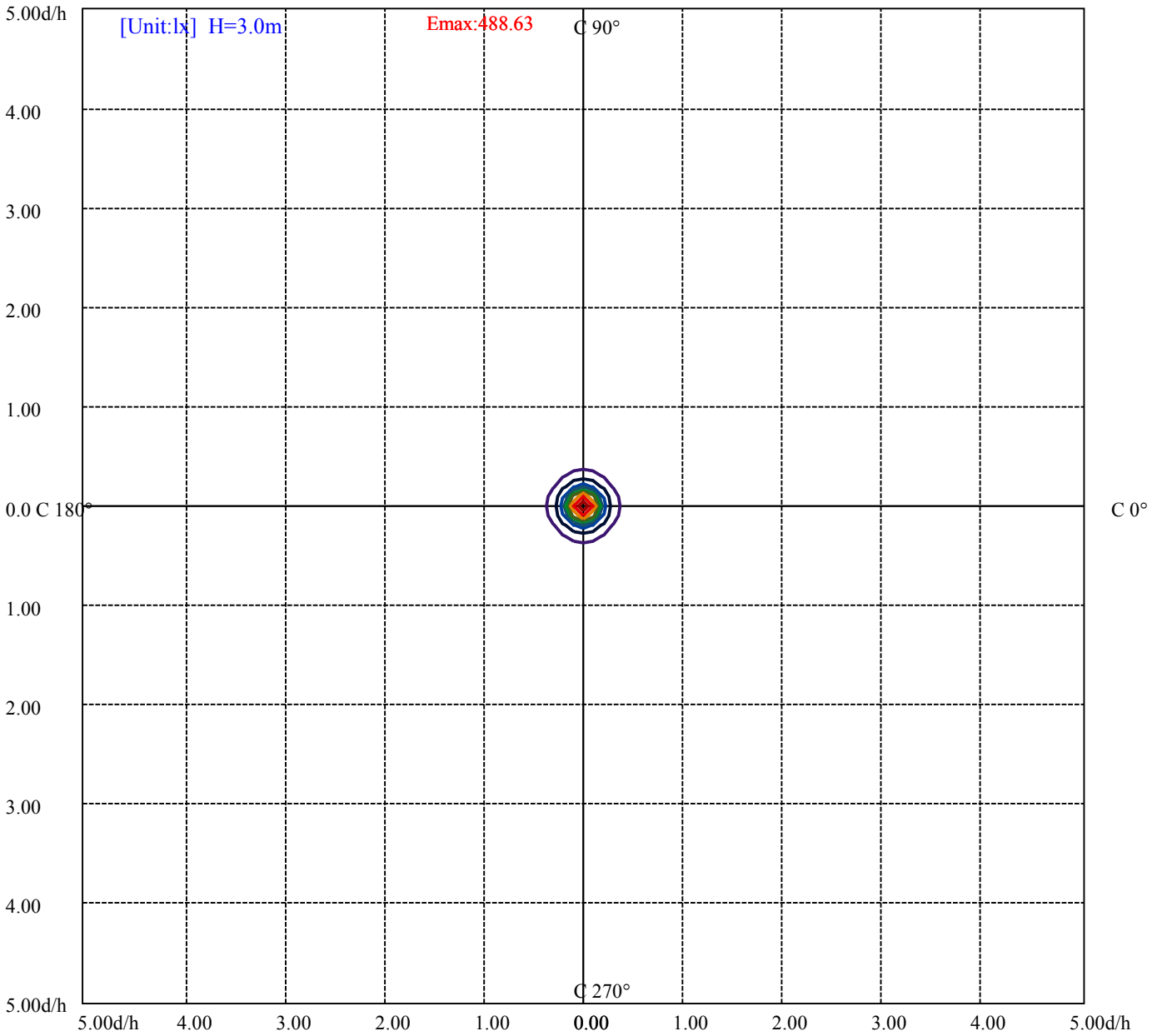
House

[Unit:cd]

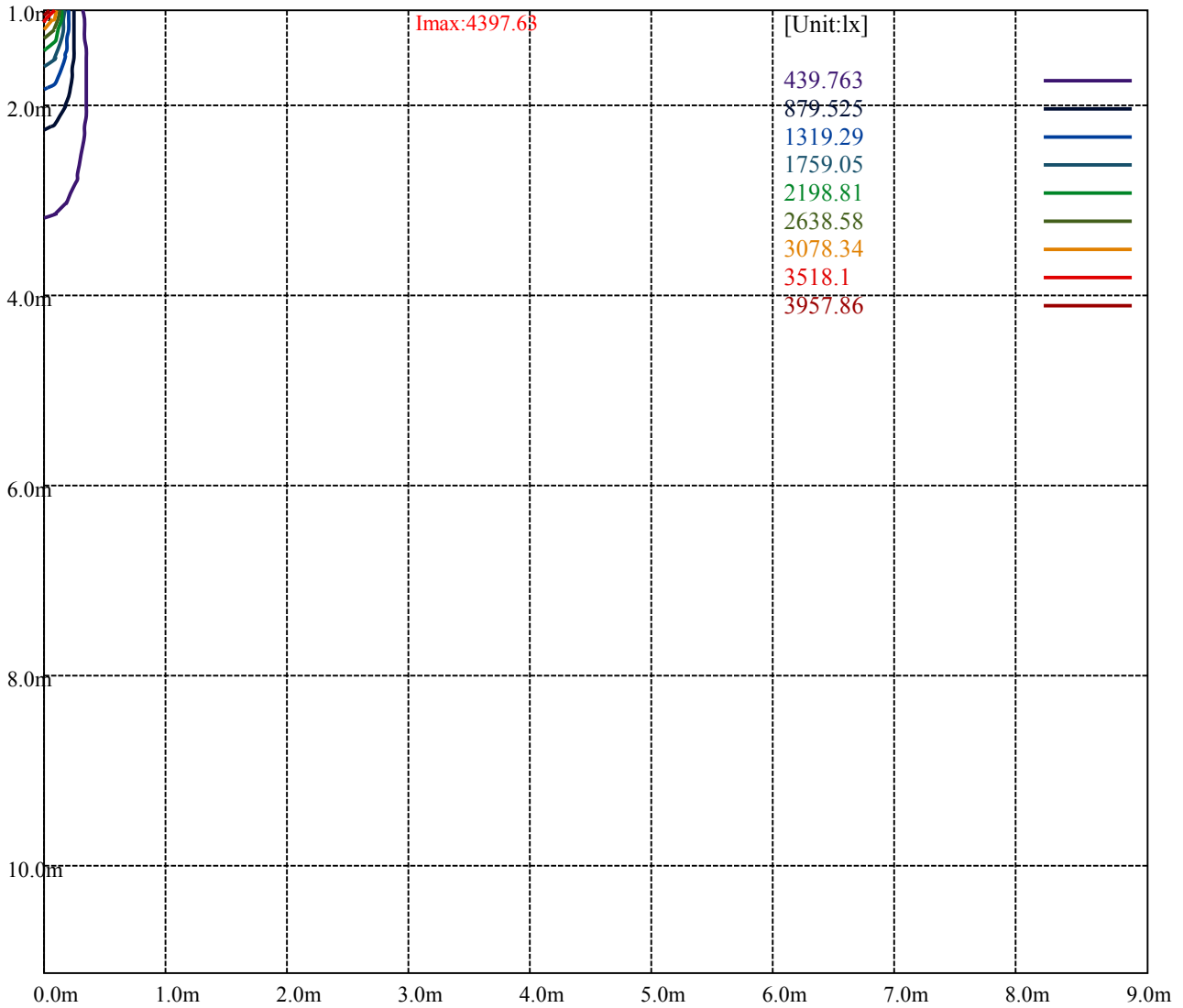
Road

**Imax:4397.63**

(10%Imax) 439.763	—
(20%Imax) 879.525	—
(30%Imax) 1319.29	—
(40%Imax) 1759.05	—
(50%Imax) 2198.81	—
(60%Imax) 2638.58	—
(70%Imax) 3078.34	—
(80%Imax) 3518.1	—
(90%Imax) 3957.86	—



- (10%Emax) 48.86244
- (20%Emax) 97.72488
- (30%Emax) 146.5878
- (40%Emax) 195.45
- (50%Emax) 244.3122
- (60%Emax) 293.1744
- (70%Emax) 342.0378
- (80%Emax) 390.9
- (90%Emax) 439.7622



Luminance Table

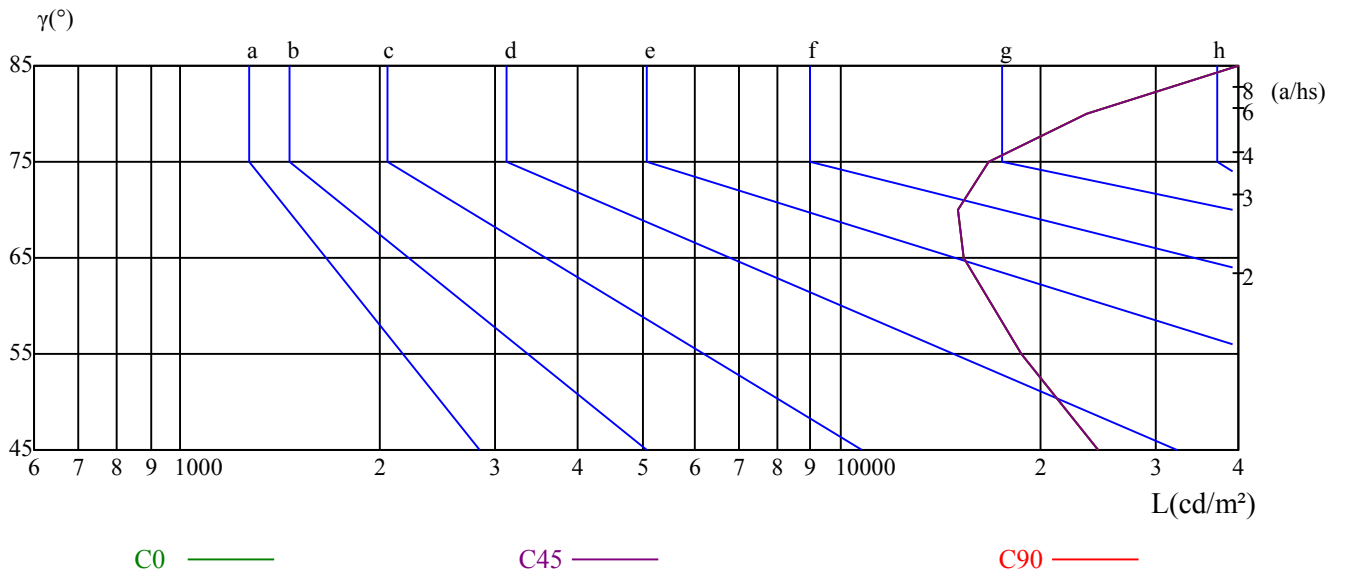
$\gamma$	45	50	55	60	65	70	75	80	85
C0	24486	21428	18745	16988	15313	15007	16725	23611	47109
C45	24486	21428	18745	16988	15313	15007	16725	23611	47109
C90	24486	21428	18745	16988	15313	15007	16725	23611	47109

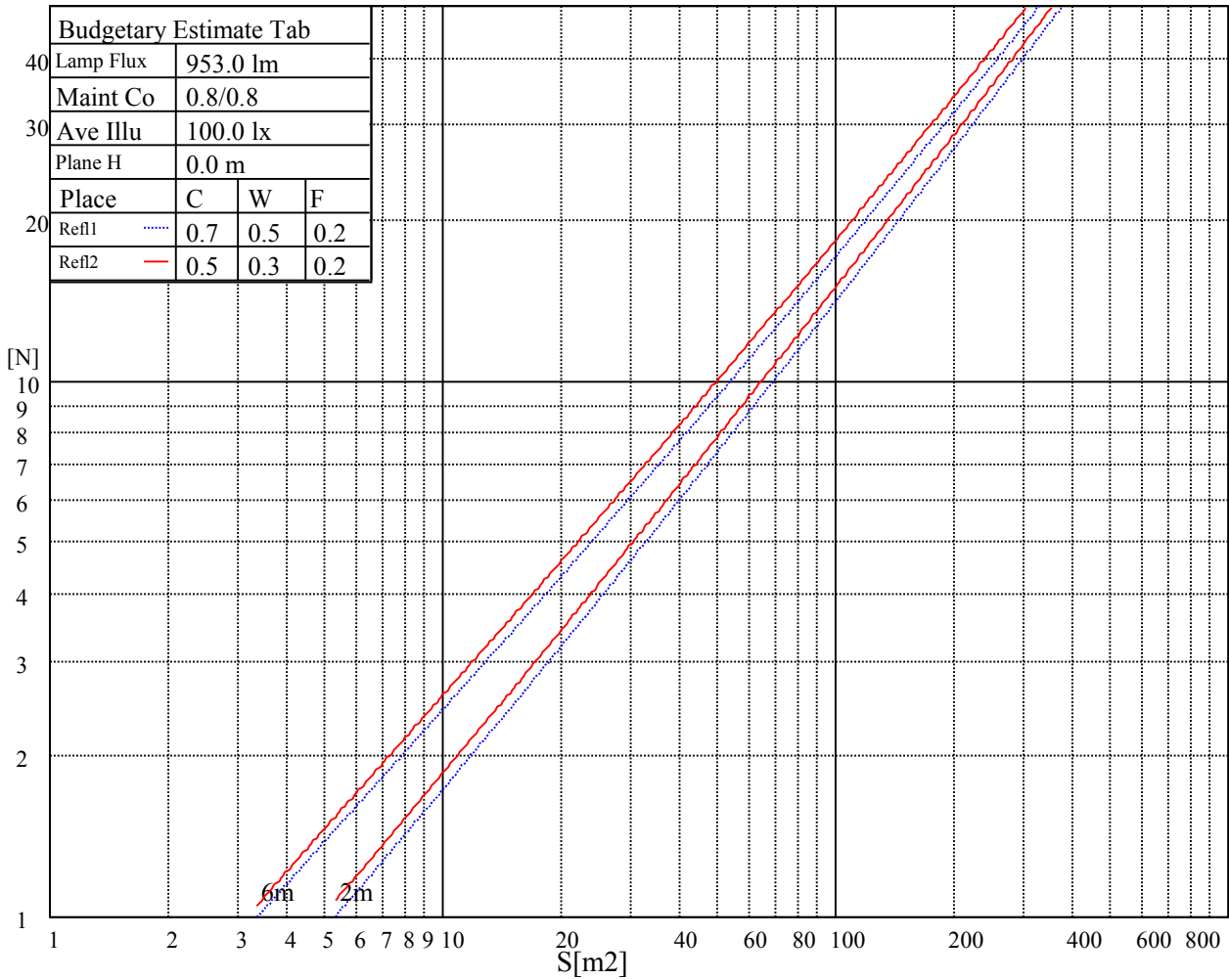
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
15313	15313	15313	16725	16725	16725	47109	47109	47109

Glare Table

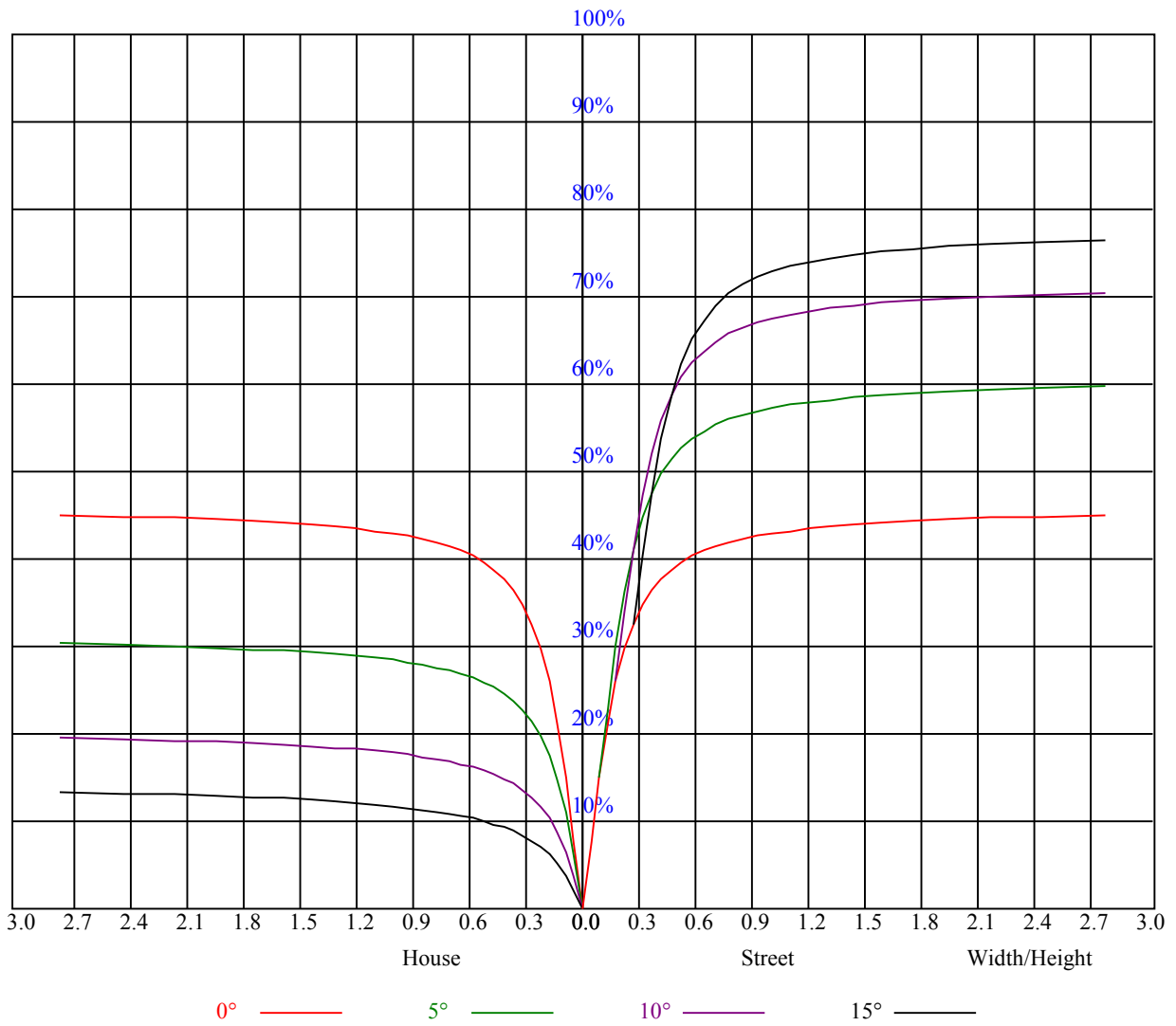
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

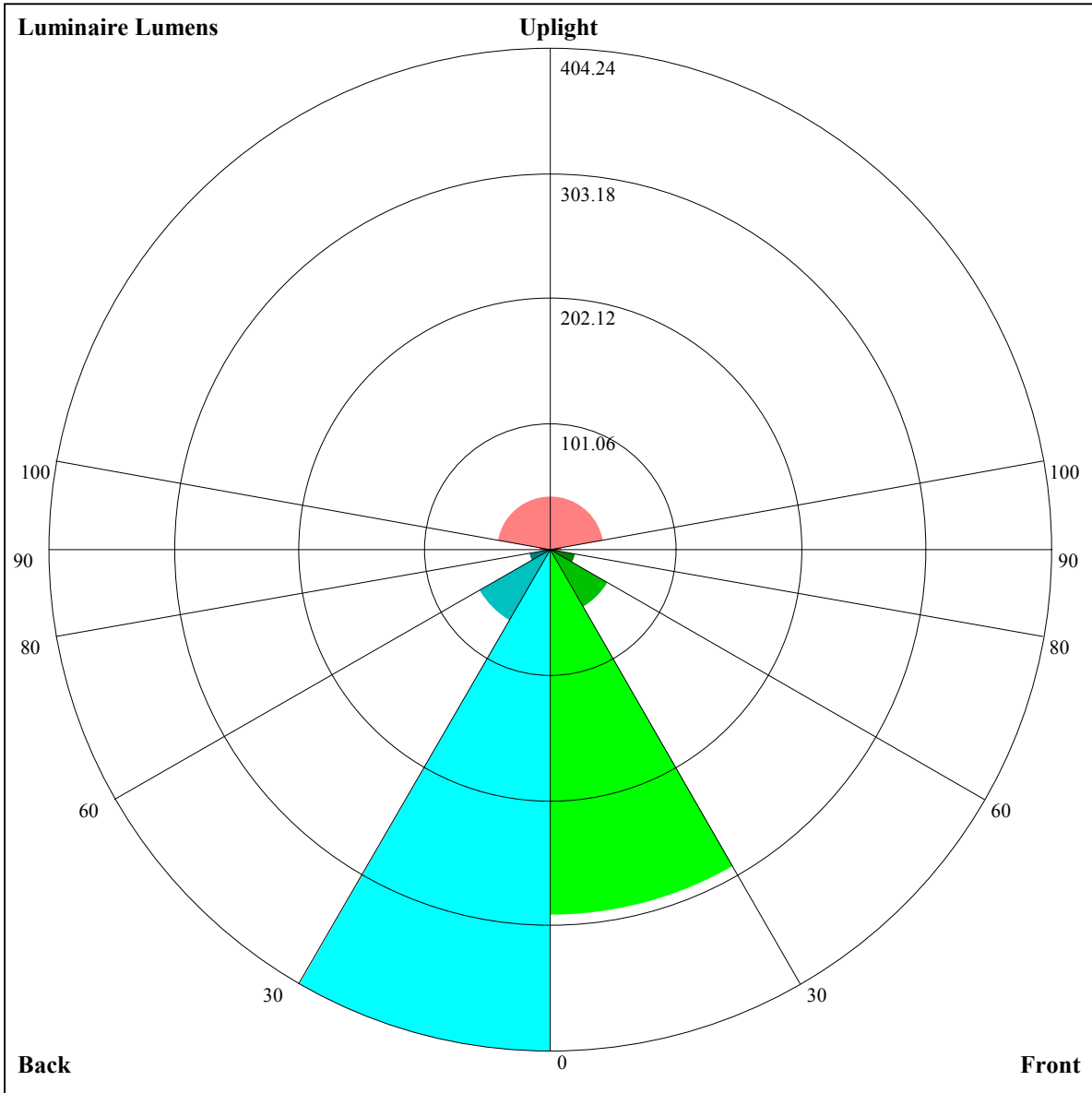
Luminance Limiting Curve





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	1.10	1.10	1.10	1.07	1.07	1.07	1.02	1.02	1.02	0.98	0.98	0.98	0.94	0.94	0.94	0.92
1	1.02	1.00	0.97	1.00	0.98	0.96	0.96	0.94	0.93	0.93	0.91	0.90	0.90	0.88	0.88	0.86
2	0.96	0.92	0.89	0.94	0.91	0.88	0.91	0.88	0.86	0.88	0.86	0.84	0.86	0.84	0.82	0.81
3	0.90	0.86	0.83	0.89	0.85	0.82	0.87	0.83	0.81	0.84	0.82	0.79	0.82	0.80	0.78	0.77
4	0.86	0.81	0.78	0.85	0.81	0.77	0.83	0.79	0.76	0.81	0.78	0.75	0.79	0.77	0.75	0.73
5	0.82	0.77	0.74	0.81	0.77	0.73	0.80	0.76	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.70
6	0.79	0.74	0.70	0.78	0.73	0.70	0.77	0.73	0.70	0.75	0.72	0.69	0.74	0.71	0.69	0.68
7	0.76	0.71	0.68	0.75	0.71	0.67	0.74	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.66	0.65
8	0.73	0.68	0.65	0.72	0.68	0.65	0.71	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.64	0.63
9	0.70	0.66	0.63	0.70	0.66	0.63	0.69	0.65	0.63	0.69	0.65	0.63	0.68	0.65	0.62	0.61
10	0.68	0.64	0.61	0.68	0.64	0.61	0.67	0.64	0.61	0.67	0.63	0.61	0.66	0.63	0.61	0.60





Luminaire Lumens:

FL=294.51,FM=53.32,FH=21.33,FVH=6.26

BL=404.24,BM=66.15,BH=18.09,BVH=6.73

UL=9.13,UH=43.44

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	4396.50	4273.31	4077.00	3835.13	3503.81	3134.81	2786.06	2403.56	2072.25
45.0	4428.56	4388.63	4251.94	4086.56	3866.06	3526.31	3213.00	2869.88	2478.38
90.0	4404.38	4392.56	4324.50	4183.88	4021.88	3801.94	3489.75	3134.25	2791.69
135.0	4361.06	4425.19	4428.00	4409.44	4333.50	4209.75	4055.06	3798.56	3513.94
180.0	4396.50	4443.19	4456.69	4419.56	4348.13	4250.81	4068.56	3869.44	3610.69
225.0	4428.56	4435.88	4394.81	4322.25	4211.44	4016.25	3834.00	3546.56	3150.56
270.0	4404.38	4385.25	4306.50	4205.25	4047.19	3758.06	3461.63	3130.88	2744.44
315.0	4361.06	4249.13	4082.63	3792.38	3495.38	3161.25	2782.13	2405.25	2085.19
360.0	4396.50	4273.31	4077.00	3835.13	3503.81	3134.81	2786.06	2403.56	2072.25
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1725.75	1422.56	1198.13	1015.88	834.19	721.13	627.75	529.88	462.94
45.0	2099.25	1785.94	1464.19	1223.44	1008.00	840.94	725.06	618.19	533.25
90.0	2414.81	2049.75	1752.19	1454.06	1102.56	1014.02	847.80	730.35	633.94
135.0	3150.56	2757.38	2412.00	2093.63	1748.25	1511.44	1307.25	1098.56	963.56
180.0	3233.81	2930.06	2522.81	2093.63	1826.44	1538.44	1291.50	1118.19	1025.61
225.0	2841.19	2441.81	2023.31	1764.00	1511.44	1211.63	1111.84	989.38	882.79
270.0	2365.88	2055.94	1744.31	1501.88	1271.81	1086.19	949.50	819.56	712.13
315.0	1755.56	1461.94	1120.28	1033.99	885.94	753.86	646.99	566.04	494.83
360.0	1725.75	1422.56	1198.13	1015.88	834.19	721.13	627.75	529.88	462.94
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	406.13	348.75	300.94	285.75	223.26	195.19	168.36	146.19	130.39
45.0	466.31	406.69	339.75	302.63	286.88	223.54	195.30	172.13	152.33
90.0	535.95	467.61	410.18	349.20	306.11	269.21	232.71	201.66	178.09
135.0	848.25	737.44	636.75	572.06	500.06	443.81	384.75	335.25	297.00
180.0	907.76	808.43	733.95	654.08	596.53	544.44	495.17	438.30	395.94
225.0	775.07	702.23	636.47	562.05	509.23	459.06	407.93	361.74	325.46
270.0	629.44	568.69	480.94	424.69	380.25	320.06	286.31	245.93	213.58
315.0	422.38	371.31	325.41	275.68	240.75	210.09	179.78	154.69	136.24
360.0	406.13	348.75	300.94	285.75	223.26	195.19	168.36	146.19	130.39
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	117.17	107.94	102.32	97.76	93.71	90.51	87.13	82.35	78.13
45.0	137.14	126.90	119.31	114.64	110.08	105.58	101.25	95.85	89.89
90.0	155.48	138.38	123.30	110.76	102.38	94.22	87.30	81.73	76.84
135.0	286.88	225.51	196.20	173.59	151.54	133.31	119.31	105.53	93.99
180.0	356.12	311.74	278.78	250.48	221.23	196.76	177.13	158.79	144.11
225.0	288.17	258.64	229.16	203.51	184.11	165.09	148.50	135.28	123.47
270.0	185.23	164.03	143.78	127.97	113.12	100.46	90.68	81.28	72.79
315.0	118.41	105.58	94.61	86.18	80.72	75.49	71.16	67.44	63.17
360.0	117.17	107.94	102.32	97.76	93.71	90.51	87.13	82.35	78.13
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	72.96	66.88	61.48	57.77	55.24	53.66	52.48	51.30	50.68
45.0	84.32	79.31	72.90	68.29	64.13	60.92	58.56	57.04	56.31
90.0	70.93	66.77	62.83	57.94	54.51	51.69	48.99	47.08	45.90
135.0	85.16	78.30	69.58	64.24	60.24	55.24	51.24	48.77	45.68
180.0	129.83	117.51	108.06	98.21	89.83	83.03	76.84	70.03	65.36
225.0	110.31	101.14	92.64	83.36	77.01	71.27	65.53	60.47	56.70
270.0	66.77	61.48	56.08	52.43	49.33	46.35	43.93	41.85	39.83
315.0	57.66	53.33	49.16	44.89	42.53	40.84	39.38	38.14	37.24
360.0	72.96	66.88	61.48	57.77	55.24	53.66	52.48	51.30	50.68

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	49.39	46.80	43.20	39.26	34.59	31.50	28.80	27.17	25.93
45.0	56.14	55.74	54.17	51.02	46.80	42.47	37.07	32.68	29.98
90.0	44.61	43.76	42.98	42.36	42.13	41.40	39.38	36.39	33.30
135.0	43.26	41.68	39.66	38.19	36.73	35.16	33.98	32.79	31.39
180.0	61.03	56.76	52.99	49.95	46.86	44.16	41.91	39.66	37.63
225.0	52.93	50.01	47.08	44.61	42.64	40.61	38.70	37.01	35.55
270.0	38.03	36.56	35.16	34.03	32.96	31.89	31.05	30.09	28.80
315.0	36.56	36.34	35.83	34.14	31.78	29.25	27.28	25.76	24.47
360.0	49.39	46.80	43.20	39.26	34.59	31.50	28.80	27.17	25.93
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	25.37	25.09	24.92	24.92	24.92	25.03	24.98	24.98	25.03
45.0	28.86	28.35	28.13	28.18	28.29	28.52	28.74	28.91	29.08
90.0	30.32	28.41	26.78	25.03	23.85	22.73	21.66	20.93	20.48
135.0	30.26	29.14	27.84	26.89	25.88	24.86	23.85	22.89	21.94
180.0	35.78	33.98	32.46	31.05	29.31	27.96	26.66	25.09	23.96
225.0	33.58	32.18	30.77	29.31	27.84	26.66	25.31	24.13	23.06
270.0	27.79	26.89	25.71	24.81	23.91	22.89	21.94	21.15	20.25
315.0	23.23	22.28	21.32	20.42	19.46	18.84	18.28	17.72	17.33
360.0	25.37	25.09	24.92	24.92	24.92	25.03	24.98	24.98	25.03
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	25.09	25.09	25.09	25.14	25.09	25.03	24.92	24.81	24.53
45.0	29.42	29.76	30.09	30.38	30.60	30.88	31.22	31.39	31.73
90.0	20.03	19.80	19.58	19.74	20.03	20.25	20.48	20.93	21.21
135.0	21.26	20.36	19.46	18.84	18.11	17.49	16.82	16.26	15.69
180.0	22.95	21.83	20.81	19.91	19.01	18.28	17.38	16.65	15.98
225.0	21.99	21.09	20.19	19.29	18.62	17.94	17.21	16.59	15.98
270.0	19.58	18.68	17.94	17.21	16.43	15.75	15.13	14.57	13.95
315.0	16.93	16.43	15.92	15.47	15.08	14.68	14.34	13.95	13.61
360.0	25.09	25.09	25.09	25.14	25.09	25.03	24.92	24.81	24.53
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	24.19	23.96	23.63	23.06	22.50	21.49	19.80	17.89	15.02
45.0	31.78	31.78	31.67	31.33	30.83	30.32	28.52	25.88	22.95
90.0	21.66	21.88	21.99	22.05	21.83	21.77	21.49	21.04	19.97
135.0	15.36	15.08	14.74	14.40	14.23	13.95	13.73	13.56	13.39
180.0	15.36	14.74	14.29	13.84	13.33	12.99	12.77	12.43	12.32
225.0	15.24	14.74	14.34	13.95	13.67	13.44	13.33	13.67	15.02
270.0	13.50	13.11	12.66	12.43	12.32	12.43	12.77	13.05	13.33
315.0	13.33	12.94	12.71	12.49	12.38	12.21	12.21	12.15	12.09
360.0	24.19	23.96	23.63	23.06	22.50	21.49	19.80	17.89	15.02
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	12.99	11.98	11.70	11.36	10.80	10.29	8.94	8.55	8.21
45.0	17.61	14.79	13.44	13.50	13.33	12.38	10.69	9.62	9.06
90.0	17.89	15.13	12.94	12.26	12.26	12.15	10.41	9.17	8.27
135.0	13.16	13.11	13.05	12.94	12.83	12.60	12.49	10.58	9.90
180.0	12.26	12.60	12.94	12.71	12.04	12.09	12.26	11.19	10.63
225.0	16.37	16.88	15.69	14.46	14.91	15.30	13.67	12.94	11.98
270.0	13.05	12.04	11.36	11.31	11.25	11.19	10.35	9.62	8.89
315.0	12.04	11.87	11.59	11.14	10.86	10.58	9.34	8.78	8.27
360.0	12.99	11.98	11.70	11.36	10.80	10.29	8.94	8.55	8.21

Intensity data(cd)

<b>C/γ(°)</b>	<b>90.0</b>
<b>0.0</b>	<b>7.09</b>
<b>45.0</b>	<b>7.48</b>
<b>90.0</b>	<b>7.31</b>
<b>135.0</b>	<b>9.11</b>
<b>180.0</b>	<b>9.68</b>
<b>225.0</b>	<b>11.25</b>
<b>270.0</b>	<b>7.76</b>
<b>315.0</b>	<b>7.26</b>
<b>360.0</b>	<b>7.09</b>