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## Nata

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Client:

LumCAT: 2-2184-M

Luminaire: BJB 47.360.5080

Report No: nt0100

Voltage(V): 35.0600

Test No: GC2020031903

Current(A): 0.5040

LampCAT: LUMILEDS LUXEON 1205

Power (W): 17.6700

Lamp flux(lm): 2448.0

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): 1908.88, Efficiency(%): 77.98% , Luminous Efficacy(lm/W): 108.03

Central intensity(cd): 10582.310, Maximum intensity(cd): 10582.310

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

Beam Angle(50%Imax): [C0/180]Total=23.2

[C90/270]Total=23.2

Field angle(10%Imax): [C0/180]Total=41.2

[C90/270]Total=41.2

Maximum s/h(1/2): C0\_180=0.39 C90\_270=0.39

Maximum s/h(1/4): C0\_180=0.39 C90\_270=0.39

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 77.98%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 97.912%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	10582.313	0.000	0	.000%	.000%
1.0	10548.141	10.111	10.111	.413%	.530%
2.0	10426.711	30.105	40.216	1.230%	2.107%
3.0	10185.398	49.297	89.513	2.014%	4.689%
4.0	9874.055	67.145	156.658	2.743%	8.207%
5.0	9479.039	83.256	239.914	3.401%	12.568%
6.0	8938.336	96.788	336.703	3.954%	17.639%
7.0	8321.977	107.134	443.837	4.376%	23.251%
8.0	7727.555	114.863	558.701	4.692%	29.268%
9.0	7029.703	119.600	678.3	4.886%	35.534%
10.0	6289.313	120.532	798.832	4.924%	41.848%
11.0	5649.398	119.292	918.125	4.873%	48.098%
12.0	5002.875	116.445	1034.569	4.757%	54.198%
13.0	4318.945	110.627	1145.196	4.519%	59.993%
14.0	3757.500	103.378	1248.573	4.223%	65.409%
15.0	3233.602	95.977	1344.55	3.921%	70.437%
16.0	2723.133	87.283	1431.833	3.565%	75.009%
17.0	2285.859	78.003	1509.837	3.186%	79.095%
18.0	1870.179	68.524	1578.361	2.799%	82.685%
19.0	1536.581	59.271	1637.631	2.421%	85.790%
20.0	1231.734	50.668	1688.299	2.070%	88.444%
21.0	962.831	42.140	1730.439	1.721%	90.652%
22.0	717.933	33.776	1764.215	1.380%	92.421%
23.0	523.392	26.046	1790.261	1.064%	93.786%
24.0	351.949	19.138	1809.399	.782%	94.788%
25.0	209.363	12.763	1822.162	.521%	95.457%
26.0	123.694	7.862	1830.024	.321%	95.869%
27.0	62.648	4.559	1834.583	.186%	96.108%
28.0	29.714	2.338	1836.922	.096%	96.230%
29.0	23.477	1.392	1838.313	.057%	96.303%
30.0	20.911	1.198	1839.512	.049%	96.366%
31.0	18.788	1.105	1840.616	.045%	96.424%
32.0	17.416	1.037	1841.654	.042%	96.478%
33.0	16.390	0.996	1842.65	.041%	96.530%
34.0	15.448	0.963	1843.613	.039%	96.581%
35.0	14.759	0.938	1844.551	.038%	96.630%
36.0	14.245	0.923	1845.475	.038%	96.678%
37.0	13.753	0.913	1846.388	.037%	96.726%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	13.373	0.905	1847.293	.037%	96.774%
39.0	13.092	0.903	1848.197	.037%	96.821%
40.0	12.832	0.904	1849.101	.037%	96.868%
41.0	12.649	0.907	1850.008	.037%	96.916%
42.0	12.509	0.914	1850.922	.037%	96.964%
43.0	12.389	0.922	1851.844	.038%	97.012%
44.0	12.284	0.931	1852.776	.038%	97.061%
45.0	12.213	0.941	1853.717	.038%	97.110%
46.0	12.108	0.951	1854.668	.039%	97.160%
47.0	12.038	0.960	1855.629	.039%	97.210%
48.0	11.988	0.971	1856.6	.040%	97.261%
49.0	11.918	0.982	1857.582	.040%	97.313%
50.0	11.869	0.992	1858.573	.041%	97.365%
51.0	11.841	1.003	1859.576	.041%	97.417%
52.0	11.763	1.013	1860.589	.041%	97.470%
53.0	11.735	1.022	1861.611	.042%	97.524%
54.0	11.672	1.032	1862.643	.042%	97.578%
55.0	11.637	1.040	1863.684	.043%	97.632%
56.0	11.609	1.050	1864.734	.043%	97.687%
57.0	11.580	1.060	1865.794	.043%	97.743%
58.0	11.524	1.068	1866.863	.044%	97.799%
59.0	11.482	1.076	1867.938	.044%	97.855%
60.0	11.461	1.084	1869.022	.044%	97.912%
61.0	11.454	1.094	1870.116	.045%	97.969%
62.0	11.468	1.105	1871.22	.045%	98.027%
63.0	11.559	1.120	1872.34	.046%	98.086%
64.0	11.770	1.145	1873.485	.047%	98.146%
65.0	12.023	1.178	1874.662	.048%	98.207%
66.0	12.333	1.215	1875.878	.050%	98.271%
67.0	12.663	1.257	1877.135	.051%	98.337%
68.0	13.191	1.310	1878.444	.053%	98.406%
69.0	13.901	1.382	1879.826	.056%	98.478%
70.0	15.040	1.486	1881.313	.061%	98.556%
71.0	16.481	1.629	1882.942	.067%	98.641%
72.0	17.719	1.778	1884.72	.073%	98.734%
73.0	18.626	1.901	1886.621	.078%	98.834%
74.0	19.160	1.987	1888.607	.081%	98.938%
75.0	19.259	2.030	1890.637	.083%	99.044%

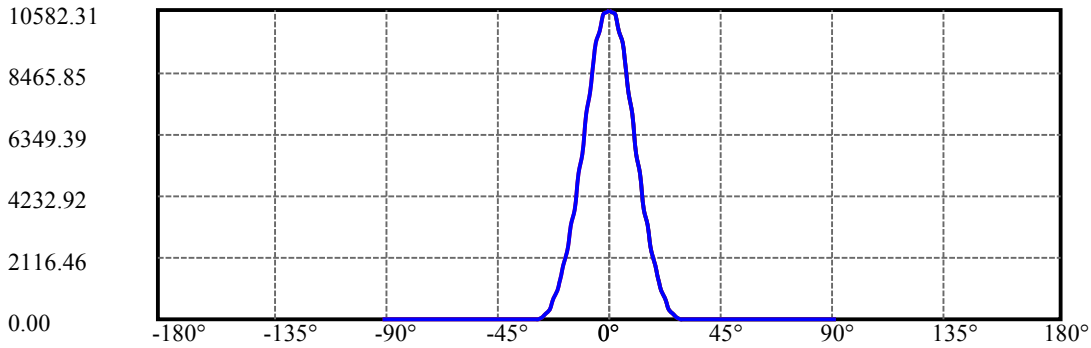
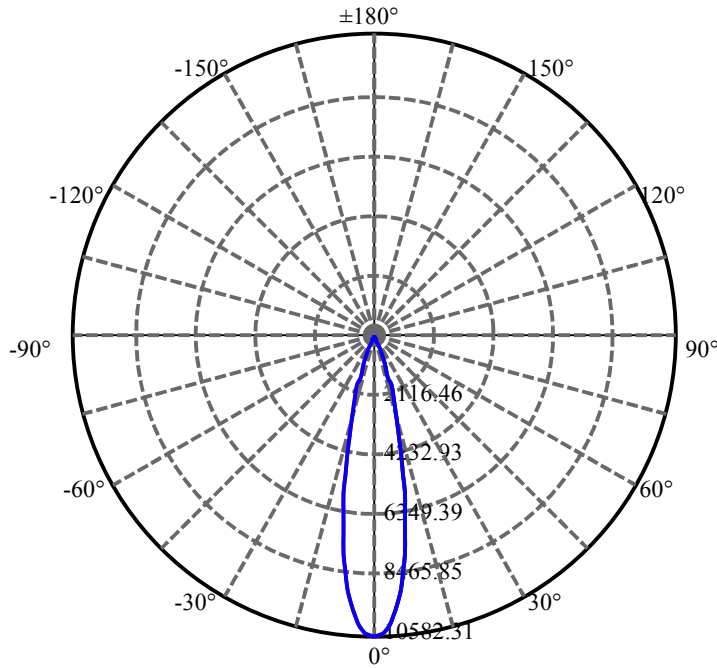
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	18.689	2.014	1892.652	.082%	99.150%
77.0	17.536	1.931	1894.583	.079%	99.251%
78.0	15.905	1.790	1896.373	.073%	99.345%
79.0	13.577	1.584	1897.957	.065%	99.428%
80.0	11.398	1.346	1899.303	.055%	99.498%
81.0	9.942	1.154	1900.458	.047%	99.559%
82.0	9.148	1.035	1901.493	.042%	99.613%
83.0	8.817	0.977	1902.469	.040%	99.664%
84.0	8.634	0.951	1903.42	.039%	99.714%
85.0	8.487	0.934	1904.354	.038%	99.763%
86.0	8.430	0.925	1905.279	.038%	99.811%
87.0	8.367	0.919	1906.198	.038%	99.859%
88.0	8.290	0.912	1907.111	.037%	99.907%
89.0	8.100	0.898	1908.009	.037%	99.954%
90.0	7.798	0.872	1908.881	.036%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1839.51	75.14%	96.37%
0-40	1849.10	75.54%	96.87%
0-60	1869.02	76.35%	97.91%
0-90	1908.01	77.94%	99.95%
0-120	1908.01	77.94%	99.95%
0-180	1908.88	77.98%	100.00%
60-90	40.07	1.64%	2.10%
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%
0-17.25	1527.11	62.38%	80.00%

ZONAL LUMEN SUMMARY

0-10	798.83
10-20	889.47
20-30	151.21
30-40	9.59
40-50	9.47
50-60	10.45
60-70	12.29
70-80	17.99
80-90	8.71
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



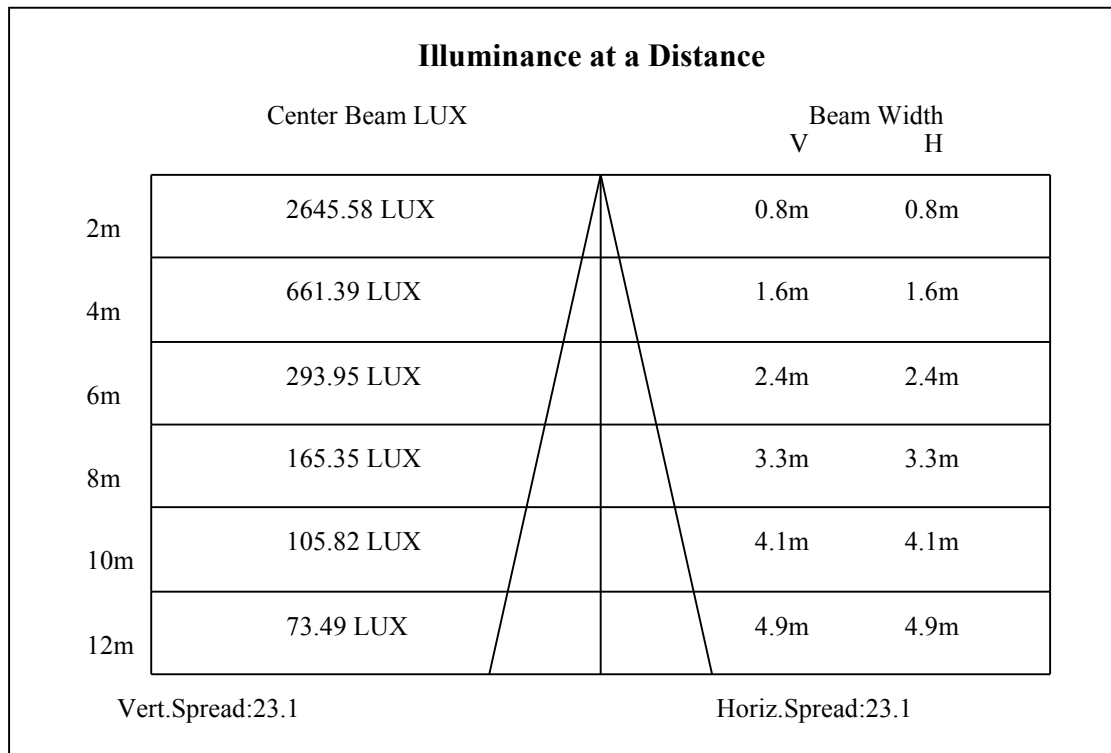
C0(Max): ———

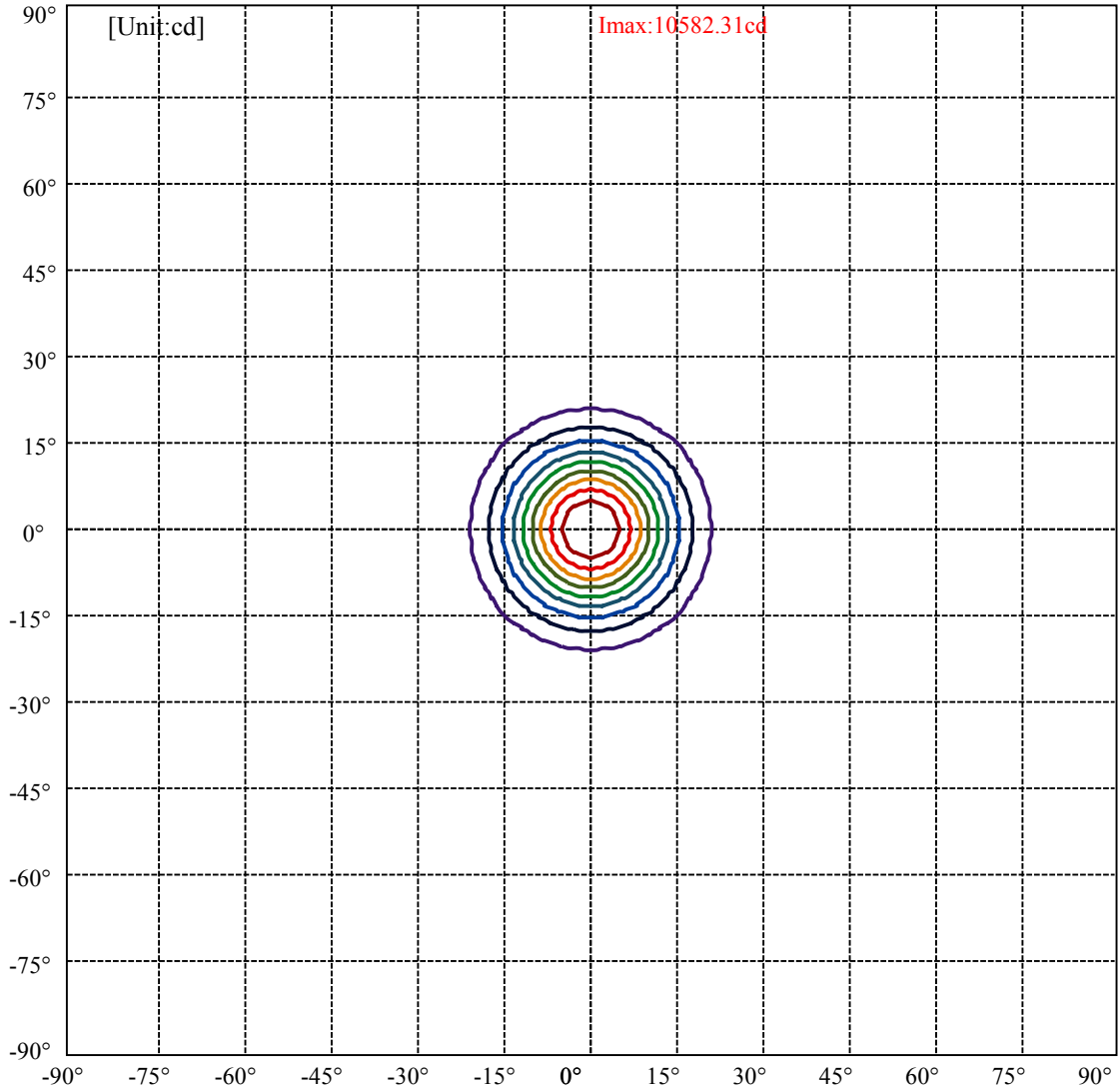
C0/C180: ———

C90/C270: ———

Field angle(10%Imax):C0/180Left:20.6 Right:20.6  
:C90/270Left:20.6 Right:20.6

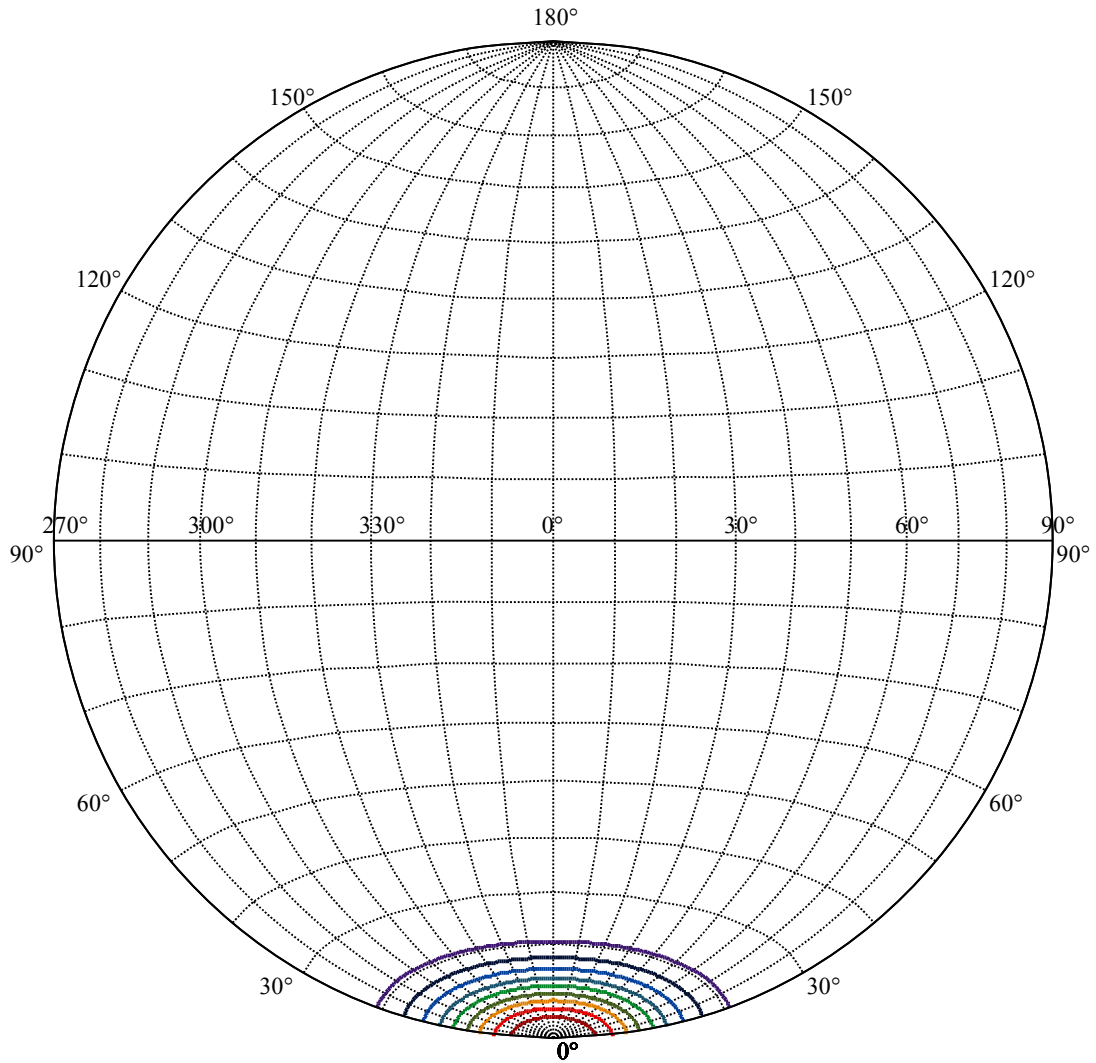
Beam Angle(50%Imax):C0/180Left:11.6 Right:11.6  
:C90/270Left:11.6 Right:11.6





(10%Imax) 1058.23	—
(20%Imax) 2116.46	—
(30%Imax) 3174.69	—
(40%Imax) 4232.92	—
(50%Imax) 5291.16	—
(60%Imax) 6349.39	—
(70%Imax) 7407.62	—
(80%Imax) 8465.85	—
(90%Imax) 9524.08	—





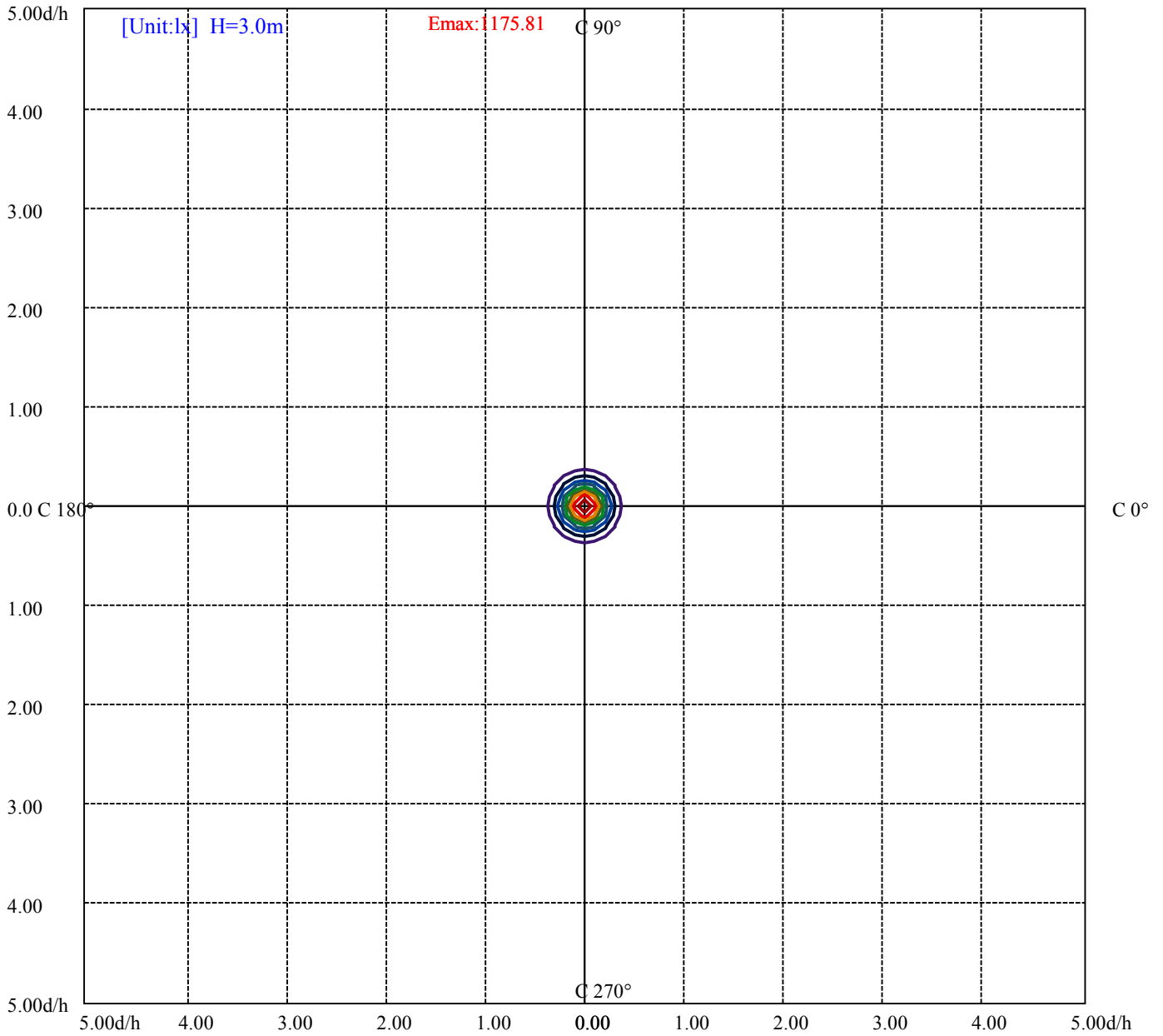
House

[Unit:cd]

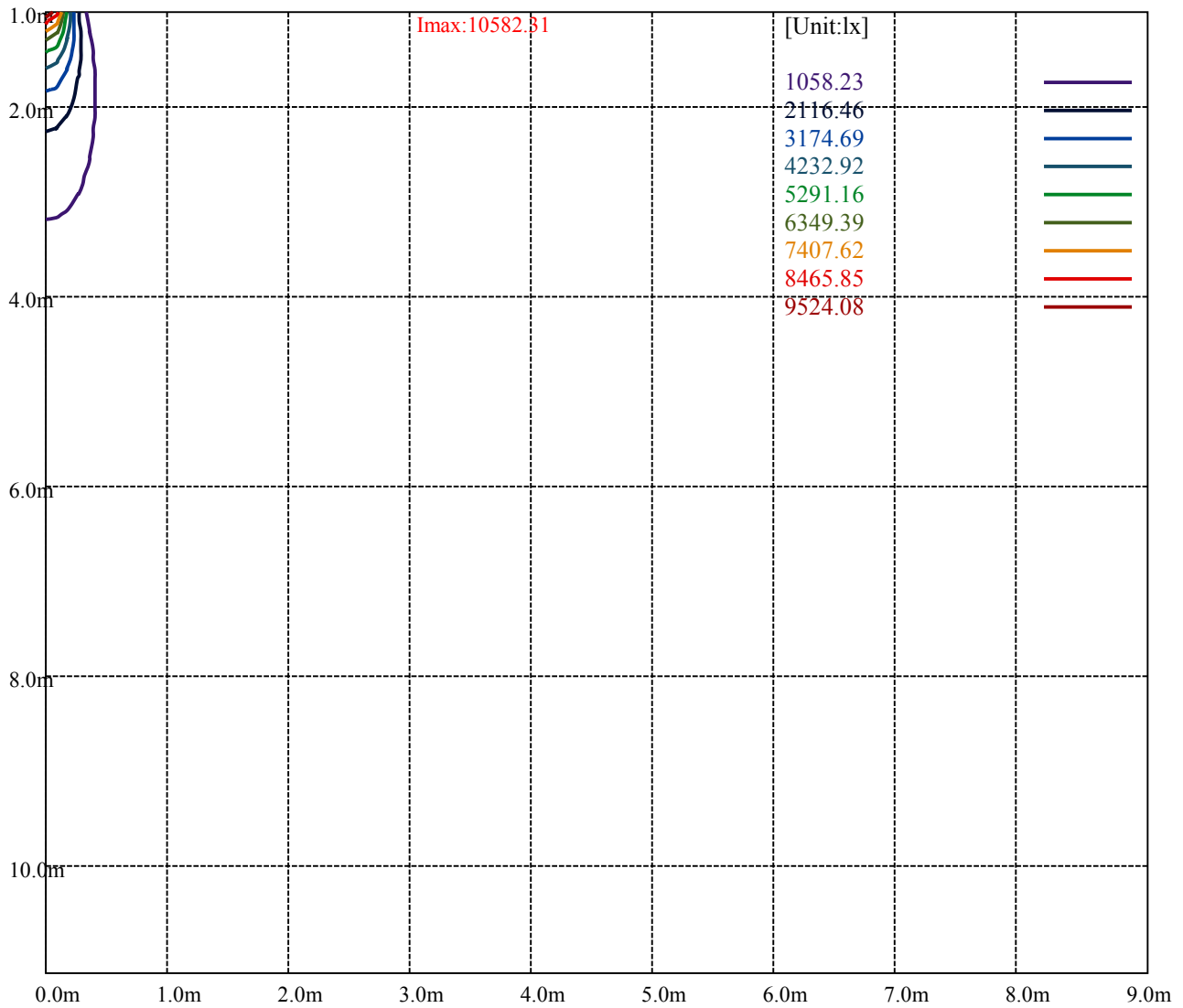
Road

**Imax:10582.31**

(10%Imax) 1058.23	—
(20%Imax) 2116.46	—
(30%Imax) 3174.69	—
(40%Imax) 4232.92	—
(50%Imax) 5291.16	—
(60%Imax) 6349.39	—
(70%Imax) 7407.62	—
(80%Imax) 8465.85	—
(90%Imax) 9524.08	—



- (10%E<sub>max</sub>) 117.5811
- (20%E<sub>max</sub>) 235.1622
- (30%E<sub>max</sub>) 352.7433
- (40%E<sub>max</sub>) 470.3244
- (50%E<sub>max</sub>) 587.9055
- (60%E<sub>max</sub>) 705.4866
- (70%E<sub>max</sub>) 823.0689
- (80%E<sub>max</sub>) 940.65
- (90%E<sub>max</sub>) 1058.231



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

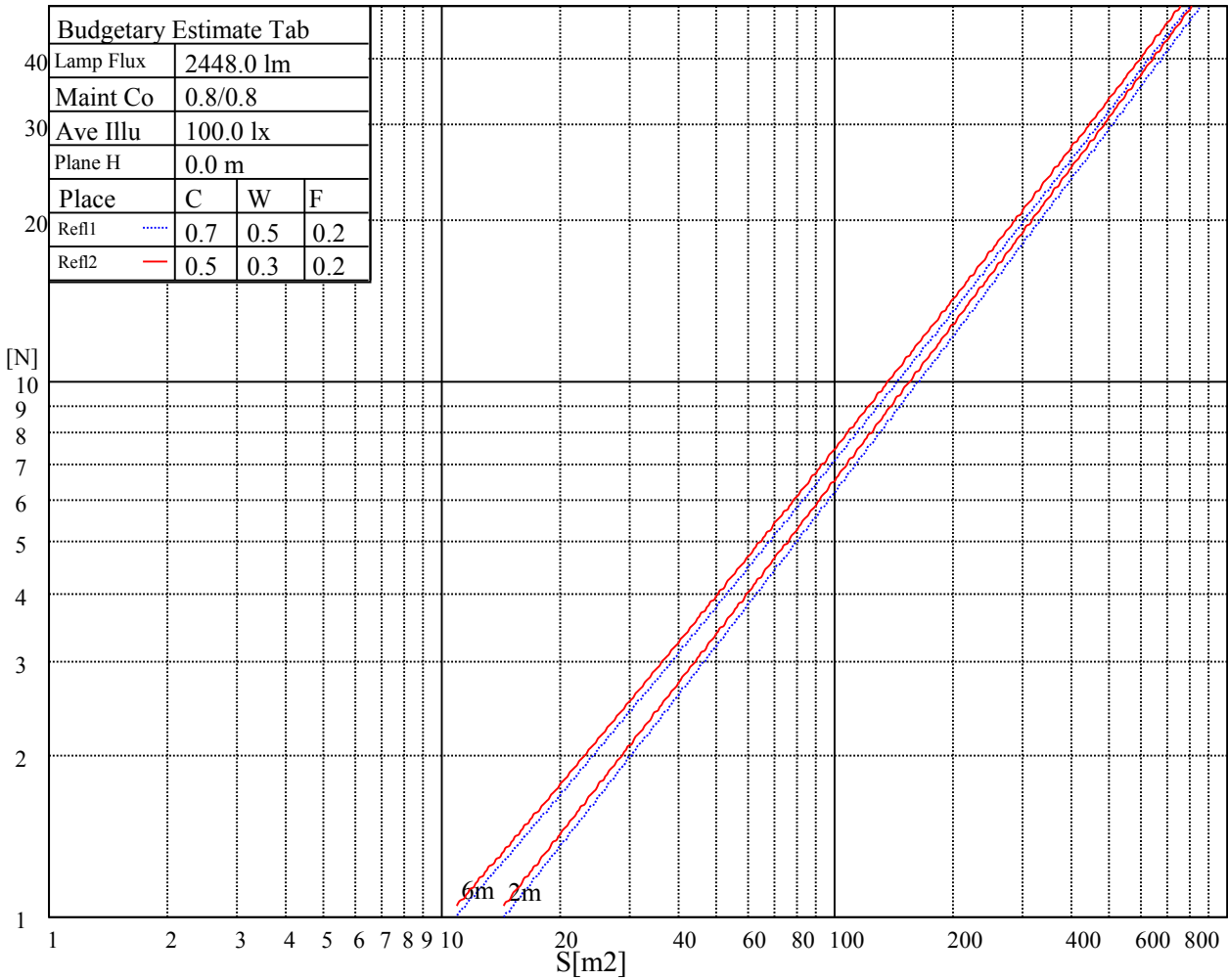
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

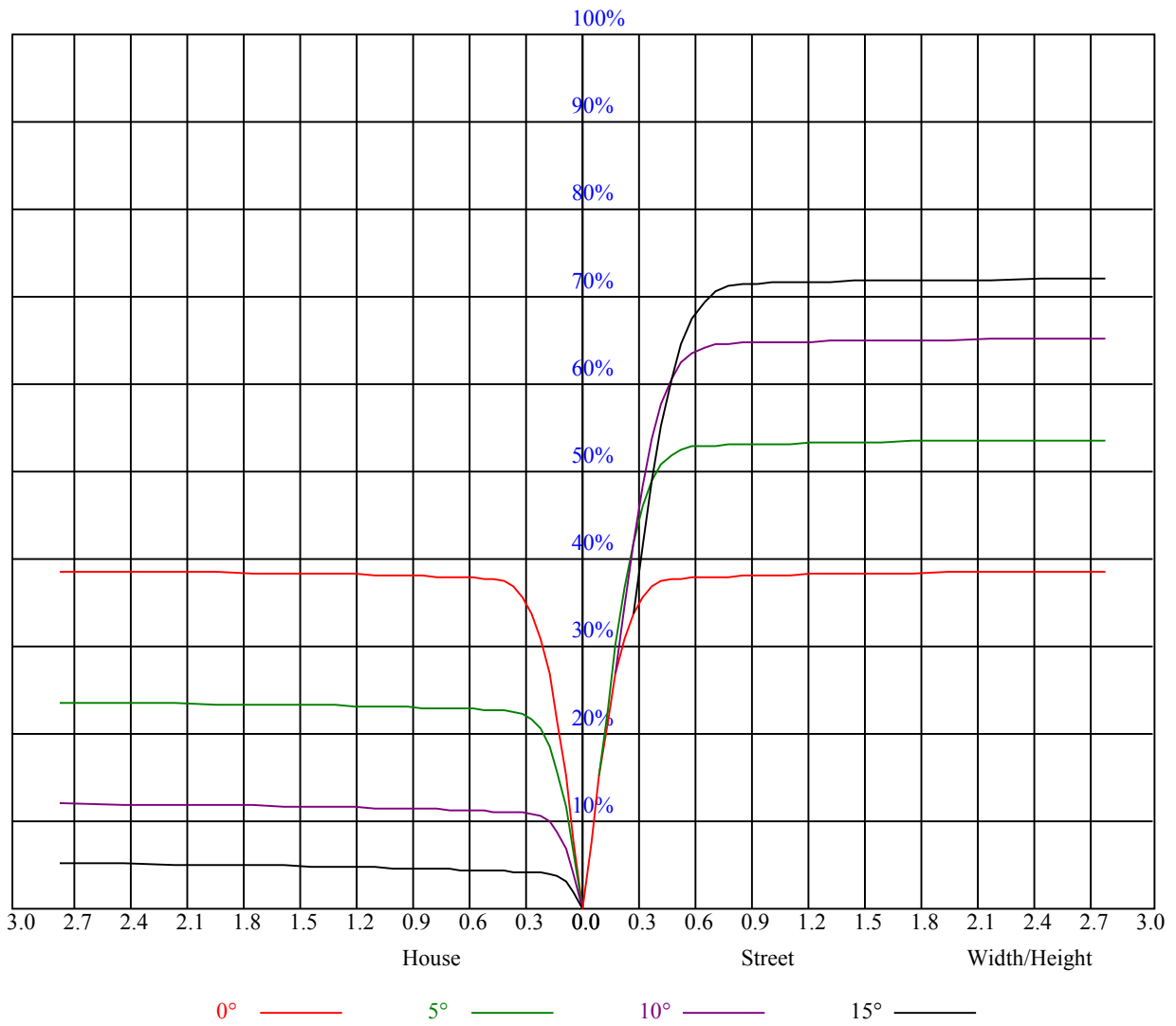
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

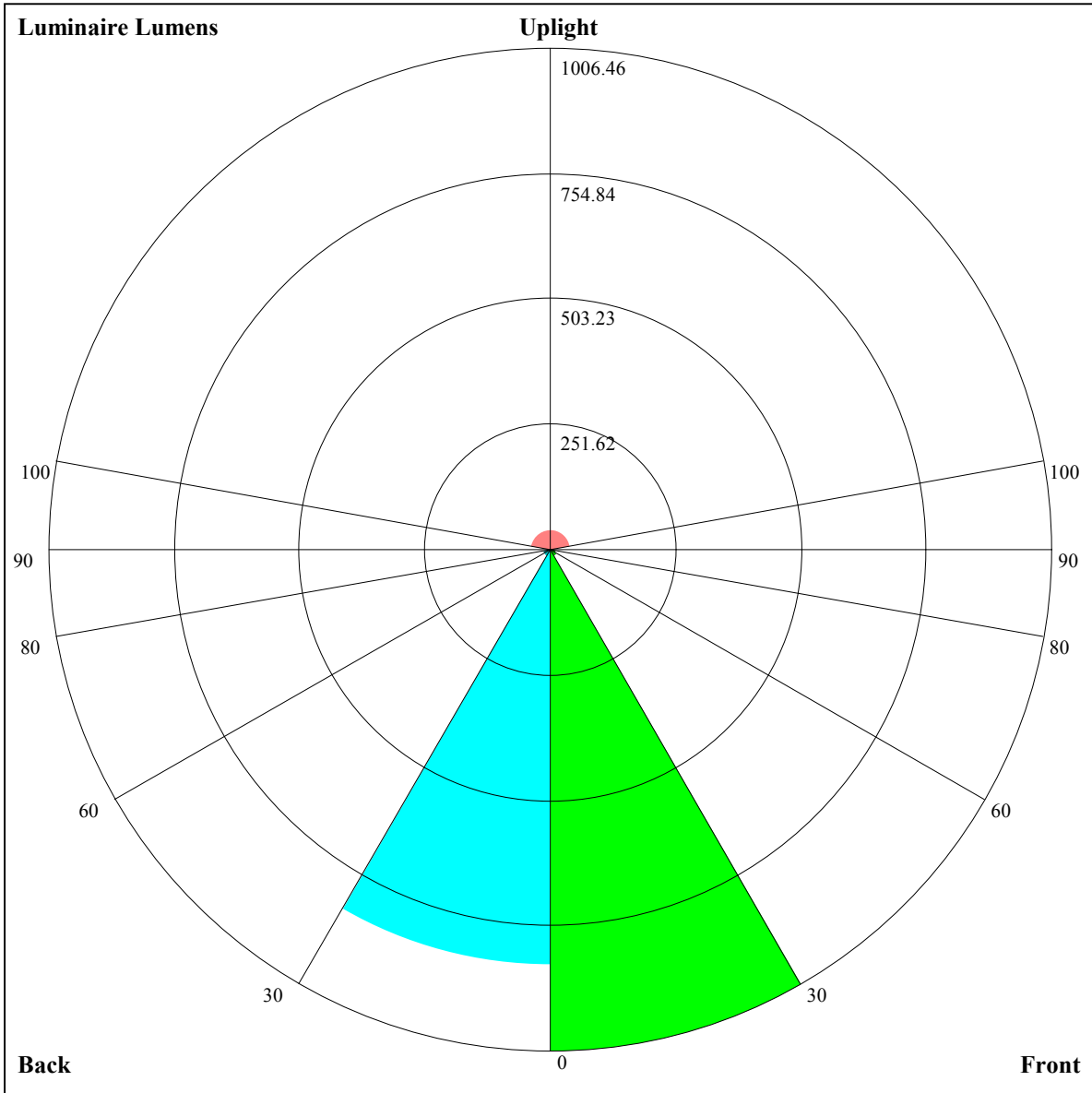
Luminance Limiting Curve





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	0.93	0.93	0.93	0.91	0.91	0.91	0.87	0.87	0.87	0.83	0.83	0.83	0.80	0.80	0.80	0.78
1	0.88	0.86	0.85	0.86	0.85	0.84	0.83	0.82	0.81	0.80	0.79	0.79	0.78	0.77	0.76	0.75
2	0.84	0.82	0.80	0.83	0.81	0.79	0.80	0.79	0.77	0.78	0.77	0.75	0.76	0.75	0.74	0.73
3	0.81	0.78	0.76	0.80	0.77	0.75	0.78	0.76	0.74	0.76	0.74	0.73	0.74	0.73	0.72	0.71
4	0.78	0.75	0.73	0.77	0.74	0.72	0.75	0.73	0.71	0.74	0.72	0.71	0.73	0.71	0.70	0.69
5	0.75	0.72	0.70	0.75	0.72	0.70	0.73	0.71	0.69	0.72	0.70	0.69	0.71	0.69	0.68	0.67
6	0.73	0.70	0.68	0.73	0.70	0.68	0.72	0.69	0.67	0.71	0.68	0.67	0.70	0.68	0.66	0.66
7	0.71	0.68	0.66	0.71	0.68	0.66	0.70	0.67	0.65	0.69	0.67	0.65	0.68	0.66	0.65	0.64
8	0.69	0.66	0.64	0.69	0.66	0.64	0.68	0.66	0.64	0.68	0.65	0.64	0.67	0.65	0.63	0.63
9	0.68	0.65	0.63	0.67	0.65	0.63	0.67	0.64	0.62	0.66	0.64	0.62	0.66	0.64	0.62	0.61
10	0.66	0.63	0.61	0.66	0.63	0.61	0.65	0.63	0.61	0.65	0.63	0.61	0.64	0.62	0.61	0.60





Luminaire Lumens:

FL=1006.46,FM=14.65,FH=13.79,FVH=4.89

BL=832.46,BM=14.59,BH=14.49,BVH=4.67

UL=8.51,UH=40.49

BUG Rating:B2-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	10544.63	10643.63	10688.06	10628.44	10486.13	10260.00	9853.88	9416.81	8911.69
45.0	10573.88	10672.88	10653.75	10575.00	10346.06	10071.00	9689.63	9079.88	8542.13
90.0	10612.13	10568.25	10436.06	10186.31	9827.44	9403.31	8901.00	8171.44	7539.19
135.0	10598.63	10517.06	10312.31	10002.94	9644.63	9196.88	8519.63	7916.06	7291.69
180.0	10544.63	10336.50	10062.56	9657.56	9146.25	8608.50	7921.69	7196.06	6537.38
225.0	10573.88	10450.69	10229.63	9784.69	9441.56	8942.06	8286.75	7595.44	6965.44
270.0	10612.13	10582.88	10474.31	10254.38	9966.94	9547.31	9009.00	8452.13	7864.88
315.0	10598.63	10613.25	10557.00	10393.88	10133.44	9803.25	9325.13	8748.00	8168.06
360.0	10544.63	10643.63	10688.06	10628.44	10486.13	10260.00	9853.88	9416.81	8911.69
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	8187.19	7554.94	6908.06	6173.44	5445.00	4824.00	4164.19	3619.69	3061.13
45.0	7932.38	7108.31	6438.94	5779.69	4996.13	4398.19	3843.00	3215.81	2761.31
90.0	6878.25	6058.13	5417.44	4807.69	4166.44	3562.88	3075.19	2581.88	2179.69
135.0	6487.31	5826.38	5181.19	4497.19	3870.00	3353.06	2825.44	2409.75	1988.44
180.0	5879.81	5083.31	4482.56	3922.88	3285.00	2823.75	2404.13	1938.94	1609.31
225.0	6236.44	5505.75	4886.44	4231.69	3687.75	3127.50	2628.00	2225.25	1812.94
270.0	7090.88	6441.19	5794.31	5171.63	4431.94	3877.88	3361.50	2772.00	2349.56
315.0	7545.38	6736.50	6086.25	5438.81	4669.31	4092.75	3567.38	3021.75	2524.50
360.0	8187.19	7554.94	6908.06	6173.44	5445.00	4824.00	4164.19	3619.69	3061.13
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	2564.44	2167.88	1779.75	1441.69	1167.19	918.00	645.19	456.19	294.75
45.0	2338.88	1906.31	1549.69	1280.25	972.56	740.25	519.75	330.19	295.31
90.0	1776.94	1438.88	1096.65	887.91	646.31	461.87	304.82	148.50	62.89
135.0	1619.44	1316.81	1017.00	765.56	569.81	385.88	286.31	99.34	40.95
180.0	1099.74	1005.47	774.23	549.00	358.03	219.04	102.54	39.09	27.90
225.0	1459.69	1111.56	926.44	677.48	463.95	305.66	175.22	62.94	32.91
270.0	1971.56	1603.13	1270.69	1009.13	747.56	524.25	356.06	299.25	96.36
315.0	2130.75	1742.63	1439.44	1091.64	818.04	632.19	425.70	239.40	138.49
360.0	2564.44	2167.88	1779.75	1441.69	1167.19	918.00	645.19	456.19	294.75
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	210.83	55.24	31.78	26.49	22.56	20.59	18.90	17.49	16.37
45.0	83.25	33.47	24.92	21.38	18.62	17.16	15.98	14.91	14.12
90.0	30.43	23.85	20.31	18.34	16.82	15.53	14.63	13.84	13.28
135.0	29.31	23.63	21.04	19.58	17.72	16.71	16.03	15.19	14.63
180.0	23.91	20.81	19.18	17.94	16.93	15.98	15.36	14.85	14.40
225.0	26.66	22.44	20.31	18.73	17.27	16.20	15.41	14.74	14.18
270.0	36.90	27.56	23.68	21.26	19.07	17.66	16.59	15.47	14.79
315.0	59.91	30.71	26.61	23.57	21.32	19.52	18.23	17.10	16.31
360.0	210.83	55.24	31.78	26.49	22.56	20.59	18.90	17.49	16.37
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	15.53	14.85	14.34	13.89	13.50	13.28	13.05	12.88	12.71
45.0	13.56	12.99	12.54	12.26	11.93	11.76	11.59	11.42	11.31
90.0	12.71	12.32	11.98	11.76	11.53	11.42	11.31	11.19	11.14
135.0	14.29	13.84	13.61	13.39	13.16	12.99	12.88	12.77	12.66
180.0	14.06	13.84	13.56	13.44	13.33	13.22	13.16	13.11	13.11
225.0	13.73	13.33	13.05	12.83	12.66	12.49	12.38	12.26	12.21
270.0	14.34	13.78	13.33	13.05	12.77	12.60	12.43	12.38	12.21
315.0	15.75	15.08	14.57	14.12	13.78	13.44	13.28	13.11	12.94
360.0	15.53	14.85	14.34	13.89	13.50	13.28	13.05	12.88	12.71

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	12.71	12.60	12.43	12.43	12.38	12.38	12.38	12.32	12.43
45.0	11.19	11.14	11.08	11.03	10.91	10.86	10.80	10.74	10.69
90.0	11.08	11.03	10.97	10.91	10.86	10.80	10.80	10.74	10.74
135.0	12.60	12.43	12.43	12.38	12.26	12.26	12.21	12.09	12.04
180.0	13.11	13.11	13.16	13.11	13.22	13.22	13.22	13.16	13.05
225.0	12.15	12.04	11.98	11.93	11.87	11.81	11.81	11.76	11.70
270.0	12.15	11.98	11.87	11.81	11.70	11.59	11.53	11.36	11.31
315.0	12.71	12.54	12.38	12.32	12.15	12.04	11.98	11.93	11.93
360.0	12.71	12.60	12.43	12.43	12.38	12.38	12.38	12.32	12.43
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	12.38	12.43	12.38	12.38	12.21	12.15	12.09	12.04	12.04
45.0	10.69	10.63	10.63	10.63	10.58	10.58	10.52	10.52	10.46
90.0	10.63	10.58	10.52	10.52	10.41	10.35	10.35	10.24	10.24
135.0	12.04	12.04	12.04	12.04	12.04	12.04	12.09	12.21	12.26
180.0	12.94	12.88	12.83	12.77	12.71	12.60	12.60	12.66	12.99
225.0	11.64	11.59	11.59	11.48	11.42	11.36	11.19	11.08	10.97
270.0	11.25	11.14	11.08	11.03	10.97	10.86	10.86	10.80	10.69
315.0	11.81	11.81	11.81	11.81	11.87	11.93	11.98	12.09	12.09
360.0	12.38	12.43	12.38	12.38	12.21	12.15	12.09	12.04	12.04
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	11.98	11.98	11.98	12.04	12.32	13.44	15.08	17.55	20.36
45.0	10.41	10.35	10.24	10.18	10.07	10.07	10.01	9.96	9.90
90.0	10.18	10.13	10.07	10.01	9.96	9.90	9.84	9.79	9.73
135.0	12.38	12.43	12.43	12.43	12.43	12.43	12.88	14.85	17.78
180.0	13.89	15.75	18.11	20.76	23.46	26.38	28.91	31.28	33.53
225.0	10.91	10.80	10.69	10.63	10.58	10.58	10.63	10.69	10.69
270.0	10.63	10.58	10.52	10.46	10.35	10.29	10.24	10.24	10.24
315.0	12.09	12.15	12.15	12.15	12.15	12.43	13.61	15.98	19.63
360.0	11.98	11.98	11.98	12.04	12.32	13.44	15.08	17.55	20.36
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	22.73	25.43	27.96	30.15	30.43	29.25	26.33	21.38	17.83
45.0	9.90	9.96	10.07	10.18	10.29	10.35	10.29	10.18	10.07
90.0	9.68	9.68	9.68	9.79	9.84	9.73	9.68	9.51	9.17
135.0	20.59	22.44	23.51	23.46	22.78	21.26	19.91	16.59	12.66
180.0	34.37	33.86	32.57	30.49	27.39	23.91	19.97	14.79	10.52
225.0	10.74	10.86	10.86	10.86	10.74	10.63	10.46	10.18	9.90
270.0	10.29	10.35	10.46	10.52	10.58	10.52	10.29	9.84	9.28
315.0	23.46	26.44	28.18	28.63	27.45	24.64	20.31	16.14	11.76
360.0	22.73	25.43	27.96	30.15	30.43	29.25	26.33	21.38	17.83
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	13.84	10.07	9.17	8.72	8.49	8.44	8.44	8.44	8.66
45.0	9.73	9.28	8.83	8.49	8.16	7.99	7.93	7.88	7.82
90.0	8.78	8.38	8.16	8.04	7.93	7.88	7.88	7.71	7.65
135.0	9.56	9.06	8.78	8.55	8.33	8.21	8.10	7.99	7.76
180.0	9.28	8.89	8.49	8.44	8.33	8.27	8.16	7.99	7.76
225.0	9.56	9.11	8.78	8.44	8.27	8.21	8.16	8.16	7.82
270.0	8.94	8.83	8.89	9.06	9.17	9.11	8.66	8.21	7.88
315.0	9.84	9.56	9.45	9.34	9.23	9.34	9.62	9.96	9.45
360.0	13.84	10.07	9.17	8.72	8.49	8.44	8.44	8.44	8.66

Intensity data(cd)

<b>C/γ(°)</b>	<b>90.0</b>
<b>0.0</b>	<b>8.10</b>
<b>45.0</b>	<b>7.65</b>
<b>90.0</b>	<b>7.65</b>
<b>135.0</b>	<b>7.71</b>
<b>180.0</b>	<b>7.71</b>
<b>225.0</b>	<b>7.71</b>
<b>270.0</b>	<b>7.82</b>
<b>315.0</b>	<b>8.04</b>
<b>360.0</b>	<b>8.10</b>