
NATA

LumCAT: 2-1538-A	
Luminaire: 99.02.73.180 + 92.76.323.00	
Report No: 201610029	Voltage(V): 36.4000
Test No: 201600029	Current(A): 0.8000
LampCAT: CREE CXA1830	Power (W): 29.2000
Lamp flux(lm): 2002.0	PF: 0.8960
Number of Lamps: 1	Ballast type: DC
Length(mm): 0	Width(mm): 0
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1836.94
Efficiency(%): 91.76%
Lumens(lm)/Power(W): 62.91
Central intensity(cd): 1985.884
Maximum intensity(cd): 1985.884
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=62.9
[C90/270]Total=63.0
Field angle(10%Imax): [C0/180]Total=83.0
[C90/270]Total=83.6
Maximum s/h(1/2): C0_180=0.97 C90_270=0.97
Maximum s/h(1/4): C0_180=0.94 C90_270=0.93
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 91.76%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.608%

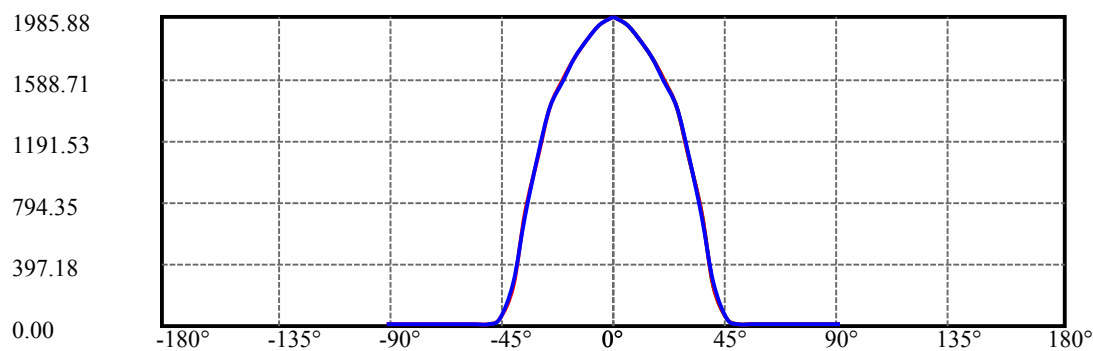
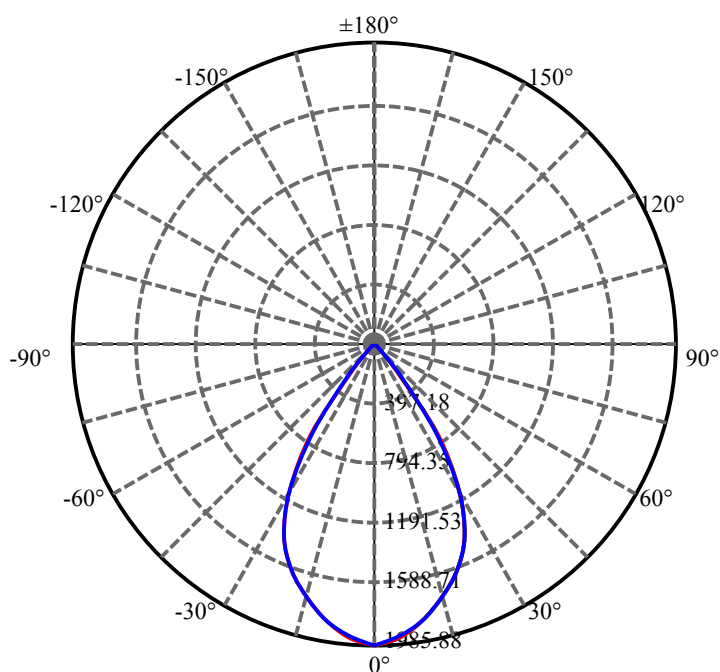
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1981.617	0.000	0	.000%	.000%
5.0	1933.305	46.802	46.802	2.338%	2.548%
10.0	1845.284	135.172	181.974	6.752%	9.906%
15.0	1724.779	211.774	393.748	10.578%	21.435%
20.0	1584.798	272.756	666.503	13.624%	36.283%
25.0	1397.056	312.742	979.245	15.621%	53.308%
30.0	1108.093	317.029	1296.274	15.836%	70.567%
35.0	716.070	268.621	1564.894	13.418%	85.190%
40.0	265.585	163.782	1728.676	8.181%	94.106%
45.0	52.393	58.876	1787.552	2.941%	97.311%
50.0	16.132	13.846	1801.399	.692%	98.065%
55.0	9.828	5.644	1807.043	.282%	98.372%
60.0	8.857	4.319	1811.362	.216%	98.608%
65.0	8.486	4.216	1815.578	.211%	98.837%
70.0	8.231	4.233	1819.811	.211%	99.068%
75.0	8.066	4.260	1824.071	.213%	99.299%
80.0	7.928	4.280	1828.35	.214%	99.532%
85.0	7.866	4.292	1832.642	.214%	99.766%
90.0	7.832	4.298	1836.94	.215%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1296.27	64.75%	70.57%
0-40	1728.68	86.35%	94.11%
0-60	1811.36	90.48%	98.61%
0-90	1832.64	91.54%	99.77%
0-120	1832.64	91.54%	99.77%
0-180	1836.94	91.76%	100.00%
60-90	25.60	1.28%	1.39%
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%
0-33.23	1469.55	73.40%	80.00%

ZONAL LUMEN SUMMARY

0-10	181.97
10-20	484.53
20-30	629.77
30-40	432.40
40-50	72.72
50-60	9.96
60-70	8.45
70-80	8.54
80-90	4.29
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

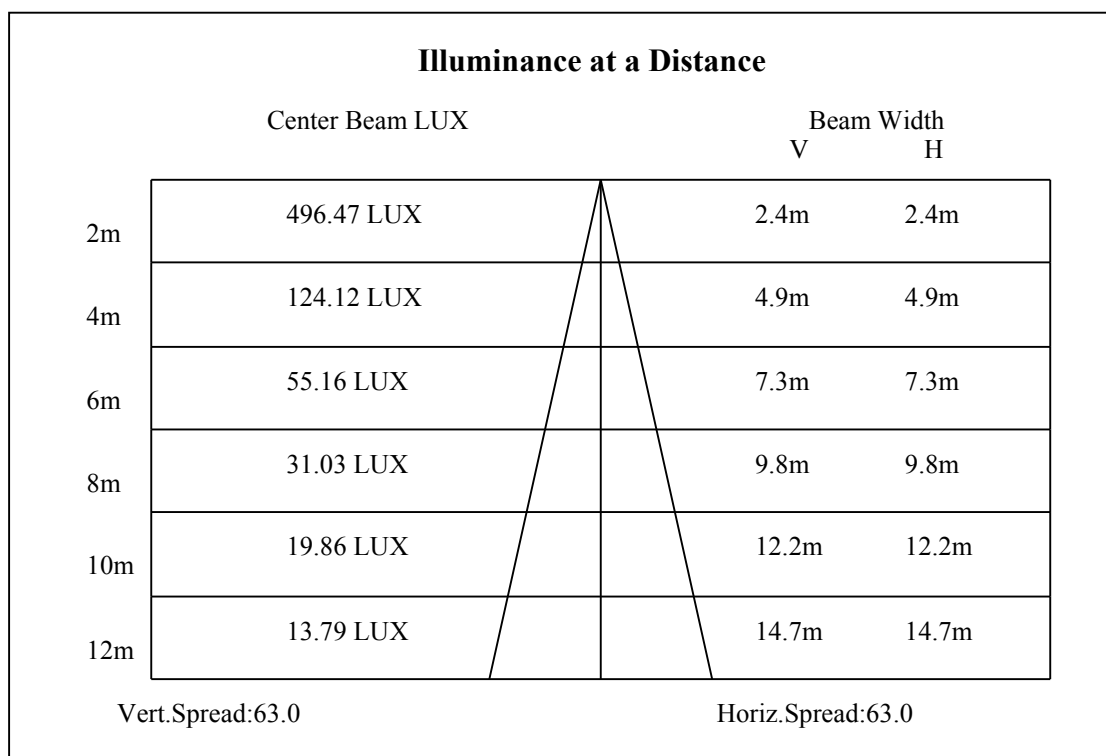
C0(Max): —————C0/C180: —————C90/C270: —————

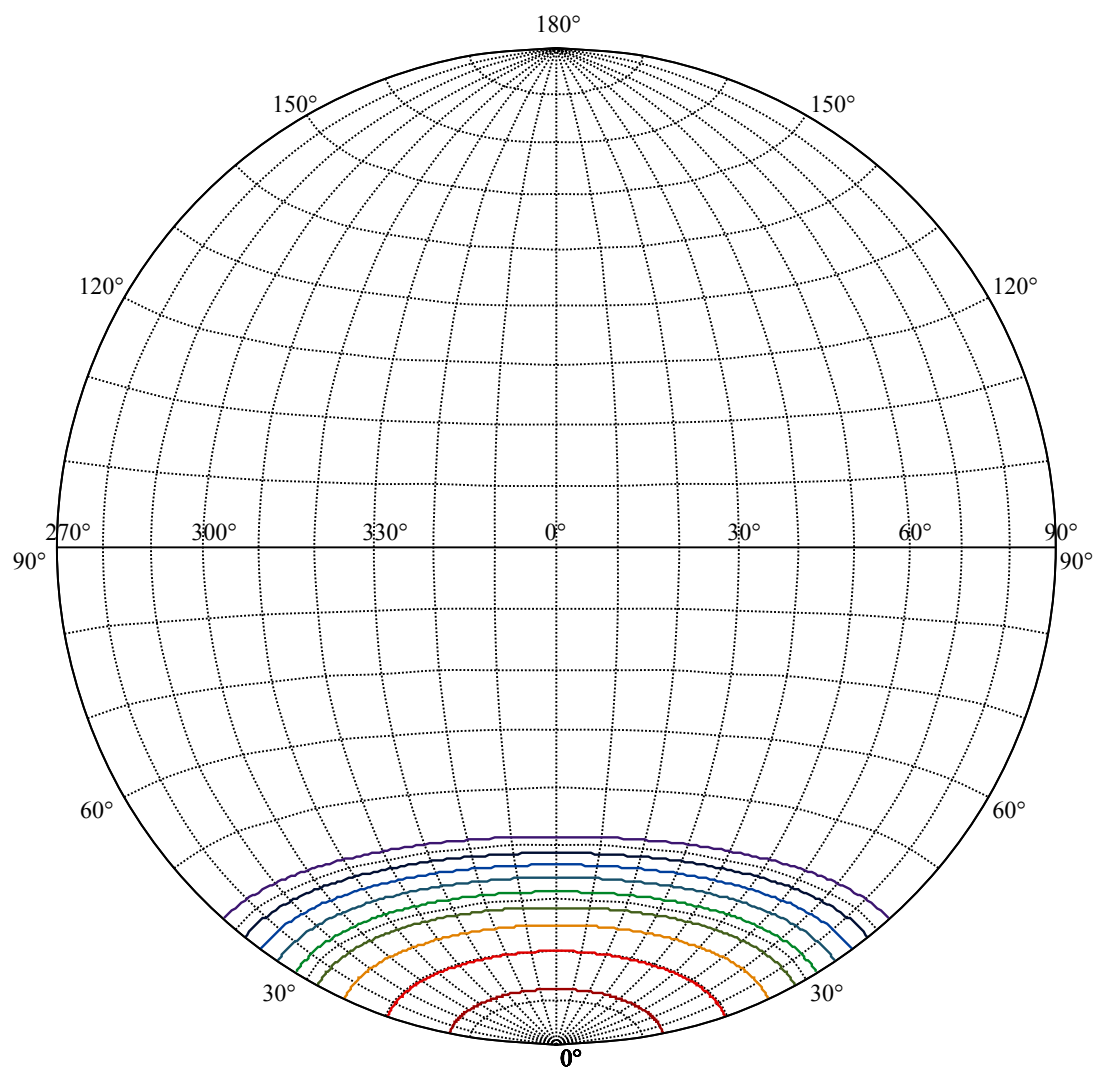
Field angle(10%Imax):C0/180Left:41.5 Right:41.5

:C90/270Left:41.8 Right:41.8

Beam Angle(50%Imax):C0/180Left:31.5 Right:31.5

:C90/270Left:31.5 Right:31.5





House

[Unit:cd]

Road

Imax:1985.88

(10%Imax) 198.864

(20%Imax) 397.727

(30%Imax) 596.591

(40%Imax) 795.455

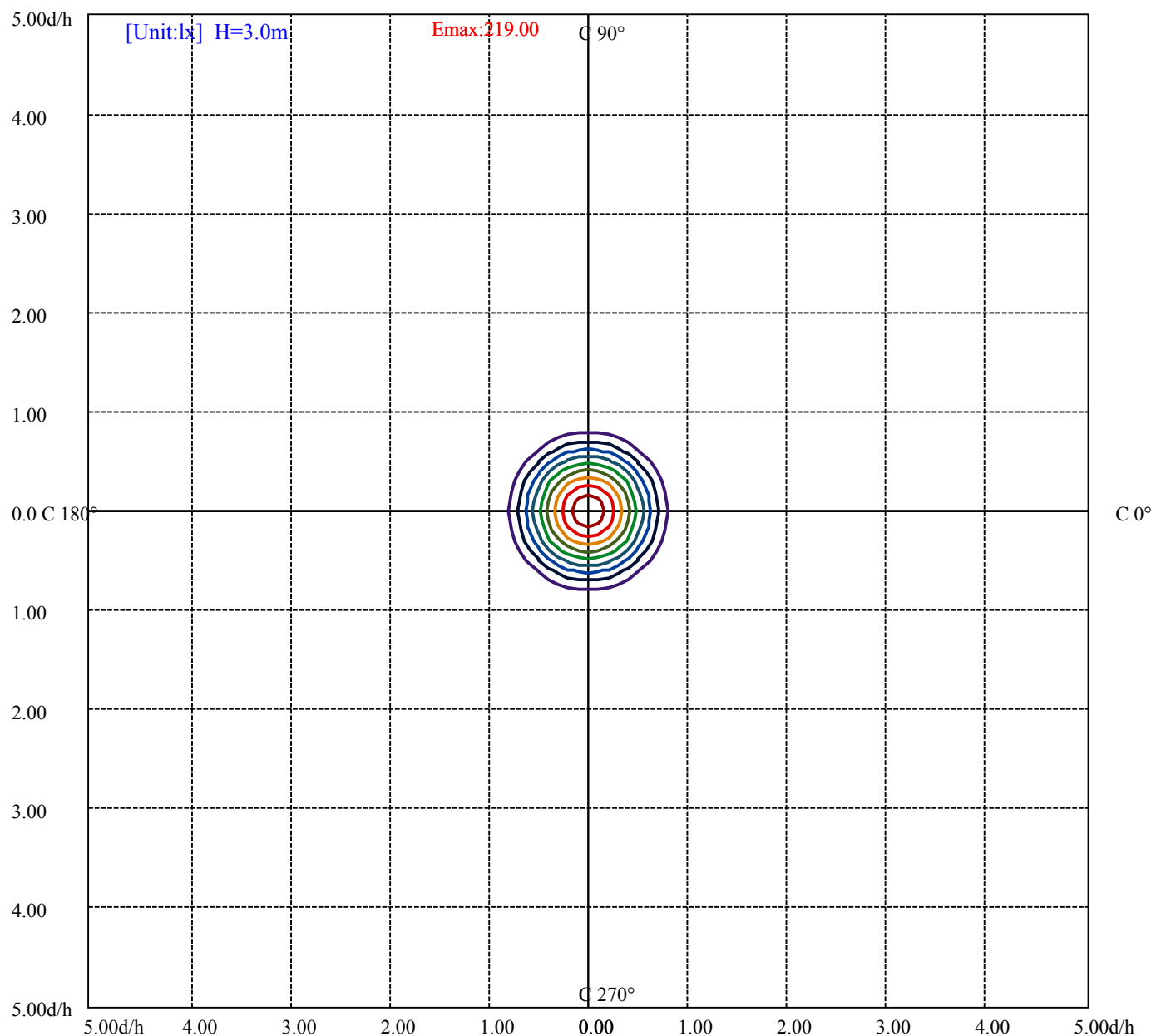
(50%Imax) 994.319

(60%Imax) 1193.18

(70%Imax) 1392.05

(80%Imax) 1590.91

(90%Imax) 1789.77



(10%Emax) 21.90022

(20%Emax) 43.80045

(30%Emax) 65.70067

(40%Emax) 87.60078

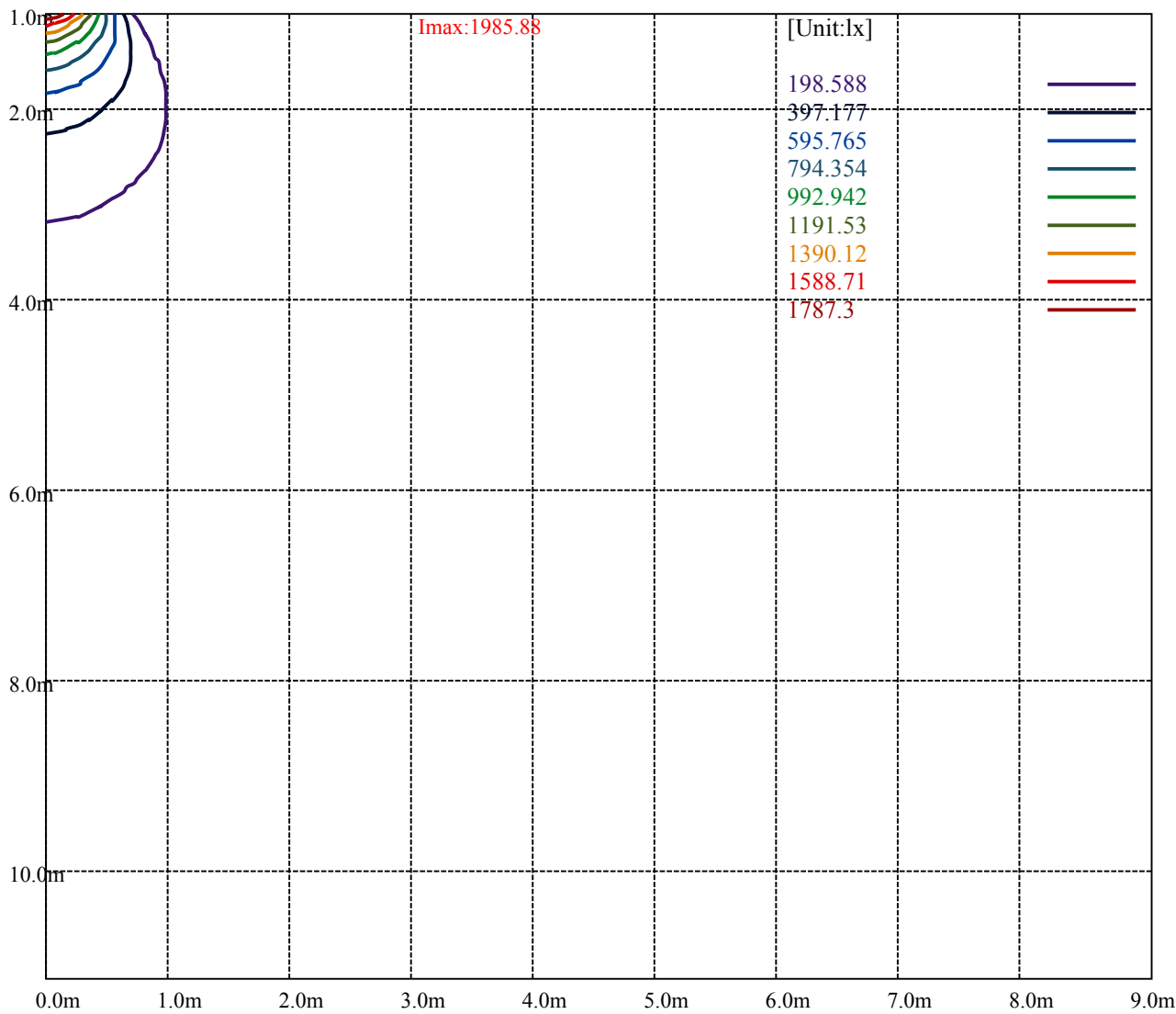
(50%Emax) 109.501

(60%Emax) 131.4011

(70%Emax) 153.3011

(80%Emax) 175.2011

(90%Emax) 197.1022



Luminance Limiting Curve(no luminous side)

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Luminance Table

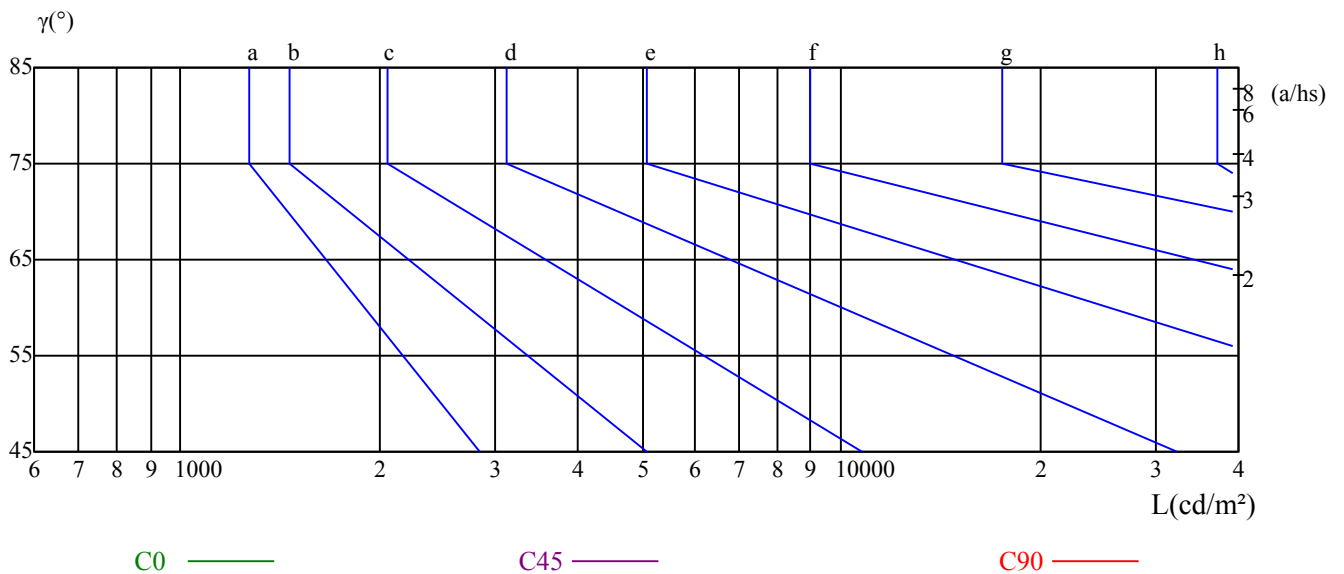
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

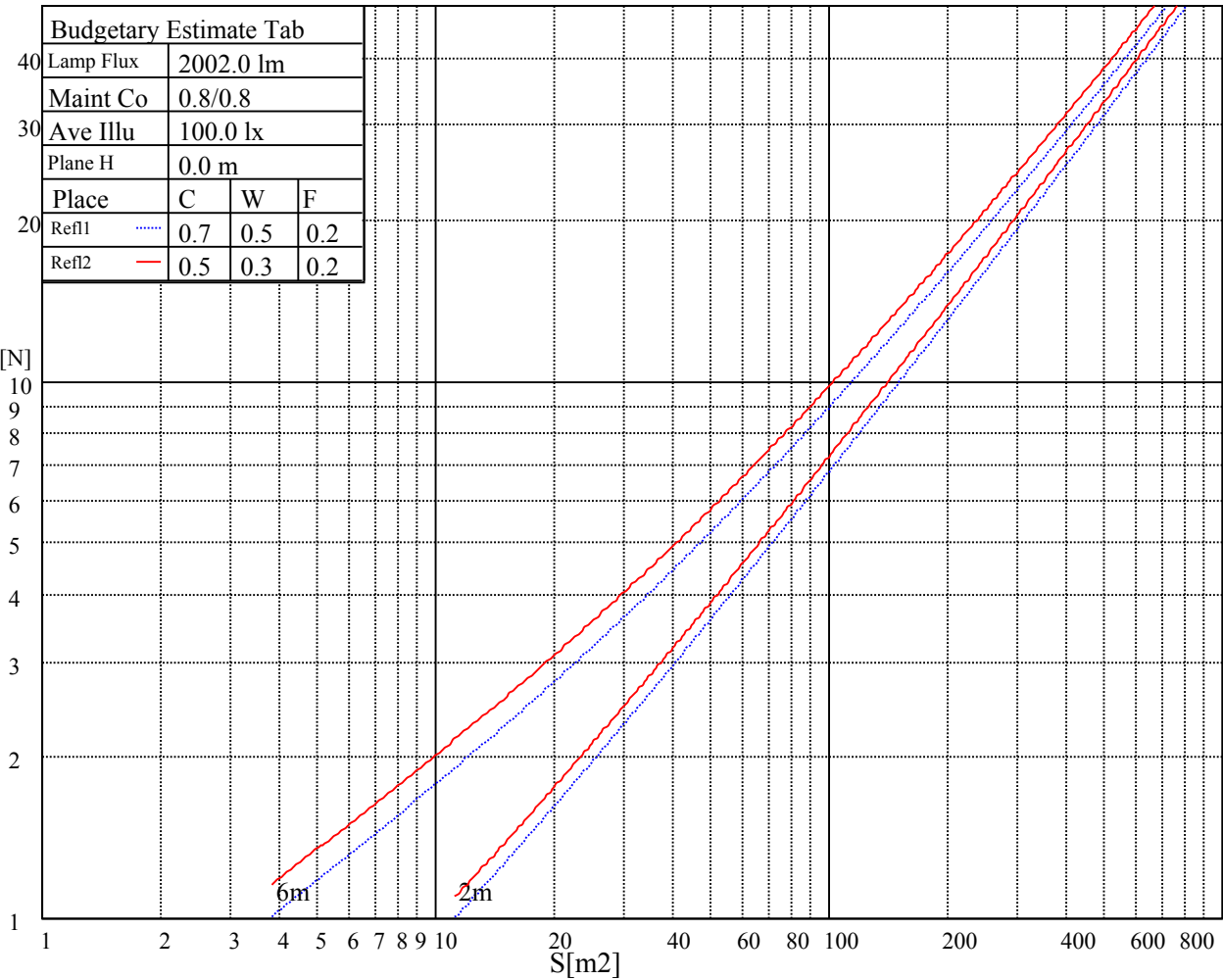
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

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





RHOC	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 RHOF=20 CU															
0	1.09	1.09	1.09	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	1.01	0.99	0.97	0.99	0.97	0.95	0.96	0.94	0.92	0.92	0.91	0.90	0.89	0.88	0.87	0.85
2	0.94	0.90	0.87	0.93	0.89	0.86	0.90	0.87	0.84	0.87	0.85	0.83	0.84	0.82	0.81	0.79
3	0.88	0.83	0.79	0.86	0.82	0.79	0.84	0.81	0.78	0.82	0.79	0.76	0.80	0.77	0.75	0.74
4	0.82	0.77	0.73	0.81	0.76	0.73	0.79	0.75	0.72	0.77	0.74	0.71	0.75	0.72	0.70	0.69
5	0.77	0.71	0.67	0.76	0.71	0.67	0.74	0.70	0.66	0.73	0.69	0.66	0.71	0.68	0.65	0.64
6	0.72	0.66	0.62	0.71	0.66	0.62	0.70	0.65	0.62	0.69	0.64	0.61	0.67	0.64	0.61	0.60
7	0.68	0.62	0.58	0.67	0.62	0.58	0.66	0.61	0.58	0.65	0.61	0.57	0.64	0.60	0.57	0.56
8	0.64	0.58	0.54	0.63	0.58	0.54	0.62	0.57	0.54	0.61	0.57	0.54	0.60	0.56	0.53	0.52
9	0.60	0.55	0.51	0.60	0.54	0.51	0.59	0.54	0.51	0.58	0.54	0.50	0.57	0.53	0.50	0.49
10	0.57	0.51	0.48	0.56	0.51	0.48	0.56	0.51	0.48	0.55	0.50	0.47	0.54	0.50	0.47	0.46

Intensity data(cd)

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C/ γ (°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	1985.88	1952.85	1868.61	1750.79	1617.01	1429.26	1149.58	813.73	327.04
45.0	1971.02	1952.30	1875.77	1774.47	1633.52	1463.40	1216.20	872.09	384.84
90.0	1980.93	1933.03	1837.23	1717.21	1584.52	1407.24	1092.26	688.65	255.63
135.0	1988.64	1933.58	1844.94	1728.22	1594.43	1430.37	1138.02	746.01	278.03
180.0	1985.88	1922.02	1826.22	1697.39	1569.66	1371.45	1056.37	641.74	195.17
225.0	1971.02	1902.20	1811.91	1668.21	1523.41	1313.65	1007.97	542.14	148.05
270.0	1980.93	1931.93	1853.20	1741.98	1581.22	1392.93	1125.90	727.30	300.61
315.0	1988.64	1938.54	1844.39	1719.96	1574.61	1368.15	1078.44	696.90	235.31
360.0	1985.88	1952.85	1868.61	1750.79	1617.01	1429.26	1149.58	813.73	327.04
C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	60.62	18.72	10.13	8.86	8.48	8.26	8.09	7.98	7.87
45.0	70.97	19.16	10.08	8.97	8.59	8.31	8.15	7.98	7.93
90.0	53.35	16.46	9.86	8.86	8.53	8.26	8.09	7.93	7.87
135.0	50.71	15.42	9.86	8.97	8.64	8.31	8.09	7.98	7.87
180.0	41.51	13.98	9.52	8.81	8.42	8.20	8.04	7.87	7.82
225.0	36.78	12.94	9.30	8.64	8.31	8.09	7.98	7.87	7.82
270.0	54.89	15.53	9.74	8.81	8.48	8.20	8.04	7.93	7.87
315.0	50.32	16.85	10.13	8.92	8.42	8.20	8.04	7.87	7.87
360.0	60.62	18.72	10.13	8.86	8.48	8.26	8.09	7.98	7.87
C/ γ (°)	90.0								
0.0	7.82								
45.0	7.82								
90.0	7.87								
135.0	7.82								
180.0	7.82								
225.0	7.82								
270.0	7.87								
315.0	7.82								
360.0	7.82								