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## NATA

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Client:

LumCAT: 1-1008-M

Luminaire: BJB 47.360.1020

Report No: nt0100

Voltage(V): 34.0600

Test No: GC2020011510

Current(A): 0.2970

LampCAT: LUMINUS CXM-9-AC40

Power (W): 10.1200

Lamp flux(lm): 1108.1

PF: 1.0000

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): 827.99, Efficiency(%): 74.72% , Luminous Efficacy(lm/W): 81.82

Central intensity(cd): 3750.328, Maximum intensity(cd): 3750.328

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

Beam Angle(50%Imax): [C0/180]Total=27.8

[C90/270]Total=27.8

Field angle(10%Imax): [C0/180]Total=43.0

[C90/270]Total=43.0

Maximum s/h(1/2): C0\_180=0.47 C90\_270=0.47

Maximum s/h(1/4): C0\_180=0.44 C90\_270=0.44

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 74.72%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 98.502%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3750.328	0.000	0	.000%	.000%
1.0	3742.523	3.585	3.585	.324%	.433%
2.0	3712.781	10.701	14.286	.966%	1.725%
3.0	3663.281	17.641	31.927	1.592%	3.856%
4.0	3599.930	24.312	56.239	2.194%	6.792%
5.0	3510.492	30.589	86.828	2.761%	10.487%
6.0	3409.664	36.367	123.195	3.282%	14.879%
7.0	3288.023	41.572	164.768	3.752%	19.900%
8.0	3146.555	46.051	210.819	4.156%	25.462%
9.0	2979.773	49.651	260.469	4.481%	31.458%
10.0	2789.648	52.211	312.68	4.712%	37.764%
11.0	2576.391	53.618	366.298	4.839%	44.239%
12.0	2356.242	53.921	420.219	4.866%	50.752%
13.0	2110.922	53.014	473.233	4.784%	57.154%
14.0	1853.016	50.738	523.971	4.579%	63.282%
15.0	1621.195	47.696	571.666	4.304%	69.043%
16.0	1376.817	43.929	615.596	3.964%	74.348%
17.0	1127.292	38.996	654.591	3.519%	79.058%
18.0	951.933	34.282	688.873	3.094%	83.198%
19.0	774.098	30.029	718.903	2.710%	86.825%
20.0	589.943	24.966	743.868	2.253%	89.840%
21.0	434.046	19.663	763.531	1.774%	92.215%
22.0	321.286	15.179	778.71	1.370%	94.048%
23.0	202.908	10.999	789.709	.993%	95.377%
24.0	113.020	6.907	796.616	.623%	96.211%
25.0	54.260	3.804	800.42	.343%	96.670%
26.0	23.794	1.842	802.262	.166%	96.893%
27.0	13.106	0.903	803.165	.081%	97.002%
28.0	10.188	0.590	803.755	.053%	97.073%
29.0	8.606	0.492	804.246	.044%	97.132%
30.0	7.699	0.440	804.687	.040%	97.186%
31.0	7.052	0.411	805.097	.037%	97.235%
32.0	6.546	0.390	805.487	.035%	97.282%
33.0	6.159	0.374	805.861	.034%	97.327%
34.0	5.878	0.364	806.225	.033%	97.371%
35.0	5.625	0.357	806.583	.032%	97.415%
36.0	5.407	0.351	806.934	.032%	97.457%
37.0	5.245	0.347	807.281	.031%	97.499%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	5.091	0.345	807.626	.031%	97.541%
39.0	4.950	0.343	807.969	.031%	97.582%
40.0	4.873	0.343	808.312	.031%	97.623%
41.0	4.774	0.344	808.655	.031%	97.665%
42.0	4.704	0.344	808.999	.031%	97.707%
43.0	4.627	0.346	809.345	.031%	97.748%
44.0	4.563	0.347	809.692	.031%	97.790%
45.0	4.507	0.349	810.04	.031%	97.832%
46.0	4.444	0.350	810.391	.032%	97.875%
47.0	4.423	0.353	810.743	.032%	97.917%
48.0	4.402	0.357	811.1	.032%	97.960%
49.0	4.359	0.360	811.46	.032%	98.004%
50.0	4.310	0.361	811.821	.033%	98.047%
51.0	4.289	0.364	812.185	.033%	98.091%
52.0	4.275	0.367	812.552	.033%	98.136%
53.0	4.240	0.370	812.923	.033%	98.180%
54.0	4.205	0.372	813.295	.034%	98.225%
55.0	4.198	0.375	813.67	.034%	98.271%
56.0	4.177	0.378	814.048	.034%	98.316%
57.0	4.163	0.381	814.43	.034%	98.362%
58.0	4.148	0.384	814.814	.035%	98.409%
59.0	4.120	0.387	815.201	.035%	98.455%
60.0	4.113	0.389	815.59	.035%	98.502%
61.0	4.085	0.391	815.981	.035%	98.550%
62.0	4.092	0.394	816.375	.036%	98.597%
63.0	4.078	0.397	816.772	.036%	98.645%
64.0	4.071	0.400	817.172	.036%	98.694%
65.0	4.043	0.402	817.574	.036%	98.742%
66.0	4.057	0.404	817.978	.036%	98.791%
67.0	4.043	0.407	818.385	.037%	98.840%
68.0	4.029	0.409	818.794	.037%	98.889%
69.0	4.015	0.410	819.204	.037%	98.939%
70.0	4.001	0.412	819.616	.037%	98.989%
71.0	4.001	0.414	820.03	.037%	99.039%
72.0	4.015	0.417	820.446	.038%	99.089%
73.0	4.001	0.419	820.866	.038%	99.140%
74.0	3.994	0.420	821.286	.038%	99.190%
75.0	3.987	0.422	821.708	.038%	99.241%

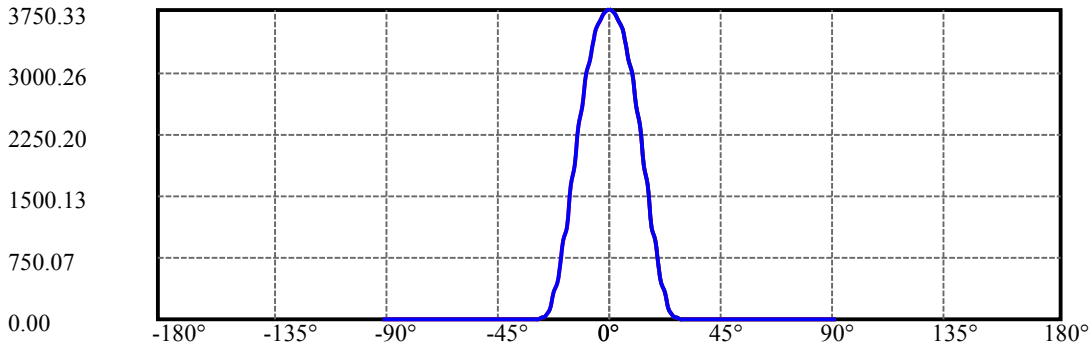
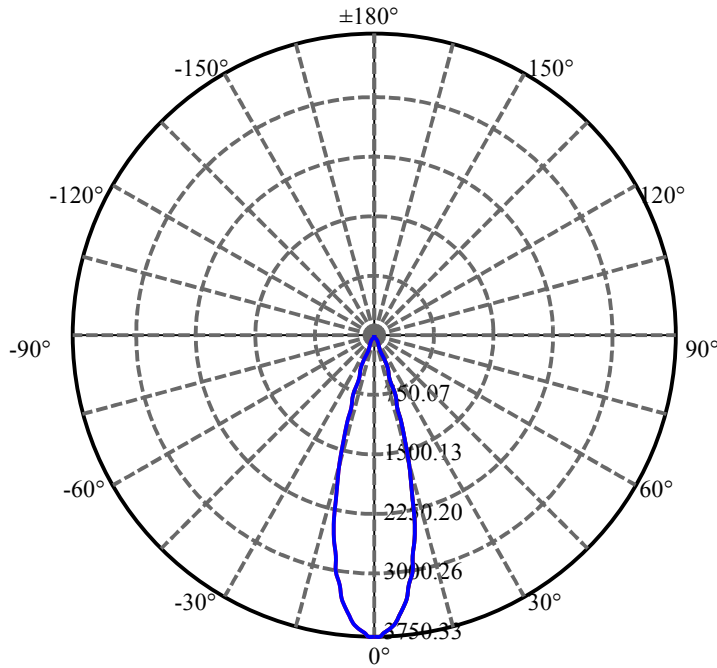
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	3.980	0.423	822.13	.038%	99.292%
77.0	3.959	0.423	822.554	.038%	99.344%
78.0	3.923	0.422	822.976	.038%	99.394%
79.0	3.909	0.421	823.396	.038%	99.445%
80.0	3.867	0.419	823.816	.038%	99.496%
81.0	3.860	0.418	824.234	.038%	99.546%
82.0	3.846	0.418	824.651	.038%	99.597%
83.0	3.839	0.418	825.069	.038%	99.647%
84.0	3.832	0.418	825.487	.038%	99.698%
85.0	3.818	0.418	825.905	.038%	99.748%
86.0	3.832	0.418	826.323	.038%	99.799%
87.0	3.818	0.419	826.742	.038%	99.849%
88.0	3.790	0.417	827.158	.038%	99.900%
89.0	3.790	0.415	827.574	.037%	99.950%
90.0	3.790	0.416	827.989	.038%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	804.69	72.62%	97.19%
0-40	808.31	72.95%	97.62%
0-60	815.59	73.60%	98.50%
0-90	827.57	74.69%	99.95%
0-120	827.57	74.69%	99.95%
0-180	827.99	74.72%	100.00%
60-90	12.37	1.12%	1.49%
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%
0-17.23	662.39	59.78%	80.00%

ZONAL LUMEN SUMMARY

0-10	312.68
10-20	431.19
20-30	60.82
30-40	3.62
40-50	3.51
50-60	3.77
60-70	4.03
70-80	4.20
80-90	3.76
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

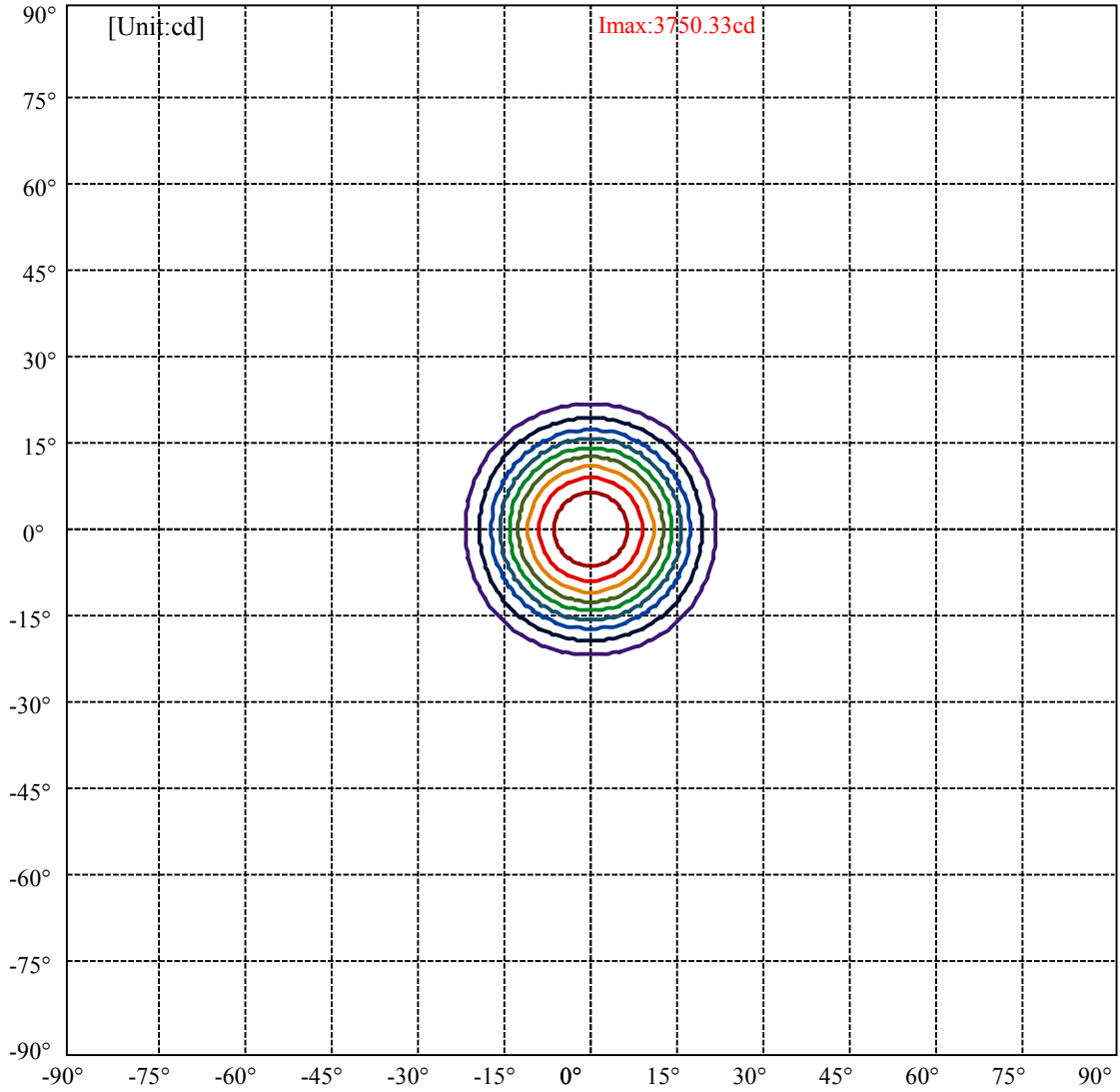


C0(Max): ———  
C0/C180: ———  
C90/C270: ———

Field angle(10%Imax):C0/180Left:21.5 Right:21.5  
:C90/270Left:21.5 Right:21.5

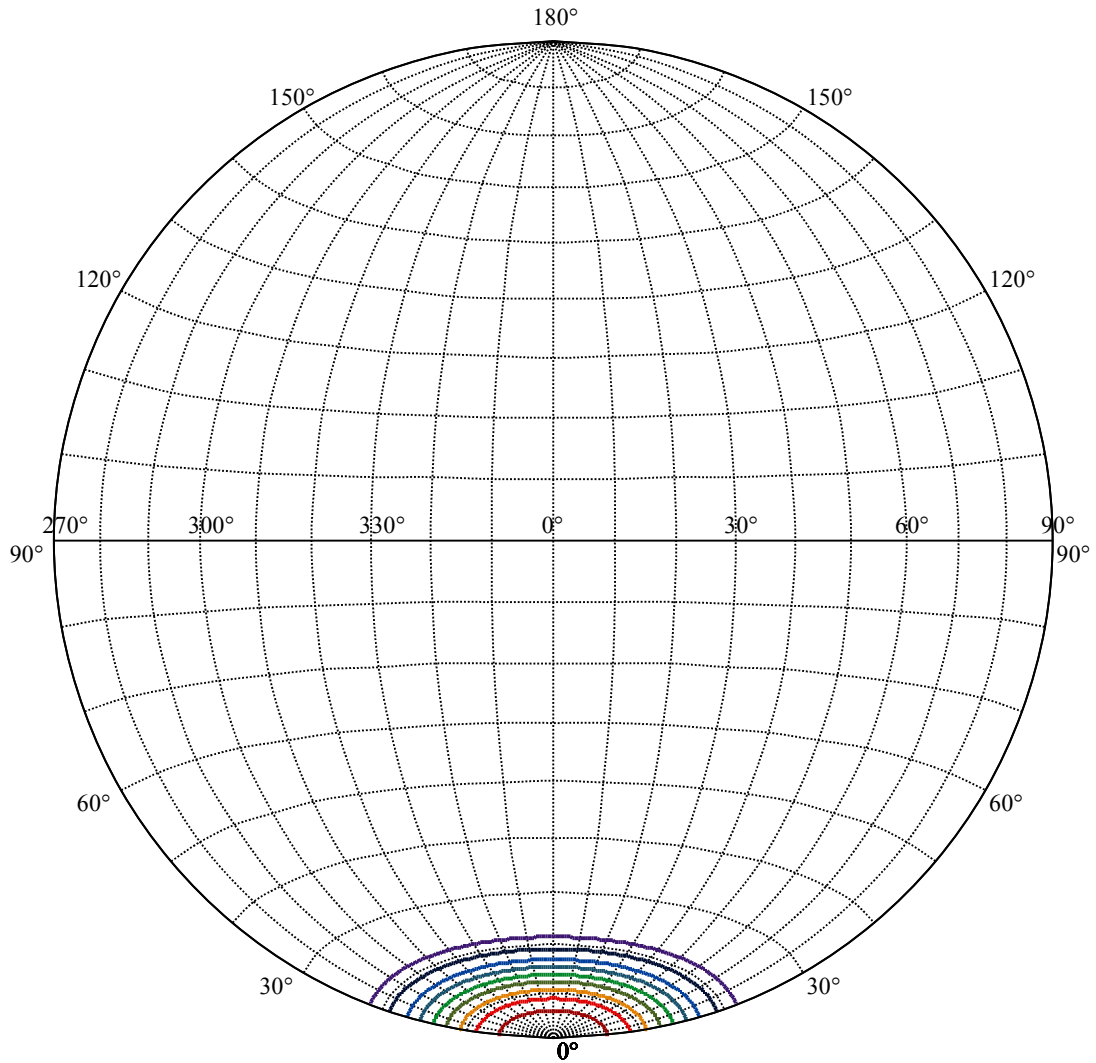
Beam Angle(50%Imax):C0/180Left:13.9 Right:13.9  
:C90/270Left:13.9 Right:13.9





(10%Imax) 375.033	—
(20%Imax) 750.066	—
(30%Imax) 1125.1	—
(40%Imax) 1500.13	—
(50%Imax) 1875.16	—
(60%Imax) 2250.2	—
(70%Imax) 2625.23	—
(80%Imax) 3000.26	—
(90%Imax) 3375.3	—





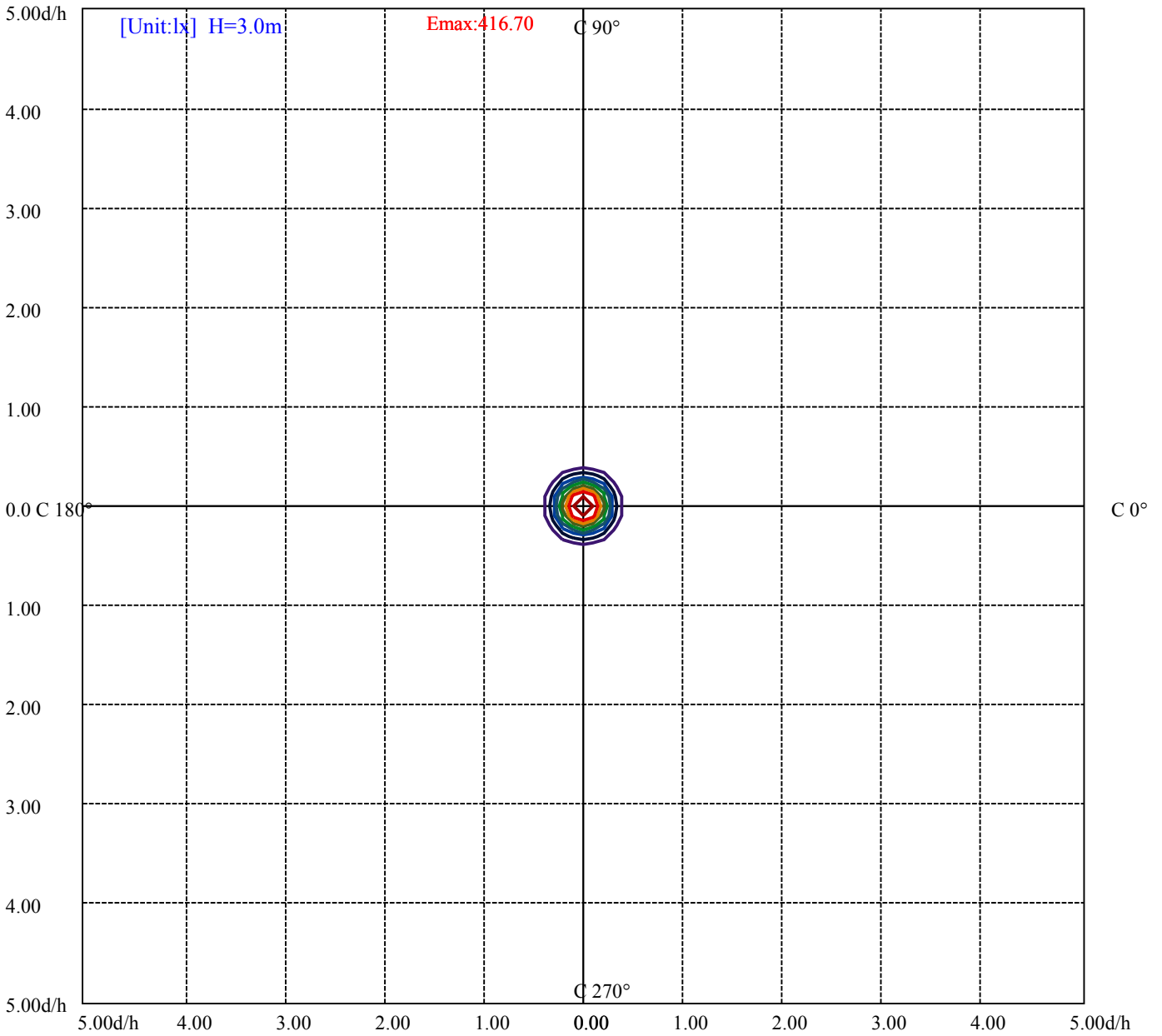
House

[Unit:cd]

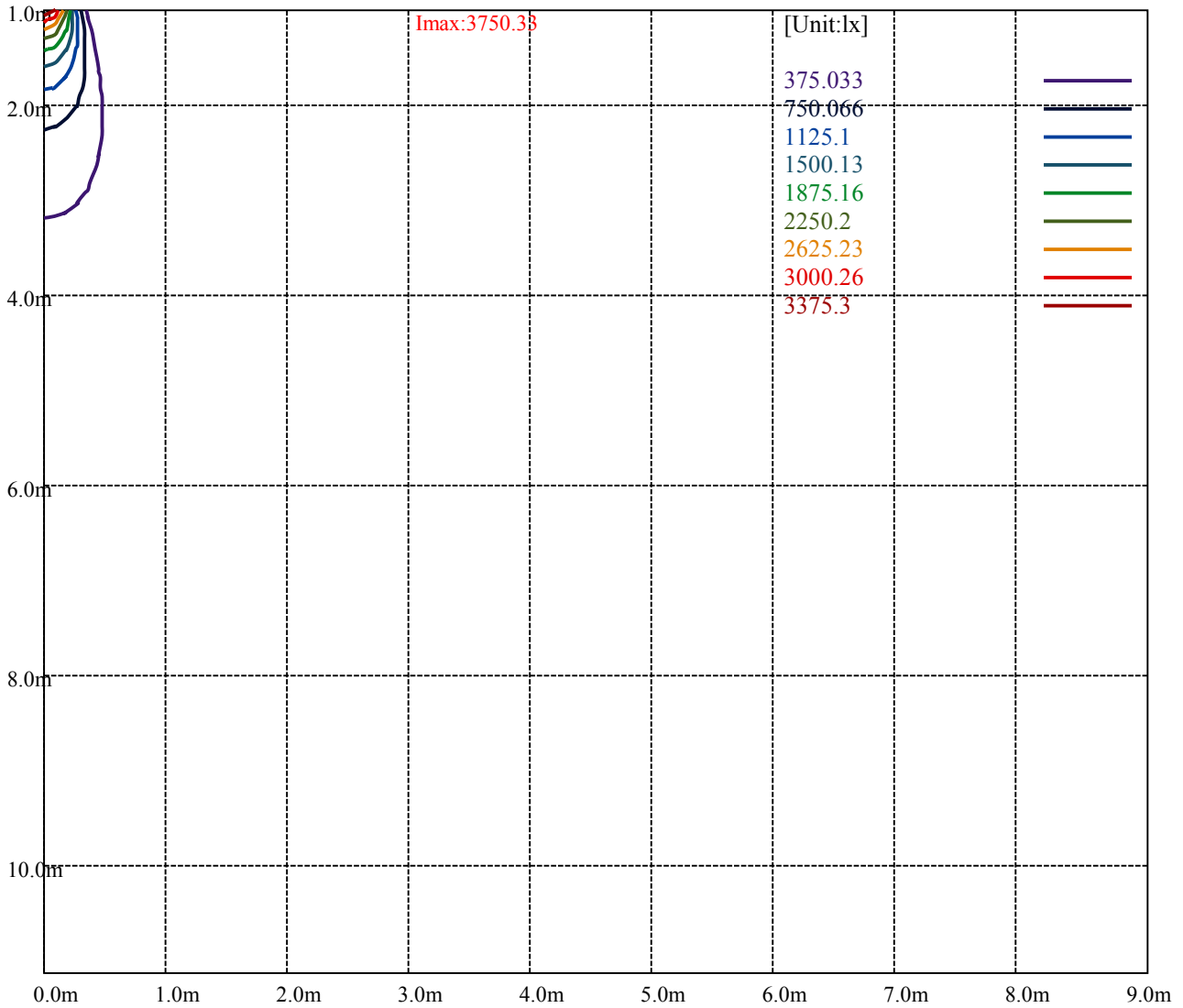
Road

**Imax:3750.33**

(10%Imax) 375.033	—
(20%Imax) 750.066	—
(30%Imax) 1125.1	—
(40%Imax) 1500.13	—
(50%Imax) 1875.16	—
(60%Imax) 2250.2	—
(70%Imax) 2625.23	—
(80%Imax) 3000.26	—
(90%Imax) 3375.3	—



(10%Emax) 41.67033	—
(20%Emax) 83.34055	—
(30%Emax) 125.0111	—
(40%Emax) 166.6811	—
(50%Emax) 208.3511	—
(60%Emax) 250.0222	—
(70%Emax) 291.6922	—
(80%Emax) 333.3622	—
(90%Emax) 375.0322	—



Luminance Table

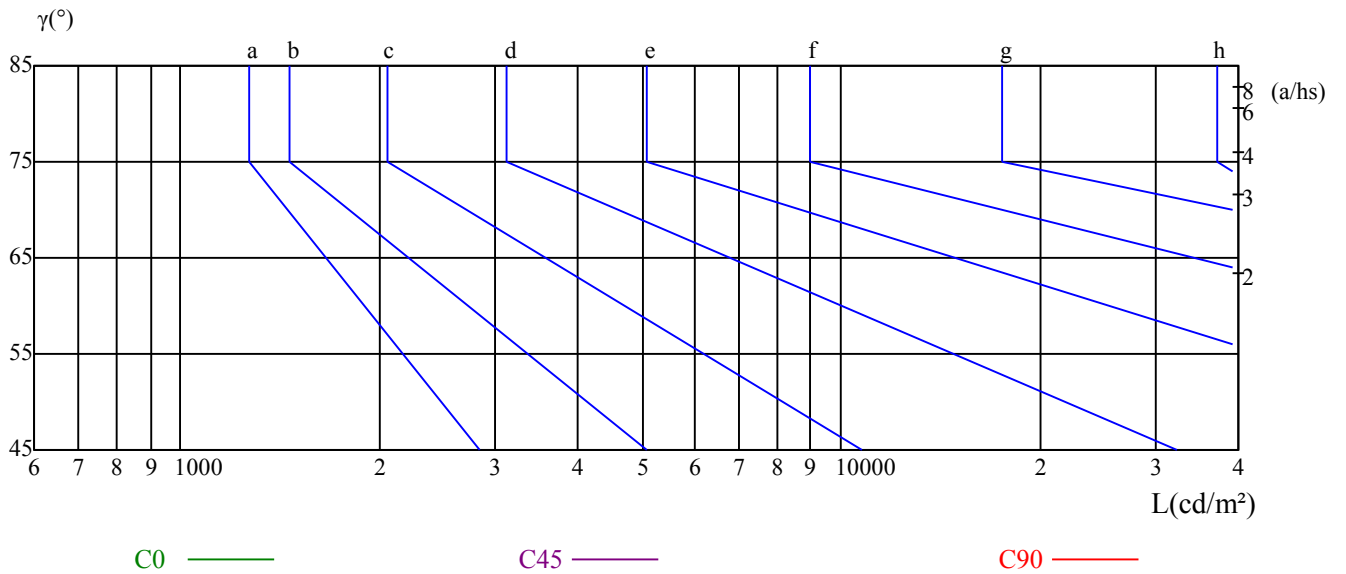
$\gamma$	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

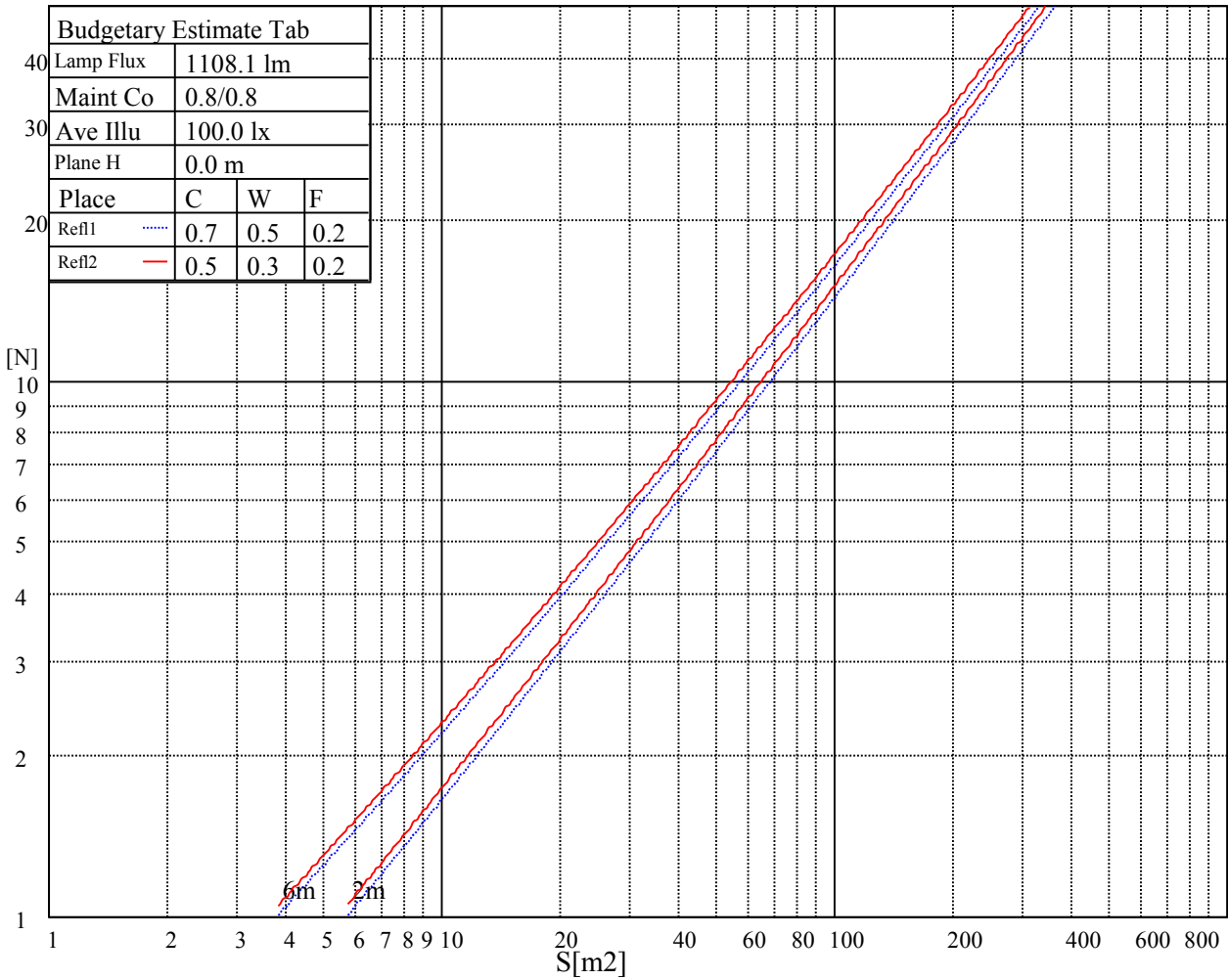
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

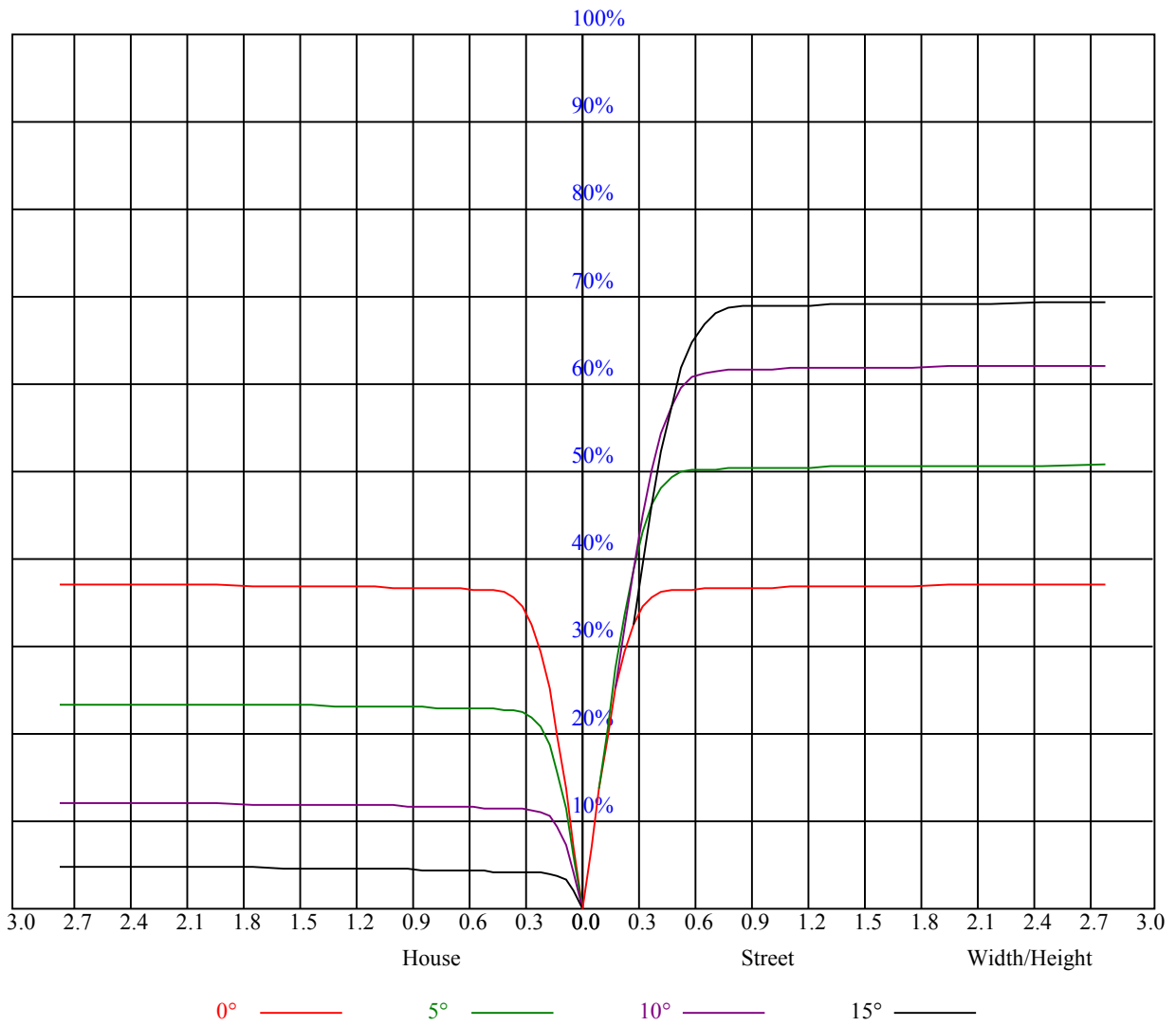
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

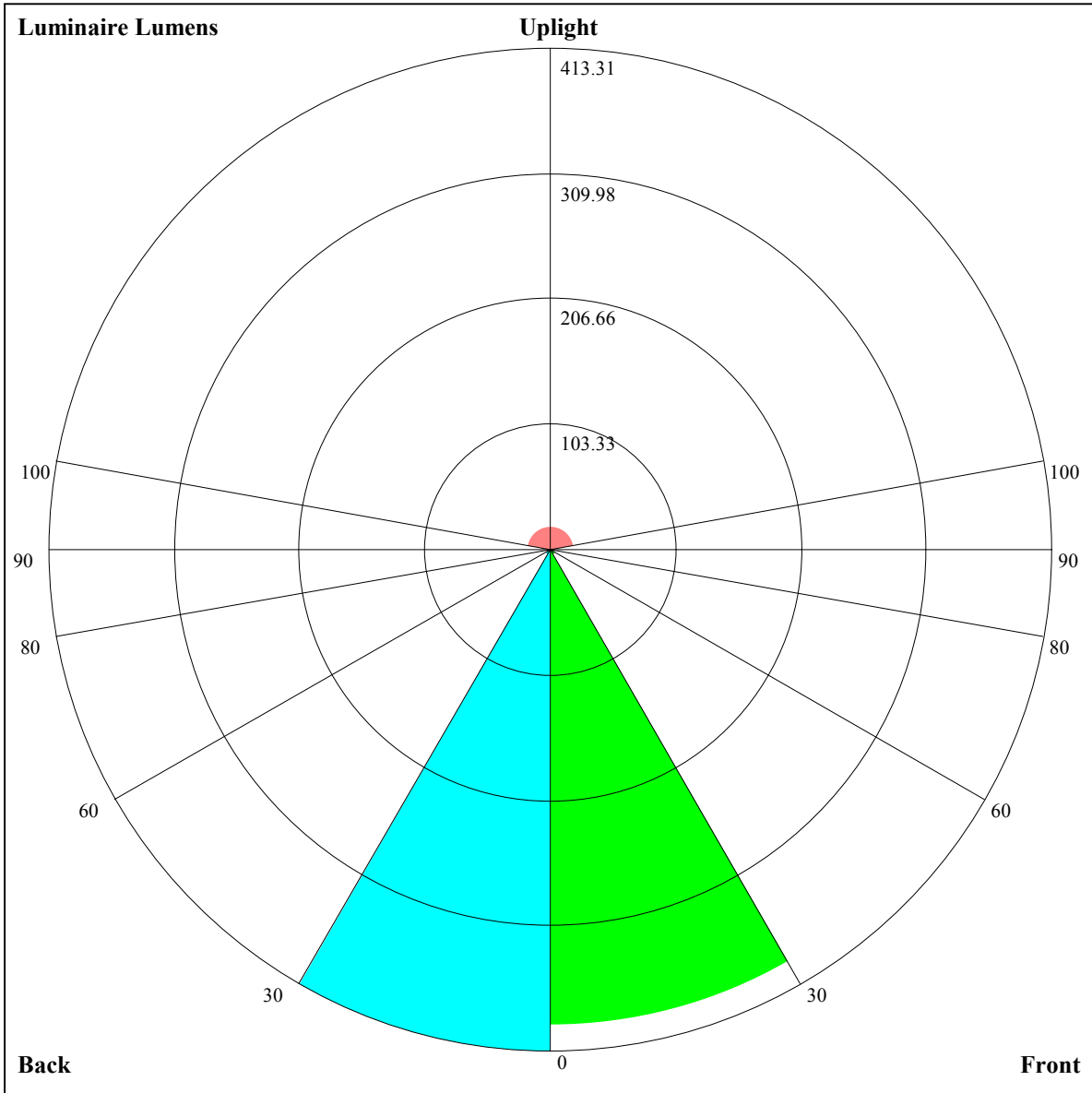
Luminance Limiting Curve





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	0.89	0.89	0.89	0.87	0.87	0.87	0.83	0.83	0.83	0.79	0.79	0.79	0.76	0.76	0.76	0.75
1	0.84	0.83	0.82	0.83	0.81	0.80	0.80	0.79	0.78	0.77	0.76	0.75	0.74	0.74	0.73	0.72
2	0.80	0.78	0.76	0.79	0.77	0.76	0.77	0.75	0.74	0.75	0.74	0.72	0.73	0.72	0.71	0.70
3	0.77	0.75	0.73	0.76	0.74	0.72	0.75	0.73	0.71	0.73	0.71	0.70	0.71	0.70	0.69	0.68
4	0.75	0.72	0.70	0.74	0.71	0.69	0.72	0.70	0.68	0.71	0.69	0.68	0.70	0.68	0.67	0.66
5	0.72	0.69	0.67	0.71	0.69	0.67	0.70	0.68	0.66	0.69	0.67	0.66	0.68	0.66	0.65	0.64
6	0.70	0.67	0.65	0.69	0.67	0.65	0.68	0.66	0.64	0.68	0.65	0.64	0.67	0.65	0.63	0.63
7	0.68	0.65	0.63	0.68	0.65	0.63	0.67	0.64	0.63	0.66	0.64	0.62	0.65	0.63	0.62	0.61
8	0.66	0.63	0.61	0.66	0.63	0.61	0.65	0.63	0.61	0.64	0.62	0.61	0.64	0.62	0.60	0.60
9	0.64	0.62	0.60	0.64	0.61	0.60	0.64	0.61	0.59	0.63	0.61	0.59	0.63	0.61	0.59	0.58
10	0.63	0.60	0.58	0.63	0.60	0.58	0.62	0.60	0.58	0.62	0.59	0.58	0.61	0.59	0.58	0.57





Luminaire Lumens:

FL=392.12,FM=5.48,FH=4.13,FVH=2.09

BL=413.31,BM=5.45,BH=4.08,BVH=2.09

UL=4.13,UH=19.68

BUG Rating:B1-U2-G0



NATA 1-1008-M

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	3747.94	3733.31	3700.69	3653.44	3577.50	3477.94	3370.50	3227.06	3082.50
45.0	3755.25	3750.19	3716.44	3670.88	3606.19	3506.63	3411.56	3303.56	3173.63
90.0	3754.13	3746.25	3719.25	3672.56	3615.75	3524.63	3432.38	3319.88	3177.56
135.0	3744.00	3751.88	3746.81	3728.81	3695.63	3630.94	3557.81	3461.63	3331.13
180.0	3747.94	3746.25	3729.94	3686.63	3634.88	3566.81	3468.94	3345.75	3215.81
225.0	3755.25	3740.63	3696.75	3629.25	3555.00	3459.38	3369.94	3255.75	3113.44
270.0	3754.13	3747.94	3706.88	3652.31	3580.88	3481.88	3363.75	3245.06	3094.31
315.0	3744.00	3723.75	3685.50	3612.38	3533.63	3435.75	3302.44	3145.50	2984.06
360.0	3747.94	3733.31	3700.69	3653.44	3577.50	3477.94	3370.50	3227.06	3082.50
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	2899.13	2692.69	2493.00	2279.25	1996.31	1764.00	1540.69	1270.13	1069.31
45.0	3023.44	2861.44	2644.31	2436.19	2188.69	1931.63	1705.50	1461.38	1229.63
90.0	3036.38	2853.56	2642.06	2437.31	2191.50	1933.31	1703.25	1483.31	1111.50
135.0	3178.13	3017.81	2812.50	2613.38	2373.19	2121.19	1893.94	1643.63	1401.19
180.0	3048.19	2854.69	2663.44	2430.56	2210.06	1951.88	1695.38	1475.44	1106.49
225.0	2954.25	2745.00	2509.88	2283.19	2048.63	1759.50	1536.19	1239.75	1081.80
270.0	2918.81	2739.94	2512.69	2290.50	2028.38	1764.56	1539.56	1320.75	1067.06
315.0	2779.88	2552.06	2333.25	2079.56	1850.63	1598.06	1355.06	1120.16	951.36
360.0	2899.13	2692.69	2493.00	2279.25	1996.31	1764.00	1540.69	1270.13	1069.31
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	882.56	691.31	522.00	386.44	309.94	148.16	80.10	39.21	14.18
45.0	1035.56	854.44	646.31	491.63	360.00	290.25	135.34	65.87	25.99
90.0	1014.30	828.11	660.49	480.54	352.07	243.11	138.09	71.83	28.18
135.0	1188.56	1012.50	765.00	597.38	457.88	292.50	224.04	110.98	50.23
180.0	1009.29	821.48	651.60	468.96	341.10	230.57	123.58	65.19	28.74
225.0	877.11	704.42	524.42	385.54	279.39	161.61	85.28	33.64	16.31
270.0	877.50	708.19	521.44	385.88	293.63	158.96	78.02	31.28	15.02
315.0	730.58	572.34	428.29	276.02	176.29	98.10	39.71	16.09	11.70
360.0	882.56	691.31	522.00	386.44	309.94	148.16	80.10	39.21	14.18
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	10.52	9.06	8.04	7.48	6.92	6.47	6.08	5.85	5.57
45.0	11.70	9.51	8.44	7.59	7.03	6.58	6.24	5.96	5.74
90.0	13.44	10.01	8.72	7.76	7.09	6.53	6.13	5.85	5.57
135.0	21.04	13.78	10.18	8.66	7.54	6.86	6.41	6.02	5.74
180.0	14.79	11.25	8.89	7.59	6.98	6.47	6.02	5.79	5.51
225.0	12.26	9.96	8.44	7.71	7.14	6.58	6.19	5.91	5.68
270.0	11.42	9.45	8.38	7.65	7.03	6.64	6.24	5.96	5.68
315.0	9.68	8.49	7.76	7.14	6.69	6.24	5.96	5.68	5.51
360.0	10.52	9.06	8.04	7.48	6.92	6.47	6.08	5.85	5.57
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	5.34	5.23	5.06	4.95	4.89	4.78	4.67	4.61	4.50
45.0	5.51	5.34	5.18	5.06	4.95	4.84	4.78	4.73	4.67
90.0	5.40	5.23	5.06	4.89	4.84	4.78	4.67	4.61	4.56
135.0	5.51	5.34	5.12	5.01	4.89	4.78	4.73	4.61	4.56
180.0	5.29	5.12	5.01	4.84	4.78	4.67	4.61	4.50	4.44
225.0	5.46	5.23	5.12	4.95	4.89	4.78	4.67	4.61	4.56
270.0	5.46	5.29	5.12	5.01	4.89	4.78	4.78	4.67	4.61
315.0	5.29	5.18	5.06	4.89	4.84	4.78	4.73	4.67	4.61
360.0	5.34	5.23	5.06	4.95	4.89	4.78	4.67	4.61	4.50

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	4.50	4.44	4.44	4.44	4.39	4.33	4.28	4.28	4.28
45.0	4.56	4.50	4.50	4.44	4.39	4.33	4.33	4.33	4.28
90.0	4.50	4.39	4.39	4.39	4.33	4.28	4.28	4.22	4.22
135.0	4.50	4.44	4.39	4.39	4.33	4.33	4.33	4.28	4.22
180.0	4.39	4.33	4.33	4.28	4.28	4.22	4.16	4.16	4.11
225.0	4.50	4.44	4.39	4.39	4.33	4.28	4.28	4.28	4.22
270.0	4.56	4.50	4.50	4.44	4.44	4.33	4.33	4.33	4.28
315.0	4.56	4.50	4.44	4.44	4.39	4.39	4.33	4.33	4.33
360.0	4.50	4.44	4.44	4.44	4.39	4.33	4.28	4.28	4.28
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	4.22	4.22	4.22	4.16	4.16	4.11	4.11	4.05	4.11
45.0	4.22	4.22	4.22	4.22	4.16	4.16	4.16	4.11	4.11
90.0	4.16	4.16	4.11	4.11	4.11	4.11	4.05	4.05	4.05
135.0	4.22	4.16	4.16	4.16	4.16	4.11	4.11	4.11	4.11
180.0	4.11	4.11	4.11	4.05	4.05	3.99	4.05	3.99	3.99
225.0	4.16	4.16	4.11	4.11	4.11	4.05	4.05	3.99	4.05
270.0	4.28	4.28	4.28	4.22	4.22	4.22	4.16	4.16	4.11
315.0	4.28	4.28	4.22	4.28	4.22	4.22	4.22	4.22	4.22
360.0	4.22	4.22	4.22	4.16	4.16	4.11	4.11	4.05	4.11
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	4.11	4.11	4.05	4.05	3.99	3.99	4.05	3.99	3.99
45.0	4.05	4.05	4.05	4.05	4.05	3.99	3.99	3.99	3.99
90.0	3.99	3.99	3.99	4.05	4.05	3.99	3.94	3.94	3.94
135.0	4.11	4.11	4.05	4.11	4.11	4.11	4.05	4.05	4.05
180.0	3.99	3.99	3.94	3.99	3.94	3.94	3.94	3.94	3.94
225.0	4.05	3.99	3.99	3.99	3.94	3.99	3.94	3.94	3.94
270.0	4.11	4.11	4.05	4.05	4.11	4.05	4.05	3.99	3.99
315.0	4.22	4.22	4.22	4.16	4.16	4.16	4.16	4.16	4.16
360.0	4.11	4.11	4.05	4.05	3.99	3.99	4.05	3.99	3.99
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	3.99	3.99	3.99	3.99	3.99	3.94	3.94	3.88	3.88
45.0	3.99	3.99	3.94	3.99	3.94	3.94	3.94	3.94	3.94
90.0	3.99	3.94	3.94	3.94	3.94	3.94	3.88	3.88	3.88
135.0	4.05	4.05	4.05	4.05	4.05	4.05	3.94	3.94	3.83
180.0	3.94	3.94	3.94	3.94	3.94	3.88	3.88	3.88	3.83
225.0	3.94	3.94	3.94	3.88	3.94	3.94	3.88	3.88	3.88
270.0	4.05	3.99	3.99	3.99	3.94	3.94	3.88	3.94	3.88
315.0	4.16	4.16	4.16	4.11	4.11	4.05	4.05	3.94	3.83
360.0	3.99	3.99	3.99	3.99	3.99	3.94	3.94	3.88	3.88
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	3.83	3.83	3.77	3.77	3.77	3.83	3.77	3.77	3.71
45.0	3.94	3.88	3.88	3.88	3.83	3.88	3.83	3.83	3.88
90.0	3.88	3.88	3.88	3.88	3.88	3.88	3.83	3.83	3.77
135.0	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.77	3.83
180.0	3.77	3.77	3.77	3.77	3.71	3.77	3.71	3.71	3.71
225.0	3.88	3.88	3.88	3.88	3.88	3.83	3.88	3.83	3.88
270.0	3.94	3.88	3.88	3.83	3.83	3.88	3.88	3.83	3.77
315.0	3.83	3.83	3.83	3.83	3.83	3.77	3.83	3.77	3.77
360.0	3.83	3.83	3.77	3.77	3.77	3.83	3.77	3.77	3.71

Intensity data(cd)

C/γ(°)	90.0
0.0	3.77
45.0	3.83
90.0	3.83
135.0	3.77
180.0	3.71
225.0	3.83
270.0	3.83
315.0	3.77
360.0	3.77