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NATA

Client:

LumCAT: 1654-S

Luminaire: 92.70.043.00

Report No: nt0100

Voltage(V): 34.8100

Test No: GC20200115115

Current(A): 0.1970

LampCAT: LUMINUS CXM-6-AC40

Power (W): 6.8600

Lamp flux(lm): 850.2

PF: 0.0000

Number of Lamps: 1

Ballast type: DC

Length(mm): 0

Width(mm): 0

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 741.45, Efficiency(%): 87.21% , Luminous Efficacy(lm/W): 108.08

Central intensity(cd): 3413.672, Maximum intensity(cd): 3413.672

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=20.8

[C90/270]Total=20.8

Field angle(10%Imax): [C0/180]Total=46.0

[C90/270]Total=46.0

Maximum s/h(1/2): C0_180=0.36 C90_270=0.36

Maximum s/h(1/4): C0_180=0.36 C90_270=0.36

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 87.21%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 98.214%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3413.672	0.000	0	.000%	.000%
1.0	3398.063	3.259	3.259	.383%	.440%
2.0	3341.320	9.673	12.932	1.138%	1.744%
3.0	3246.609	15.756	28.688	1.853%	3.869%
4.0	3122.789	21.320	50.009	2.508%	6.745%
5.0	2949.820	26.124	76.133	3.073%	10.268%
6.0	2758.641	29.999	106.132	3.529%	14.314%
7.0	2525.063	32.796	138.928	3.858%	18.737%
8.0	2289.375	34.456	173.384	4.053%	23.385%
9.0	2048.555	35.157	208.541	4.135%	28.126%
10.0	1803.164	34.857	243.397	4.100%	32.827%
11.0	1576.406	33.769	277.166	3.972%	37.382%
12.0	1357.713	32.074	309.24	3.773%	41.708%
13.0	1174.444	30.050	339.291	3.535%	45.760%
14.0	998.353	27.812	367.102	3.271%	49.511%
15.0	860.302	25.516	392.619	3.001%	52.953%
16.0	730.245	23.306	415.925	2.741%	56.096%
17.0	627.082	21.137	437.062	2.486%	58.947%
18.0	543.073	19.293	456.355	2.269%	61.549%
19.0	481.120	17.819	474.174	2.096%	63.952%
20.0	429.553	16.668	490.842	1.961%	66.200%
21.0	392.941	15.794	506.636	1.858%	68.330%
22.0	364.148	15.214	521.85	1.790%	70.382%
23.0	341.592	14.808	536.658	1.742%	72.380%
24.0	325.266	14.580	551.238	1.715%	74.346%
25.0	312.820	14.509	565.747	1.707%	76.303%
26.0	304.207	14.565	580.312	1.713%	78.267%
27.0	297.415	14.719	595.03	1.731%	80.252%
28.0	286.629	14.787	609.817	1.739%	82.247%
29.0	273.220	14.647	624.464	1.723%	84.222%
30.0	256.275	14.296	638.761	1.682%	86.150%
31.0	231.152	13.564	652.325	1.595%	87.980%
32.0	202.148	12.414	664.739	1.460%	89.654%
33.0	174.466	11.095	675.834	1.305%	91.150%
34.0	145.554	9.685	685.519	1.139%	92.457%
35.0	117.605	8.173	693.691	.961%	93.559%
36.0	89.220	6.585	700.277	.775%	94.447%
37.0	65.334	5.041	705.317	.593%	95.127%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	43.699	3.639	708.957	.428%	95.618%
39.0	29.053	2.483	711.44	.292%	95.953%
40.0	21.347	1.758	713.198	.207%	96.190%
41.0	17.213	1.373	714.571	.162%	96.375%
42.0	15.005	1.171	715.741	.138%	96.533%
43.0	12.987	1.037	716.778	.122%	96.673%
44.0	11.433	0.922	717.7	.108%	96.797%
45.0	10.477	0.842	718.542	.099%	96.910%
46.0	9.935	0.798	719.34	.094%	97.018%
47.0	9.387	0.768	720.109	.090%	97.122%
48.0	8.930	0.740	720.849	.087%	97.222%
49.0	8.445	0.713	721.562	.084%	97.318%
50.0	8.044	0.687	722.25	.081%	97.411%
51.0	7.678	0.665	722.915	.078%	97.500%
52.0	7.390	0.647	723.562	.076%	97.587%
53.0	7.052	0.628	724.19	.074%	97.672%
54.0	6.771	0.609	724.799	.072%	97.754%
55.0	6.574	0.596	725.395	.070%	97.835%
56.0	6.363	0.585	725.979	.069%	97.914%
57.0	6.188	0.574	726.553	.067%	97.991%
58.0	5.970	0.562	727.116	.066%	98.067%
59.0	5.794	0.550	727.665	.065%	98.141%
60.0	5.604	0.538	728.204	.063%	98.214%
61.0	5.463	0.528	728.732	.062%	98.285%
62.0	5.288	0.518	729.25	.061%	98.355%
63.0	5.126	0.506	729.757	.060%	98.423%
64.0	5.027	0.498	730.255	.059%	98.490%
65.0	4.936	0.493	730.748	.058%	98.557%
66.0	4.809	0.486	731.234	.057%	98.622%
67.0	4.704	0.478	731.712	.056%	98.687%
68.0	4.598	0.471	732.184	.055%	98.750%
69.0	4.535	0.466	732.65	.055%	98.813%
70.0	4.465	0.462	733.112	.054%	98.876%
71.0	4.388	0.458	733.569	.054%	98.937%
72.0	4.296	0.452	734.021	.053%	98.998%
73.0	4.247	0.447	734.468	.053%	99.058%
74.0	4.198	0.444	734.912	.052%	99.118%
75.0	4.148	0.441	735.353	.052%	99.178%

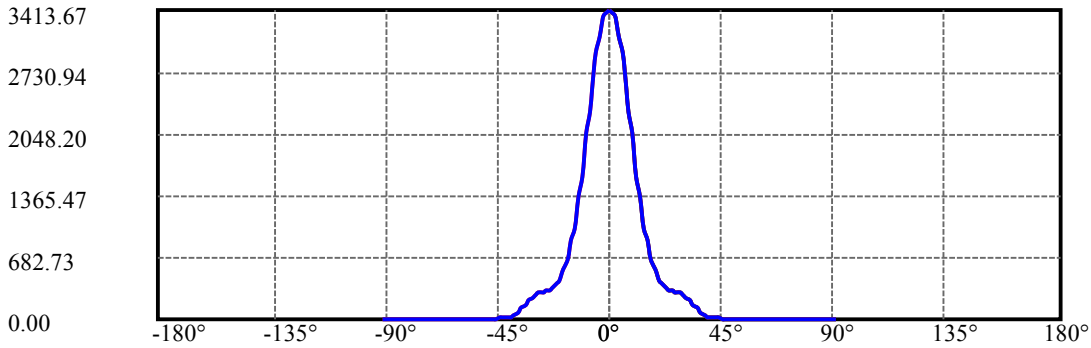
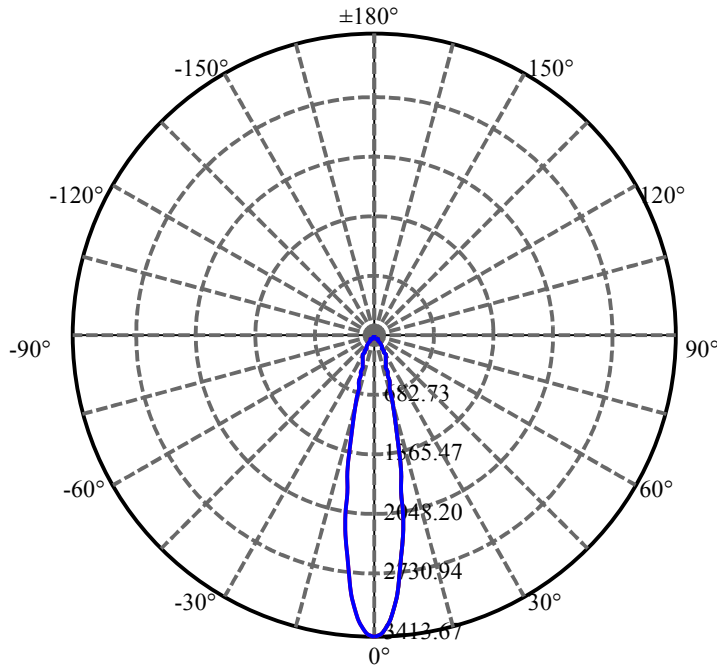
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	4.092	0.437	735.79	.051%	99.237%
77.0	4.043	0.434	736.224	.051%	99.295%
78.0	3.987	0.430	736.654	.051%	99.353%
79.0	3.952	0.427	737.08	.050%	99.411%
80.0	3.888	0.423	737.503	.050%	99.468%
81.0	3.832	0.418	737.92	.049%	99.524%
82.0	3.769	0.412	738.332	.048%	99.580%
83.0	3.734	0.408	738.74	.048%	99.635%
84.0	3.670	0.403	739.144	.047%	99.689%
85.0	3.649	0.399	739.543	.047%	99.743%
86.0	3.621	0.397	739.941	.047%	99.796%
87.0	3.480	0.389	740.329	.046%	99.849%
88.0	3.438	0.379	740.708	.045%	99.900%
89.0	3.375	0.373	741.082	.044%	99.950%
90.0	3.333	0.368	741.449	.043%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	638.76	75.13%	86.15%
0-40	713.20	83.89%	96.19%
0-60	728.20	85.65%	98.21%
0-90	741.08	87.17%	99.95%
0-120	741.08	87.17%	99.95%
0-180	741.45	87.21%	100.00%
60-90	13.42	1.58%	1.81%
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%
0-26.87	593.16	69.77%	80.00%

ZONAL LUMEN SUMMARY

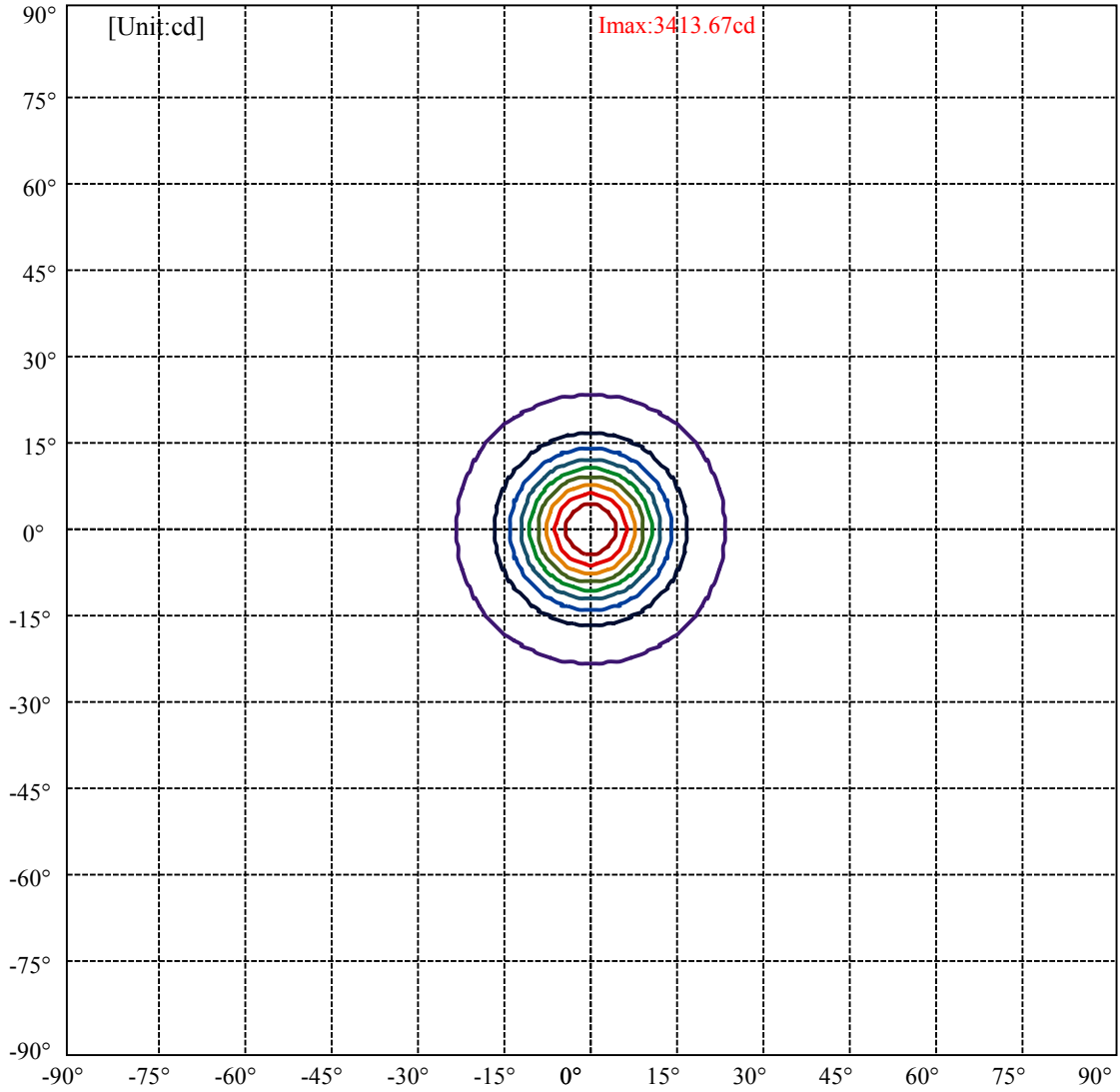
0-10	243.40
10-20	247.44
20-30	147.92
30-40	74.44
40-50	9.05
50-60	5.95
60-70	4.91
70-80	4.39
80-90	3.58
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00



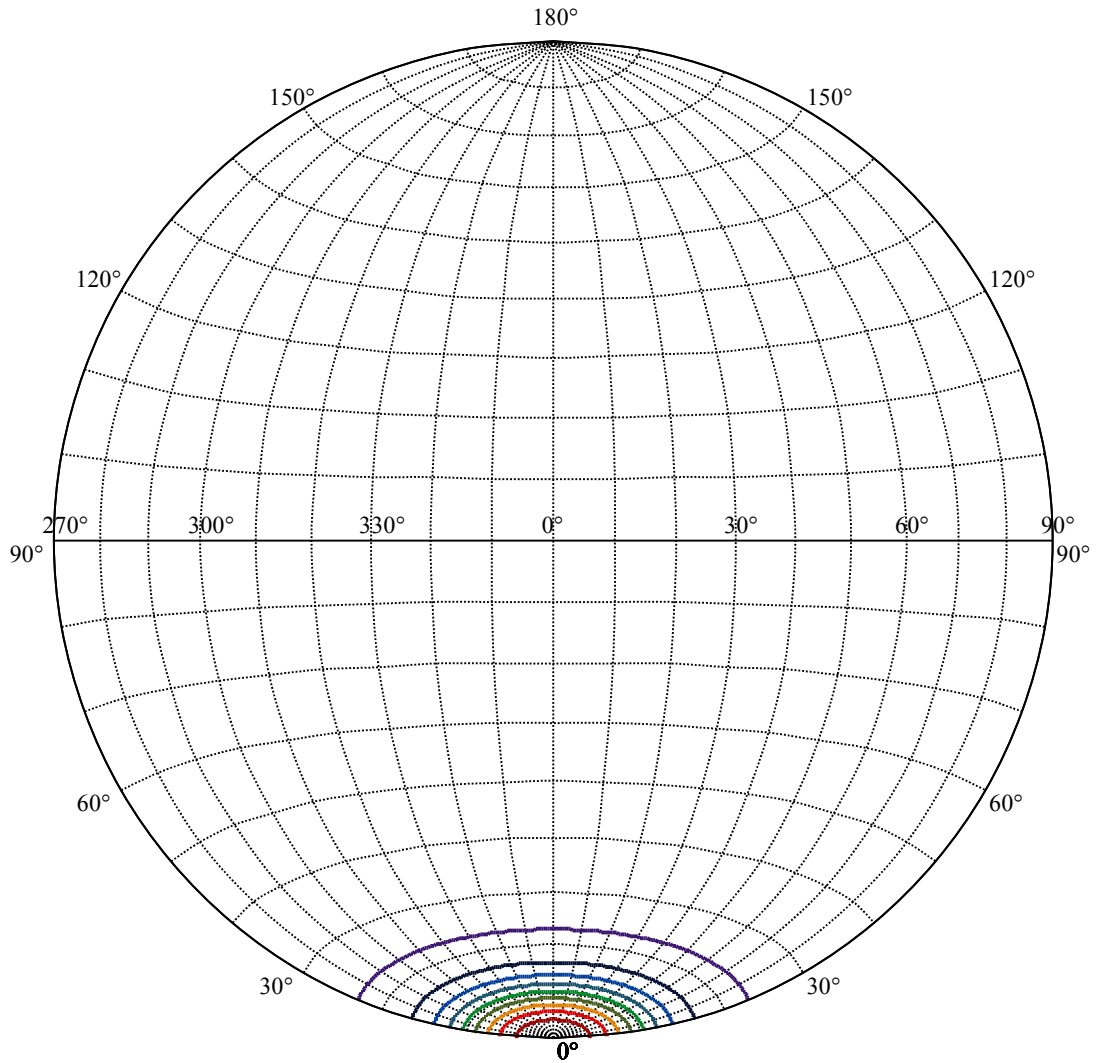
C0(Max): ———
C0/C180: ———
C90/C270: ———

Field angle(10%Imax):C0/180Left:23.0 Right:23.0
:C90/270Left:23.0 Right:23.0

Beam Angle(50%Imax):C0/180Left:10.4 Right:10.4
:C90/270Left:10.4 Right:10.4



(10%Imax) 341.367	—
(20%Imax) 682.734	—
(30%Imax) 1024.1	—
(40%Imax) 1365.47	—
(50%Imax) 1706.84	—
(60%Imax) 2048.2	—
(70%Imax) 2389.57	—
(80%Imax) 2730.94	—
(90%Imax) 3072.3	—



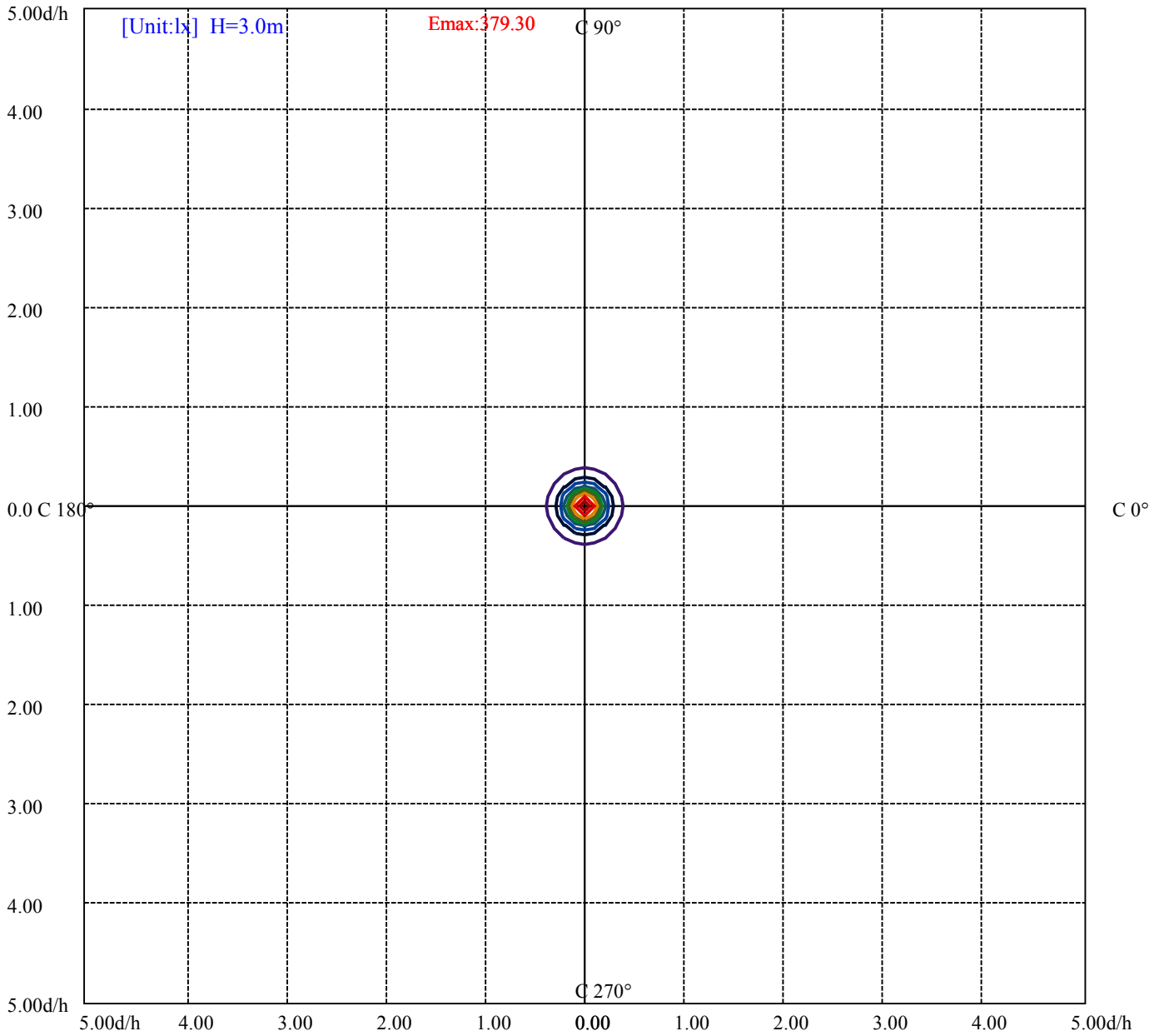
House

[Unit:cd]

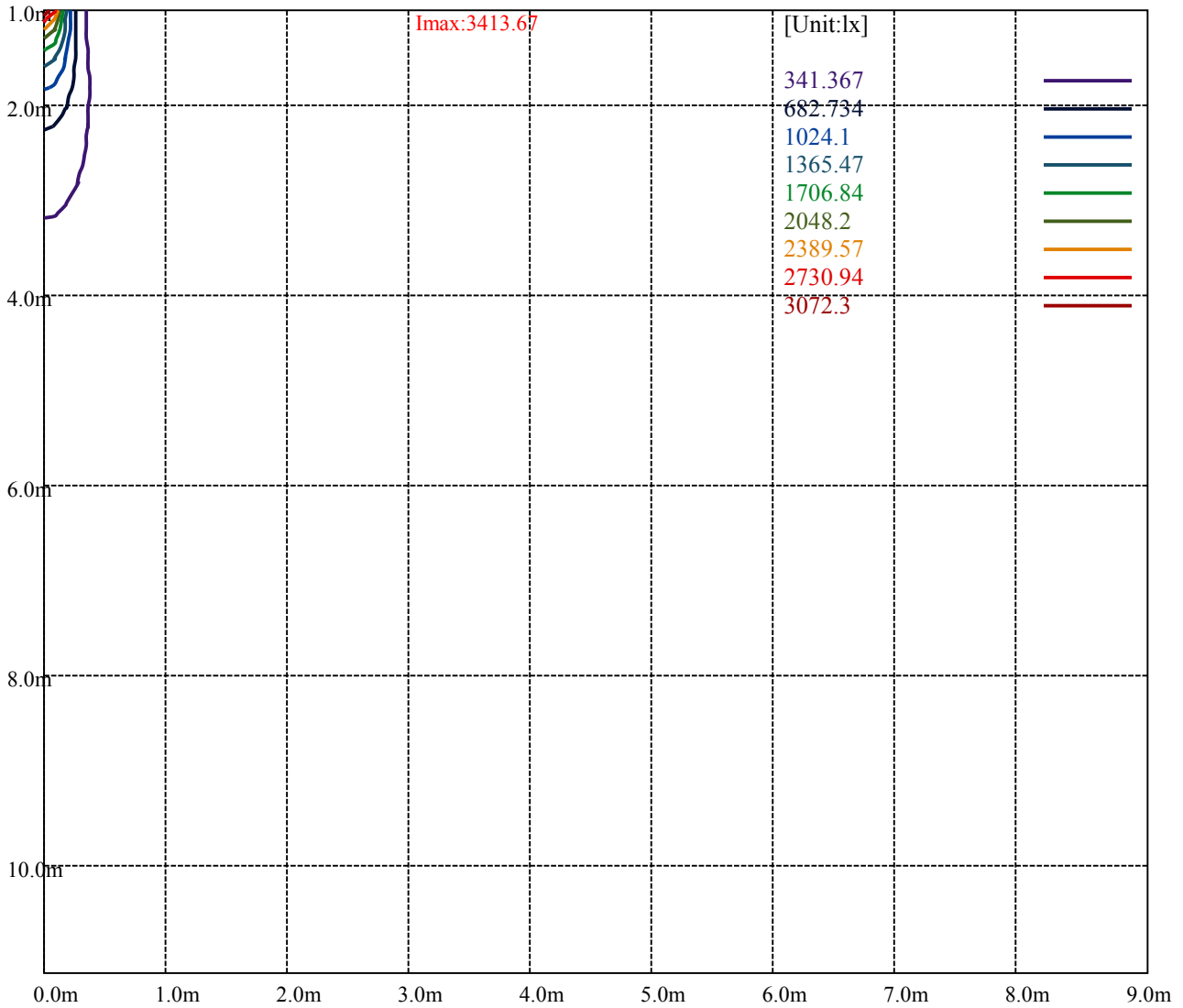
Road

Imax:3413.67

(10%Imax) 341.367	—
(20%Imax) 682.734	—
(30%Imax) 1024.1	—
(40%Imax) 1365.47	—
(50%Imax) 1706.84	—
(60%Imax) 2048.2	—
(70%Imax) 2389.57	—
(80%Imax) 2730.94	—
(90%Imax) 3072.3	—



(10%Emax) 37.92967	—
(20%Emax) 75.85934	—
(30%Emax) 113.7889	—
(40%Emax) 151.7189	—
(50%Emax) 189.6478	—
(60%Emax) 227.5778	—
(70%Emax) 265.5078	—
(80%Emax) 303.4378	—
(90%Emax) 341.3667	—



Luminance Table

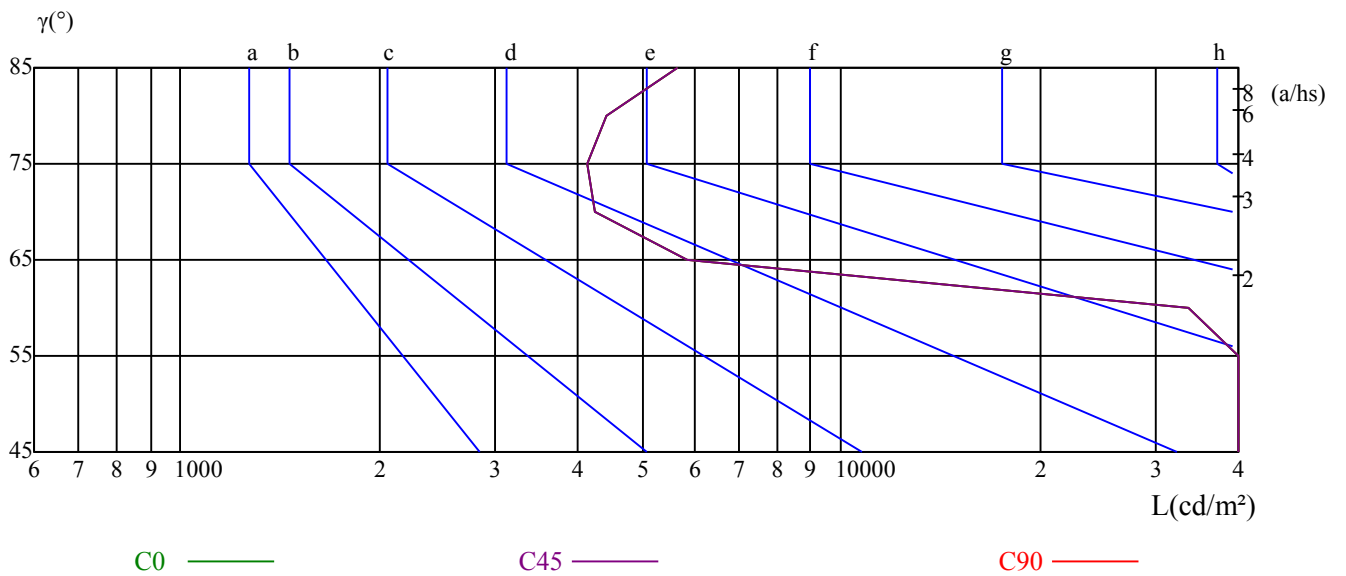
γ	45	50	55	60	65	70	75	80	85
C0	46650	52836	53885	33658	5848	4245	4131	4405	5640
C45	46650	52836	53885	33658	5848	4245	4131	4405	5640
C90	46650	52836	53885	33658	5848	4245	4131	4405	5640

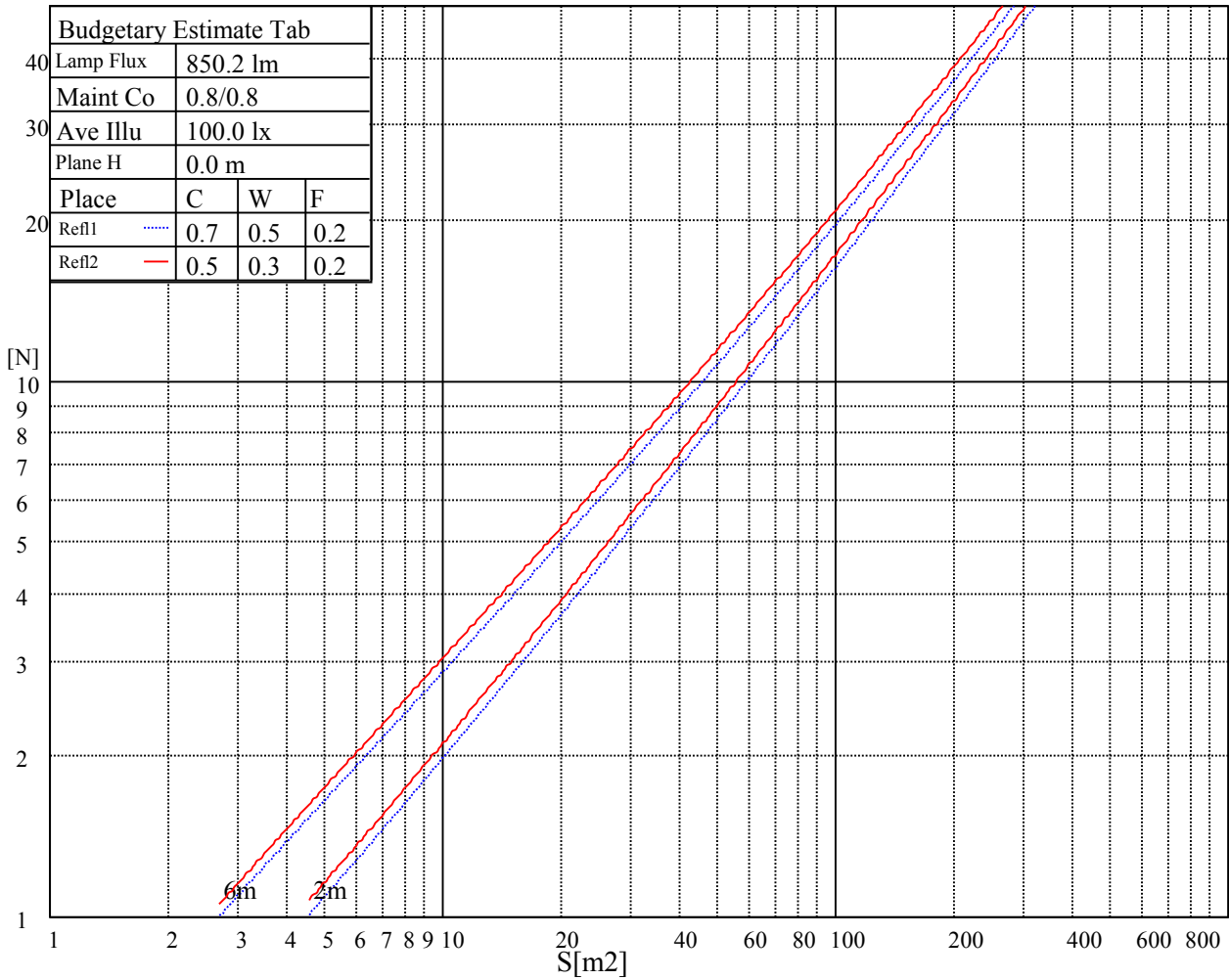
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
5848	5848	5848	4131	4131	4131	5640	5640	5640

Glare Table

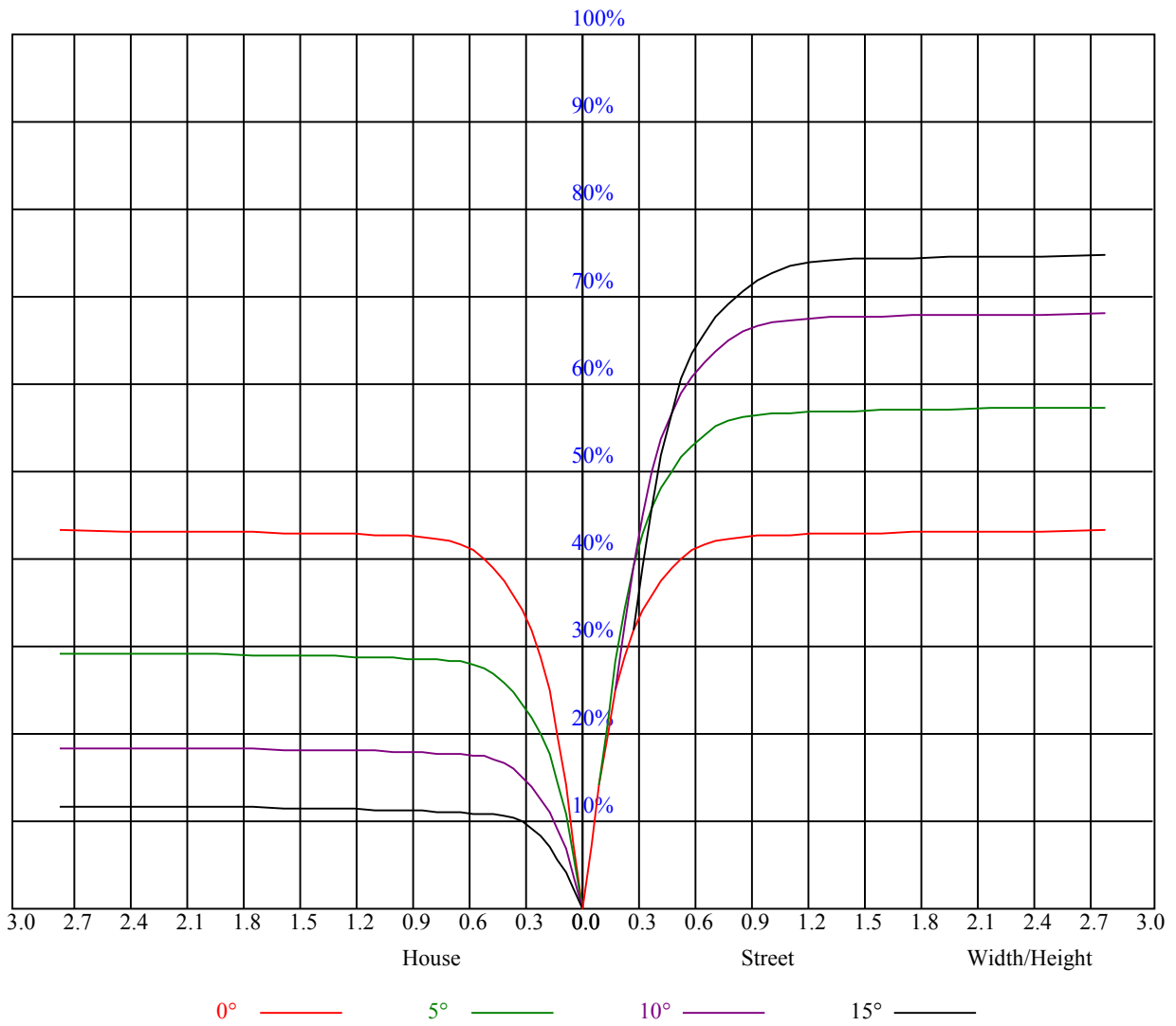
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

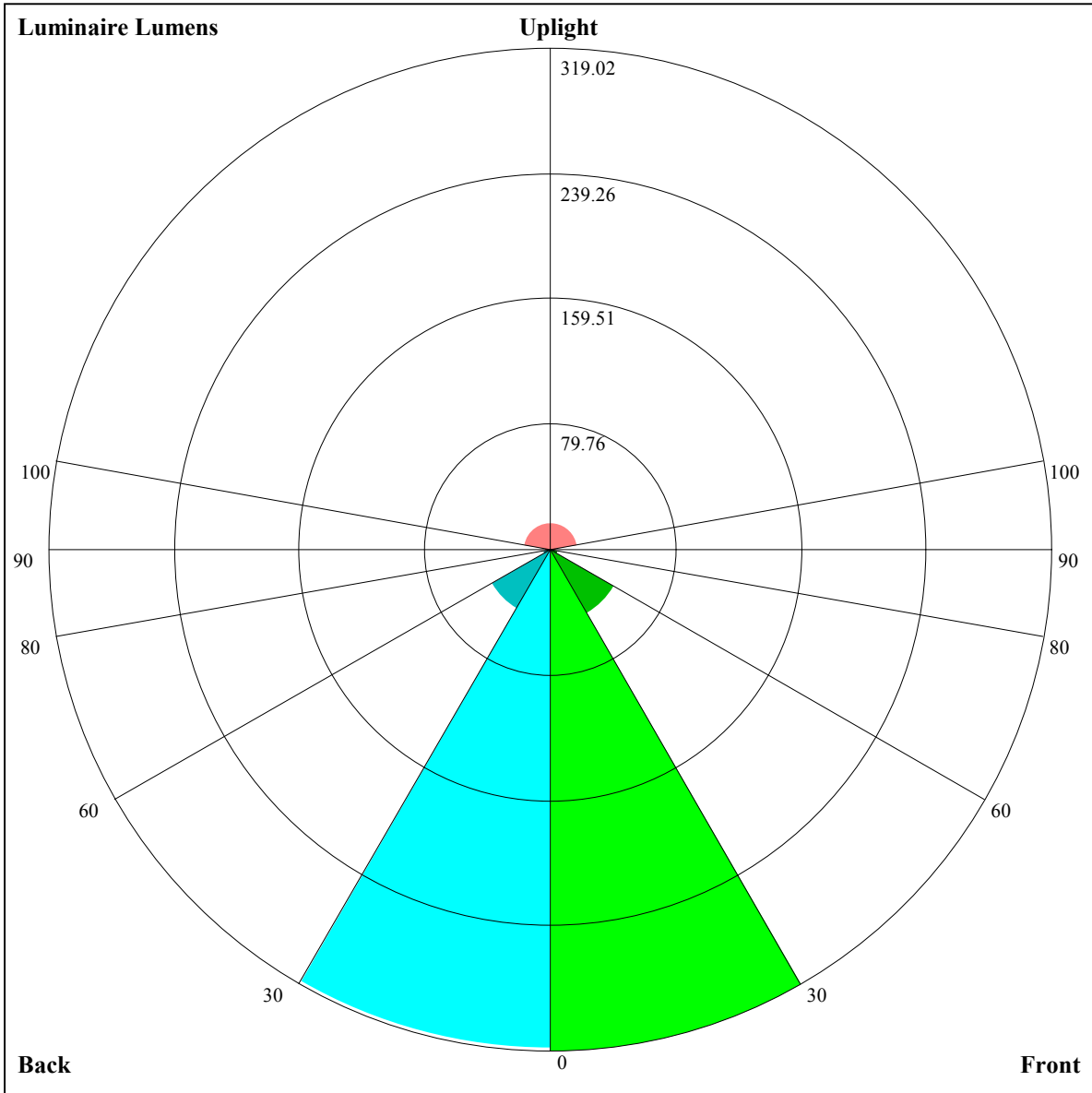
Luminance Limiting Curve





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	1.04	1.04	1.04	1.01	1.01	1.01	0.97	0.97	0.97	0.93	0.93	0.93	0.89	0.89	0.89	0.87
1	0.98	0.96	0.94	0.96	0.94	0.92	0.92	0.91	0.90	0.89	0.88	0.87	0.86	0.85	0.84	0.83
2	0.92	0.89	0.87	0.91	0.88	0.86	0.88	0.86	0.84	0.86	0.84	0.82	0.83	0.82	0.81	0.79
3	0.88	0.84	0.81	0.87	0.83	0.81	0.84	0.82	0.79	0.82	0.80	0.78	0.80	0.79	0.77	0.76
4	0.84	0.80	0.77	0.83	0.79	0.76	0.81	0.78	0.75	0.79	0.77	0.75	0.78	0.76	0.74	0.73
5	0.80	0.76	0.73	0.79	0.76	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.75	0.73	0.71	0.70
6	0.77	0.73	0.70	0.76	0.72	0.70	0.75	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	0.73	0.70	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.71	0.68	0.66	0.65
8	0.71	0.67	0.64	0.71	0.67	0.64	0.70	0.67	0.64	0.69	0.66	0.64	0.68	0.66	0.64	0.63
9	0.69	0.65	0.62	0.68	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.62	0.66	0.64	0.62	0.61
10	0.67	0.63	0.60	0.66	0.63	0.60	0.66	0.62	0.60	0.65	0.62	0.60	0.65	0.62	0.60	0.59





Luminaire Lumens:

FL=319.02,FM=46.8,FH=4.71,FVH=1.96

BL=317.33,BM=43.06,BH=4.64,BVH=1.99

UL=3.64,UH=17.3

BUG Rating:B1-U2-G0

NATA 1654-S

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	3412.69	3408.19	3364.88	3288.38	3161.25	2991.38	2796.75	2559.38	2336.06
45.0	3404.25	3426.19	3413.25	3355.88	3284.44	3170.81	2983.50	2797.31	2586.94
90.0	3431.25	3447.56	3421.69	3364.88	3279.38	3137.06	2973.94	2746.69	2493.00
135.0	3405.94	3429.00	3404.25	3351.94	3259.13	3103.88	2955.38	2759.06	2511.00
180.0	3413.81	3382.88	3323.25	3203.44	3070.69	2911.50	2715.75	2439.00	2214.56
225.0	3404.25	3344.06	3257.44	3121.31	2939.06	2743.88	2540.25	2273.63	2056.50
270.0	3431.25	3387.94	3287.25	3169.69	3019.50	2777.06	2557.13	2334.38	2074.50
315.0	3405.94	3358.69	3258.56	3117.38	2968.88	2763.00	2546.44	2291.06	2042.44
360.0	3412.69	3408.19	3364.88	3288.38	3161.25	2991.38	2796.75	2559.38	2336.06
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	2079.00	1828.13	1617.19	1419.19	1198.69	1036.13	894.38	742.50	644.06
45.0	2311.88	2081.25	1848.94	1603.13	1375.31	1191.94	1010.81	851.63	735.75
90.0	2260.69	1997.44	1736.44	1522.13	1325.25	1102.56	948.09	811.29	680.23
135.0	2270.81	2042.44	1773.00	1558.69	1332.56	1133.44	977.63	819.00	696.38
180.0	1992.38	1723.50	1525.50	1338.75	1108.69	978.86	853.43	729.56	638.66
225.0	1834.31	1568.25	1376.44	1119.88	1044.00	874.24	758.59	658.97	568.52
270.0	1821.38	1603.13	1380.38	1196.44	1006.88	847.69	731.25	621.00	534.38
315.0	1818.00	1581.19	1353.38	1103.51	1004.18	821.98	708.24	608.01	518.68
360.0	2079.00	1828.13	1617.19	1419.19	1198.69	1036.13	894.38	742.50	644.06
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	564.75	497.81	452.81	421.88	393.75	372.94	357.19	344.81	332.44
45.0	623.81	545.63	480.38	433.13	399.94	372.94	351.56	338.06	330.19
90.0	572.40	497.93	435.15	389.25	352.24	319.22	298.35	284.29	275.46
135.0	606.38	529.88	460.13	420.19	385.88	358.31	337.50	322.88	311.63
180.0	554.79	492.47	451.46	412.48	378.84	360.28	343.91	327.60	317.19
225.0	500.85	458.16	419.85	389.19	366.19	345.60	332.27	320.01	310.28
270.0	476.44	429.19	384.75	358.31	339.19	323.44	308.81	297.56	288.56
315.0	445.16	397.91	351.90	319.11	297.17	280.01	272.53	267.36	267.92
360.0	564.75	497.81	452.81	421.88	393.75	372.94	357.19	344.81	332.44
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	320.06	308.25	297.00	285.19	249.98	224.49	195.92	159.30	129.60
45.0	324.00	318.94	313.31	300.94	284.63	248.01	216.23	185.34	156.71
90.0	269.55	264.32	256.44	244.46	227.93	203.23	183.77	162.56	136.07
135.0	303.75	298.13	291.38	284.06	256.67	231.69	204.24	173.08	143.04
180.0	308.14	295.76	278.10	254.36	225.45	192.83	163.91	130.50	102.21
225.0	302.23	285.24	260.38	235.07	207.39	173.76	144.45	117.62	87.08
270.0	284.06	262.69	245.48	222.64	193.16	168.92	139.61	115.03	90.62
315.0	267.53	259.71	243.68	223.48	204.02	174.26	147.60	120.99	95.51
360.0	320.06	308.25	297.00	285.19	249.98	224.49	195.92	159.30	129.60
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	101.19	72.06	46.58	30.09	19.69	16.48	14.63	12.43	10.80
45.0	125.61	98.33	68.68	44.44	29.19	20.87	17.94	16.09	14.06
90.0	111.77	87.53	60.08	42.53	30.04	21.88	19.41	16.88	13.95
135.0	110.98	83.36	57.04	36.00	24.58	18.34	16.20	14.34	12.32
180.0	73.58	47.93	30.04	18.96	14.12	12.60	10.86	8.55	7.37
225.0	59.01	38.87	23.34	15.69	14.12	12.32	10.41	8.66	7.93
270.0	65.93	47.25	30.26	20.87	18.11	16.59	14.23	12.60	11.76
315.0	65.70	47.36	33.58	23.85	20.93	18.62	16.37	14.34	13.28
360.0	101.19	72.06	46.58	30.09	19.69	16.48	14.63	12.43	10.80

NATA 1654-S

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	10.18	9.68	9.28	8.83	8.21	7.76	7.31	7.03	6.75
45.0	12.32	11.81	11.31	10.69	10.07	9.56	9.06	8.49	7.99
90.0	12.71	11.93	11.08	10.63	10.13	9.51	9.06	8.72	8.27
135.0	10.58	10.07	9.56	9.00	8.49	8.10	7.65	7.37	6.98
180.0	6.92	6.53	6.19	5.96	5.68	5.51	5.34	5.18	5.06
225.0	7.54	7.14	6.75	6.47	6.24	6.08	5.96	5.85	5.68
270.0	11.03	10.52	9.96	9.51	9.00	8.61	8.27	8.10	7.71
315.0	12.54	11.81	10.97	10.35	9.73	9.23	8.78	8.38	7.99
360.0	10.18	9.68	9.28	8.83	8.21	7.76	7.31	7.03	6.75

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	6.41	6.24	6.02	5.85	5.74	5.63	5.51	5.34	5.23
45.0	7.54	7.26	6.92	6.64	6.36	6.13	5.85	5.74	5.57
90.0	7.93	7.54	7.26	7.03	6.75	6.41	6.08	5.96	5.68
135.0	6.81	6.64	6.53	6.41	6.24	6.08	5.79	5.68	5.57
180.0	4.95	4.89	4.84	4.78	4.73	4.67	4.61	4.61	4.56
225.0	5.68	5.63	5.51	5.46	5.34	5.18	5.18	5.06	4.95
270.0	7.31	7.20	6.98	6.69	6.30	6.13	5.91	5.68	5.40
315.0	7.54	7.20	6.86	6.64	6.30	6.13	5.91	5.63	5.34
360.0	6.41	6.24	6.02	5.85	5.74	5.63	5.51	5.34	5.23

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	5.12	5.01	4.95	4.78	4.73	4.61	4.56	4.44	4.39
45.0	5.34	5.18	5.06	4.95	4.84	4.73	4.61	4.56	4.44
90.0	5.46	5.29	5.12	5.01	4.84	4.67	4.56	4.56	4.44
135.0	5.29	5.18	5.06	5.01	4.78	4.67	4.61	4.56	4.44
180.0	4.50	4.50	4.50	4.44	4.44	4.39	4.39	4.28	4.28
225.0	4.89	4.84	4.78	4.67	4.61	4.50	4.44	4.33	4.33
270.0	5.23	5.12	5.01	4.84	4.73	4.61	4.56	4.50	4.39
315.0	5.18	5.12	5.01	4.78	4.67	4.61	4.56	4.50	4.39
360.0	5.12	5.01	4.95	4.78	4.73	4.61	4.56	4.44	4.39

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	4.28	4.16	4.11	4.05	3.99	3.94	3.88	3.83	3.77
45.0	4.39	4.33	4.22	4.16	4.05	3.99	3.88	3.88	3.83
90.0	4.33	4.28	4.28	4.22	4.16	4.16	4.11	4.05	3.94
135.0	4.33	4.28	4.28	4.22	4.16	4.11	4.05	4.05	3.99
180.0	4.22	4.16	4.16	4.11	4.05	3.99	3.99	3.94	3.88
225.0	4.22	4.16	4.11	4.11	3.99	3.94	3.94	3.94	3.88
270.0	4.33	4.33	4.28	4.22	4.22	4.16	4.11	4.05	3.99
315.0	4.28	4.28	4.16	4.11	4.11	4.05	3.94	3.88	3.83
360.0	4.28	4.16	4.11	4.05	3.99	3.94	3.88	3.83	3.77

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	3.66	3.66	3.60	3.54	3.54	3.54	3.49	3.49	3.43
45.0	3.77	3.66	3.66	3.60	3.60	3.54	3.49	3.49	3.43
90.0	3.94	3.83	3.71	3.66	3.66	3.66	3.49	3.43	3.38
135.0	3.94	3.88	3.88	3.77	3.77	3.66	3.54	3.43	3.38
180.0	3.88	3.83	3.77	3.71	3.71	3.71	3.49	3.43	3.38
225.0	3.83	3.77	3.83	3.71	3.66	3.66	3.49	3.49	3.38
270.0	3.88	3.83	3.77	3.71	3.71	3.71	3.43	3.38	3.32
315.0	3.77	3.71	3.66	3.66	3.54	3.49	3.43	3.38	3.32
360.0	3.66	3.66	3.60	3.54	3.54	3.54	3.49	3.49	3.43

Intensity data(cd)

C/γ(°)	90.0
0.0	3.38
45.0	3.43
90.0	3.32
135.0	3.32
180.0	3.26
225.0	3.38
270.0	3.32
315.0	3.26
360.0	3.38