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## Nata

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Client:

LumCAT: 2-2185-M

Luminaire: BJB 47.360.5080

Report No: nt0100

Voltage(V): 220.4000

Test No: GC2020031329

Current(A): 0.1080

LampCAT: NICHIA NFCWJ108B-V3

Power (W): 22.9500

Lamp flux(lm): 2445.6

PF: 0.9580

Number of Lamps: 1

Ballast type: AC

Length(mm): 0

Width(mm): 0

Phm Type: C

Height(mm): 0

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## Photometric Results

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Lumens(lm): 1814.06, Efficiency(%): 74.18% , Luminous Efficacy(lm/W): 79.04

Central intensity(cd): 6351.735, Maximum intensity(cd): 6351.735

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

Beam Angle(50%Imax): [C0/180]Total=32.4

[C90/270]Total=32.4

Field angle(10%Imax): [C0/180]Total=49.0

[C90/270]Total=49.0

Maximum s/h(1/2): C0\_180=0.54 C90\_270=0.54

Maximum s/h(1/4): C0\_180=0.51 C90\_270=0.51

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 74.18%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 98.872%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	6351.736	0.000	0	.000%	.000%
1.0	6338.105	6.072	6.072	.248%	.335%
2.0	6298.488	18.137	24.209	.742%	1.335%
3.0	6226.911	29.957	54.166	1.225%	2.986%
4.0	6121.750	41.335	95.501	1.690%	5.264%
5.0	5993.676	52.120	147.621	2.131%	8.138%
6.0	5838.225	62.180	209.8	2.543%	11.565%
7.0	5648.261	71.296	281.097	2.915%	15.495%
8.0	5449.423	79.424	360.521	3.248%	19.874%
9.0	5218.914	86.461	446.982	3.535%	24.640%
10.0	4972.745	92.231	539.213	3.771%	29.724%
11.0	4713.814	96.789	636.001	3.958%	35.059%
12.0	4442.297	100.089	736.091	4.093%	40.577%
13.0	4172.693	102.238	838.329	4.181%	46.213%
14.0	3875.248	103.013	941.342	4.212%	51.891%
15.0	3545.030	101.869	1043.211	4.165%	57.507%
16.0	3244.278	99.482	1142.693	4.068%	62.991%
17.0	2905.708	95.772	1238.465	3.916%	68.270%
18.0	2580.884	90.462	1328.927	3.699%	73.257%
19.0	2244.344	83.949	1412.876	3.433%	77.885%
20.0	1845.594	74.857	1487.733	3.061%	82.011%
21.0	1592.232	66.013	1553.746	2.699%	85.650%
22.0	1202.937	56.170	1609.916	2.297%	88.746%
23.0	932.725	44.812	1654.728	1.832%	91.217%
24.0	740.690	36.587	1691.315	1.496%	93.233%
25.0	545.964	29.256	1720.571	1.196%	94.846%
26.0	367.300	21.558	1742.129	.881%	96.035%
27.0	263.275	15.427	1757.556	.631%	96.885%
28.0	145.109	10.339	1767.895	.423%	97.455%
29.0	58.509	5.327	1773.222	.218%	97.749%
30.0	43.451	2.753	1775.975	.113%	97.900%
31.0	14.333	1.608	1777.583	.066%	97.989%
32.0	11.786	0.748	1778.332	.031%	98.030%
33.0	10.238	0.649	1778.98	.027%	98.066%
34.0	9.484	0.597	1779.577	.024%	98.099%
35.0	9.008	0.574	1780.152	.023%	98.131%
36.0	8.608	0.561	1780.712	.023%	98.161%
37.0	8.300	0.551	1781.264	.023%	98.192%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	8.005	0.544	1781.808	.022%	98.222%
39.0	7.784	0.539	1782.347	.022%	98.252%
40.0	7.581	0.536	1782.883	.022%	98.281%
41.0	7.378	0.533	1783.416	.022%	98.311%
42.0	7.187	0.529	1783.945	.022%	98.340%
43.0	7.082	0.529	1784.473	.022%	98.369%
44.0	6.949	0.530	1785.003	.022%	98.398%
45.0	6.839	0.530	1785.533	.022%	98.427%
46.0	6.746	0.531	1786.064	.022%	98.457%
47.0	6.636	0.532	1786.596	.022%	98.486%
48.0	6.525	0.532	1787.128	.022%	98.515%
49.0	6.438	0.532	1787.661	.022%	98.545%
50.0	6.351	0.533	1788.194	.022%	98.574%
51.0	6.259	0.534	1788.727	.022%	98.603%
52.0	6.212	0.535	1789.263	.022%	98.633%
53.0	6.172	0.539	1789.801	.022%	98.663%
54.0	6.125	0.542	1790.343	.022%	98.692%
55.0	6.044	0.543	1790.887	.022%	98.722%
56.0	5.974	0.543	1791.43	.022%	98.752%
57.0	5.916	0.544	1791.973	.022%	98.782%
58.0	5.835	0.543	1792.517	.022%	98.812%
59.0	5.754	0.542	1793.059	.022%	98.842%
60.0	5.661	0.539	1793.598	.022%	98.872%
61.0	5.615	0.538	1794.136	.022%	98.901%
62.0	5.603	0.541	1794.676	.022%	98.931%
63.0	5.597	0.545	1795.221	.022%	98.961%
64.0	5.638	0.551	1795.773	.023%	98.992%
65.0	5.806	0.566	1796.339	.023%	99.023%
66.0	6.056	0.592	1796.931	.024%	99.056%
67.0	6.462	0.629	1797.56	.026%	99.090%
68.0	7.129	0.688	1798.249	.028%	99.128%
69.0	7.761	0.760	1799.008	.031%	99.170%
70.0	8.643	0.842	1799.851	.034%	99.216%
71.0	9.547	0.940	1800.791	.038%	99.268%
72.0	10.342	1.034	1801.825	.042%	99.325%
73.0	10.963	1.114	1802.939	.046%	99.387%
74.0	11.496	1.181	1804.12	.048%	99.452%
75.0	11.717	1.227	1805.346	.050%	99.519%

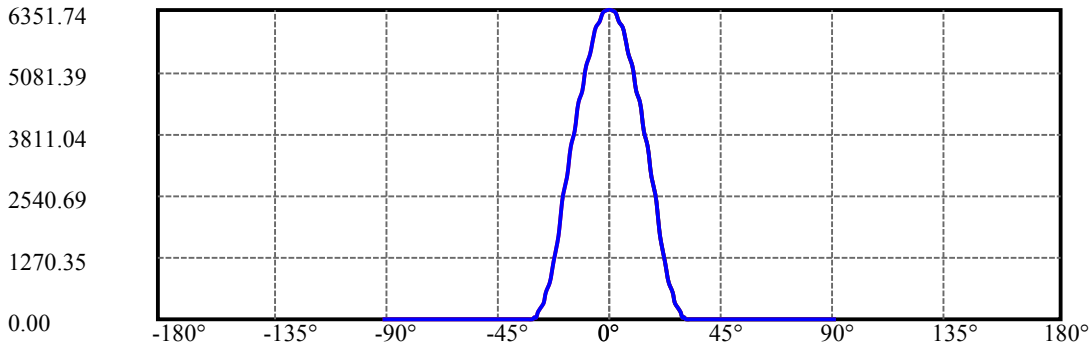
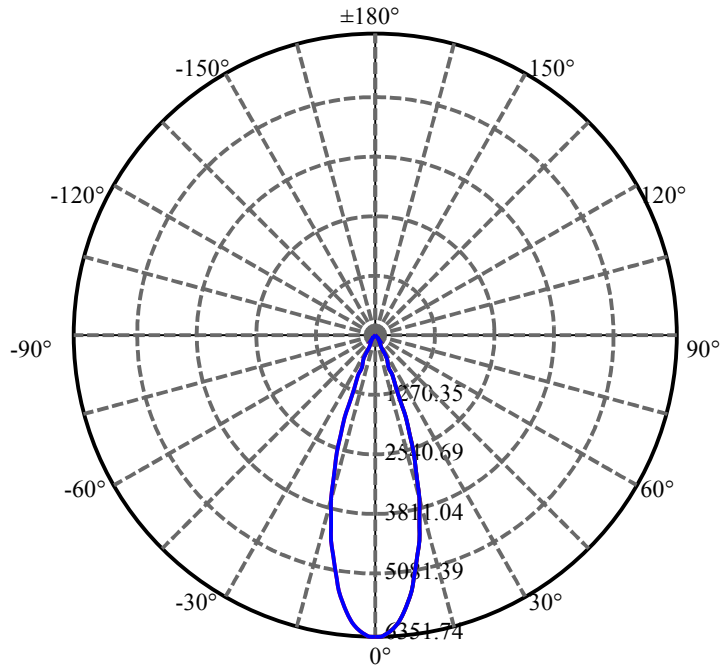
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	11.746	1.245	1806.592	.051%	99.588%
77.0	11.357	1.232	1807.824	.050%	99.656%
78.0	10.331	1.161	1808.985	.047%	99.720%
79.0	8.869	1.032	1810.016	.042%	99.777%
80.0	7.227	0.868	1810.884	.035%	99.825%
81.0	5.197	0.672	1811.556	.027%	99.862%
82.0	3.370	0.465	1812.02	.019%	99.887%
83.0	2.599	0.324	1812.345	.013%	99.905%
84.0	2.193	0.261	1812.606	.011%	99.920%
85.0	2.077	0.233	1812.839	.010%	99.932%
86.0	2.077	0.227	1813.066	.009%	99.945%
87.0	2.129	0.230	1813.296	.009%	99.958%
88.0	2.227	0.239	1813.535	.010%	99.971%
89.0	2.413	0.254	1813.789	.010%	99.985%
90.0	2.604	0.275	1814.064	.011%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1775.98	72.62%	97.90%
0-40	1782.88	72.90%	98.28%
0-60	1793.60	73.34%	98.87%
0-90	1813.79	74.17%	99.98%
0-120	1813.79	74.17%	99.98%
0-180	1814.06	74.18%	100.00%
60-90	20.73	0.85%	1.14%
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%
0-19.51	1451.25	59.34%	80.00%

ZONAL LUMEN SUMMARY

0-10	539.21
10-20	948.52
20-30	288.24
30-40	6.91
40-50	5.31
50-60	5.40
60-70	6.25
70-80	11.03
80-90	2.91
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: ———

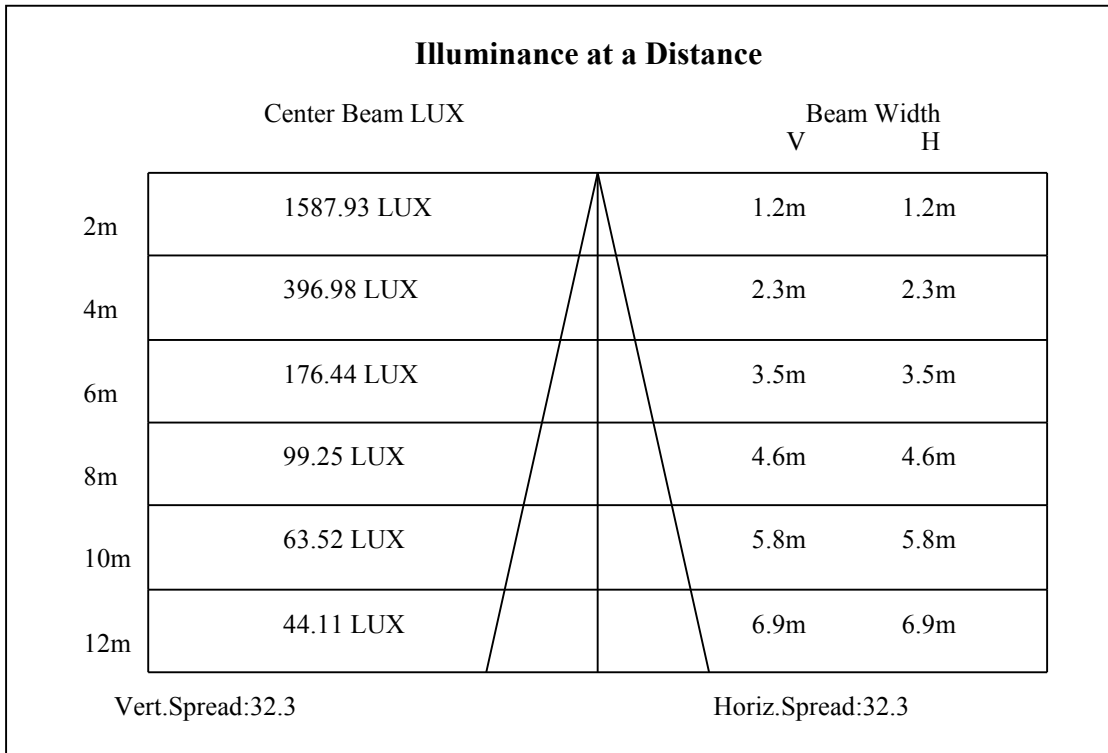
C90/C270: ———

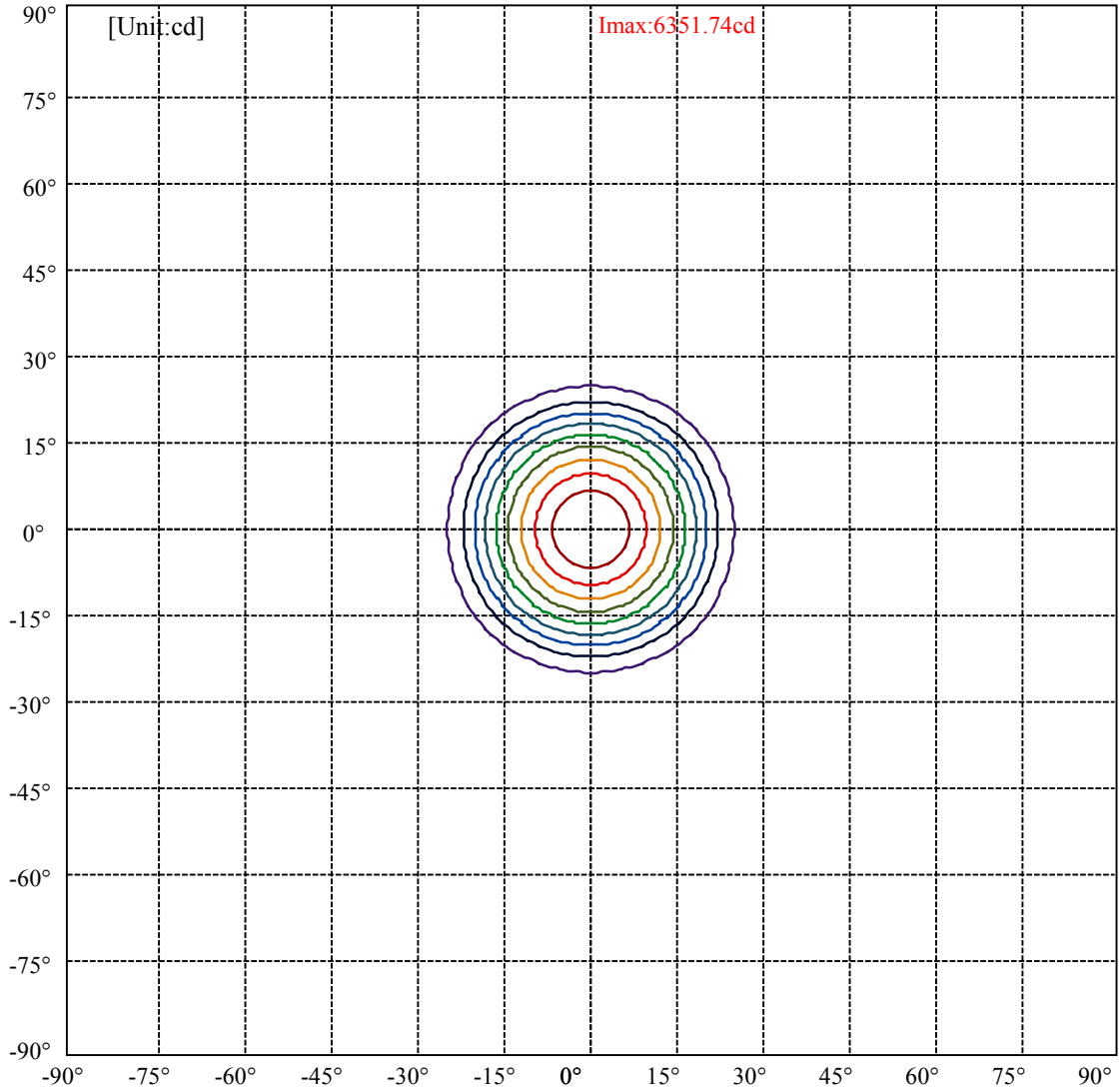
Field angle(10%Imax):C0/180Left:24.5 Right:24.5

:C90/270Left:24.5 Right:24.5

Beam Angle(50%Imax):C0/180Left:16.2 Right:16.2

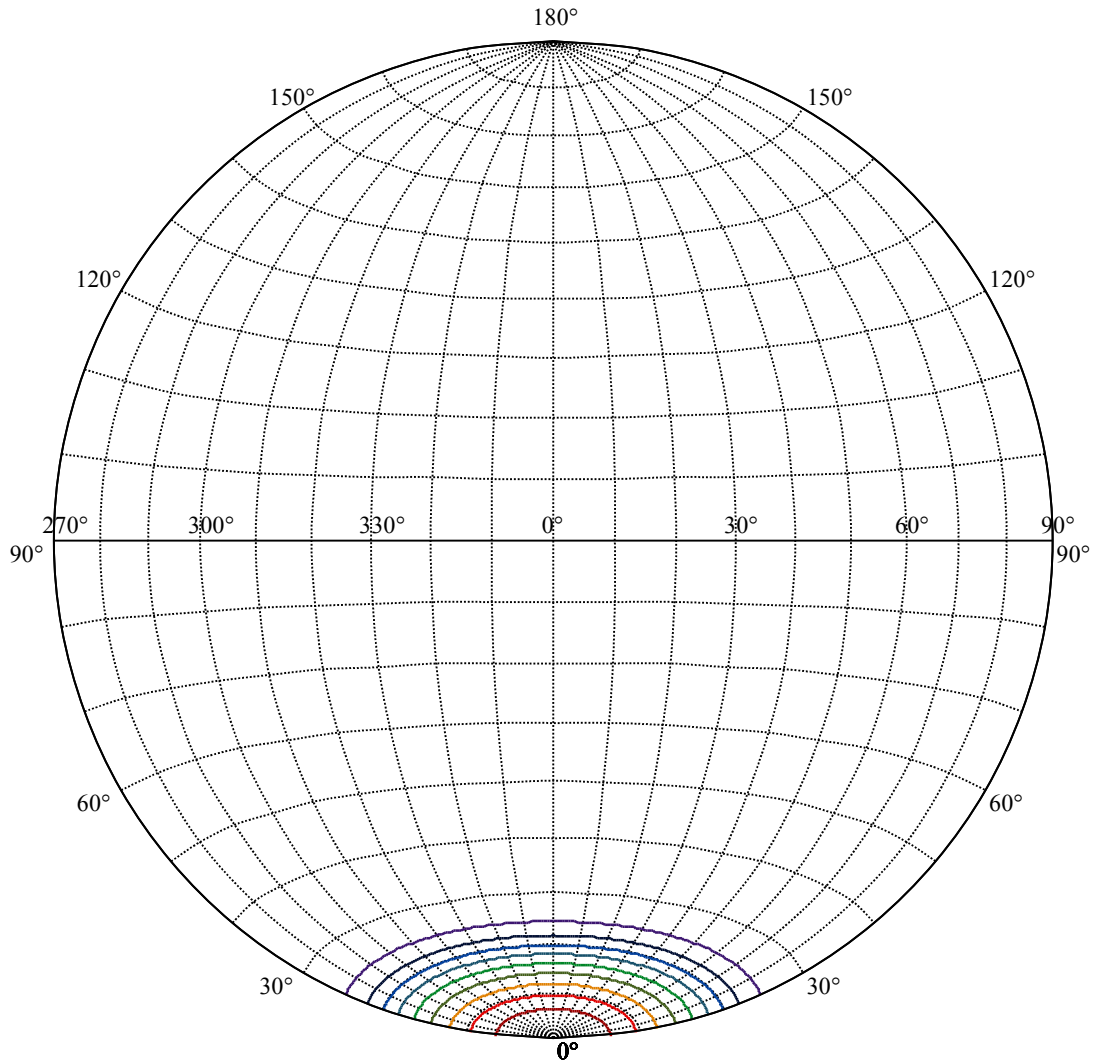
:C90/270Left:16.2 Right:16.2





(10%Imax) 635.174	—
(20%Imax) 1270.35	—
(30%Imax) 1905.52	—
(40%Imax) 2540.69	—
(50%Imax) 3175.87	—
(60%Imax) 3811.04	—
(70%Imax) 4446.21	—
(80%Imax) 5081.39	—
(90%Imax) 5716.56	—





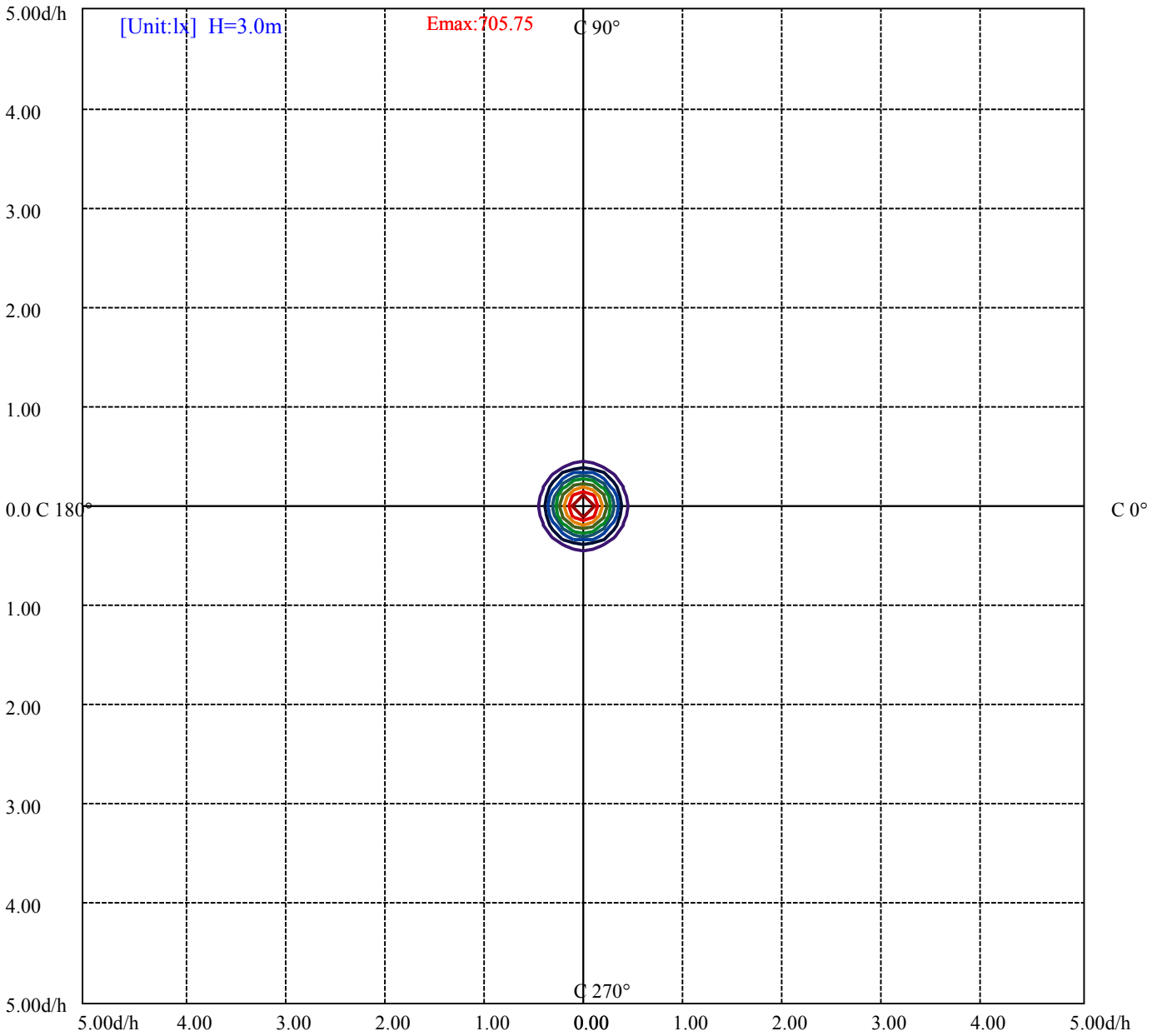
House

[Unit:cd]

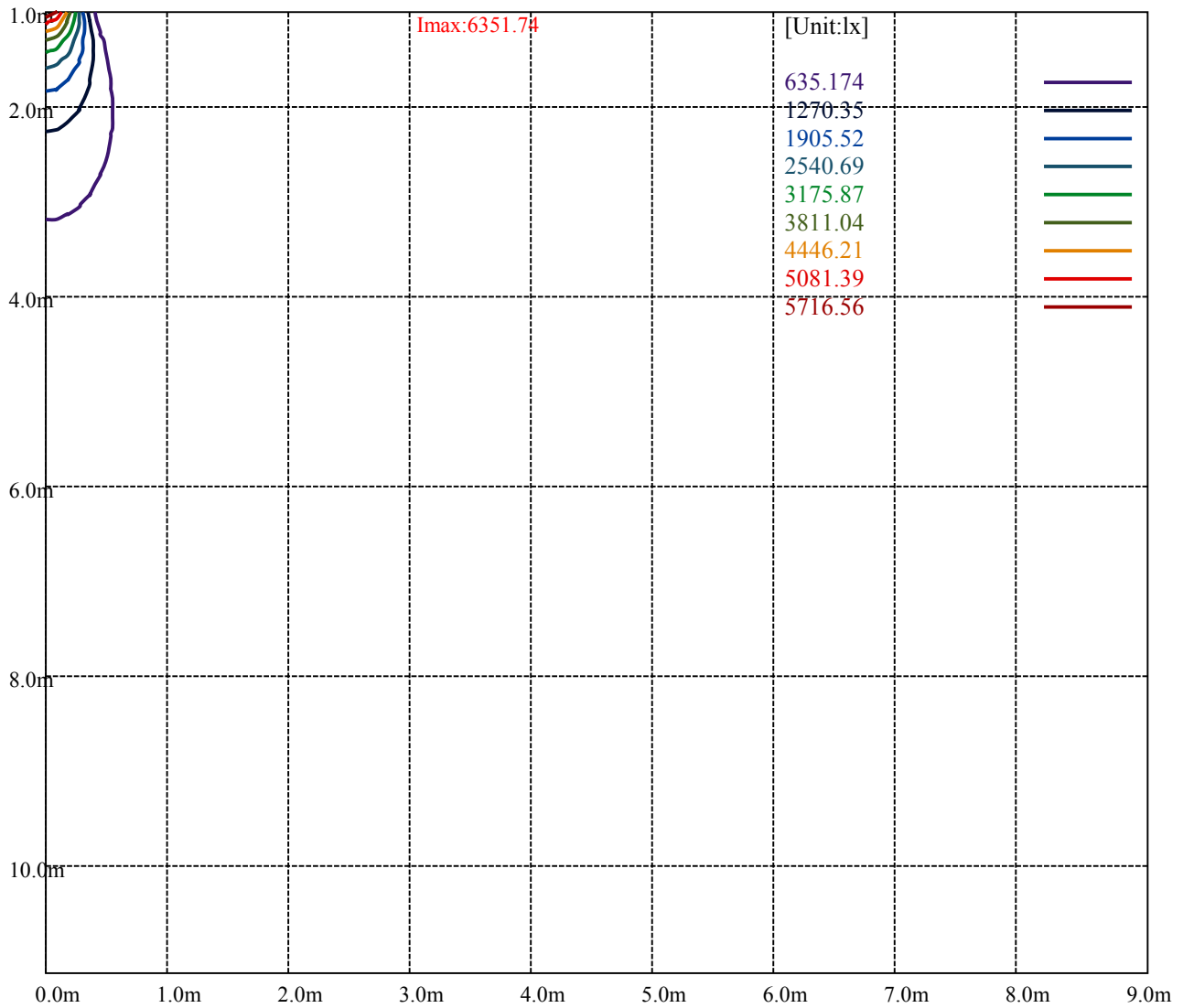
Road

**Imax:6351.74**

(10%Imax) 635.174	—
(20%Imax) 1270.35	—
(30%Imax) 1905.52	—
(40%Imax) 2540.69	—
(50%Imax) 3175.87	—
(60%Imax) 3811.04	—
(70%Imax) 4446.21	—
(80%Imax) 5081.39	—
(90%Imax) 5716.56	—



- (10%E<sub>max</sub>) 70.57478
- (20%E<sub>max</sub>) 141.15
- (30%E<sub>max</sub>) 211.7244
- (40%E<sub>max</sub>) 282.2989
- (50%E<sub>max</sub>) 352.8745
- (60%E<sub>max</sub>) 423.4489
- (70%E<sub>max</sub>) 494.0233
- (80%E<sub>max</sub>) 564.5989
- (90%E<sub>max</sub>) 635.1733



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

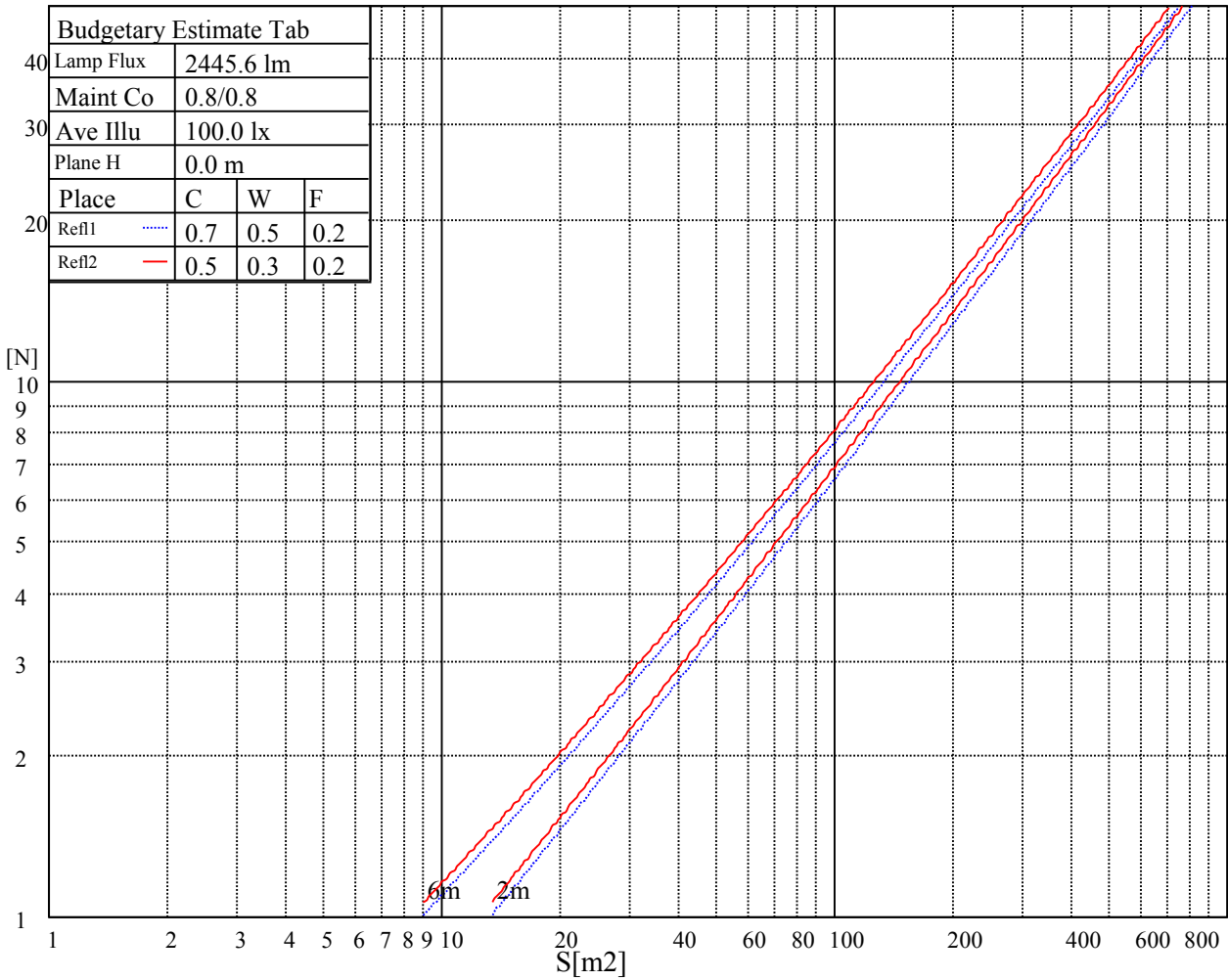
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

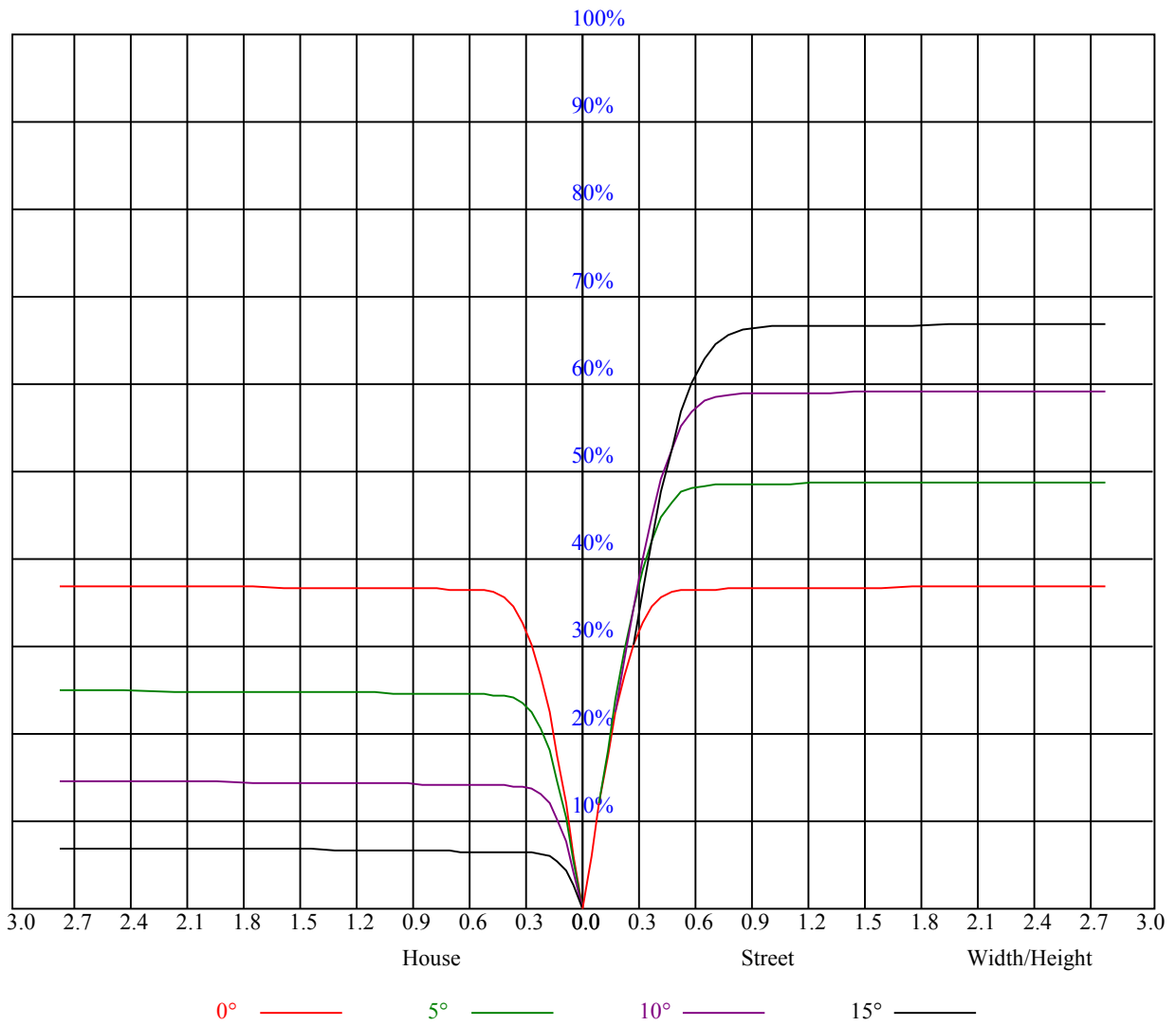
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

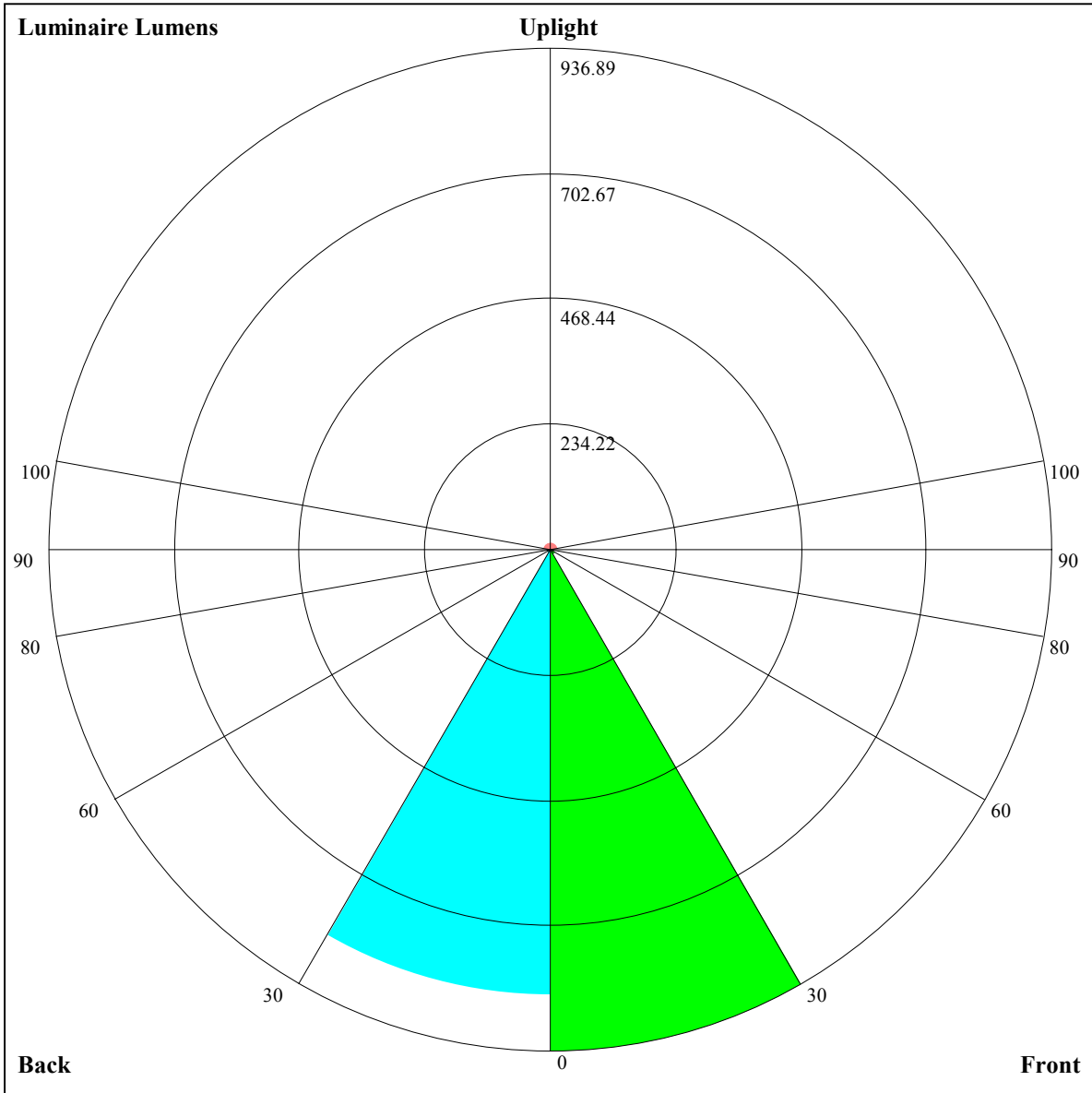
Luminance Limiting Curve





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	0.88	0.88	0.88	0.86	0.86	0.86	0.82	0.82	0.82	0.79	0.79	0.79	0.76	0.76	0.76	0.74
1	0.84	0.82	0.81	0.82	0.81	0.79	0.79	0.78	0.77	0.76	0.75	0.75	0.74	0.73	0.73	0.71
2	0.80	0.77	0.75	0.78	0.76	0.74	0.76	0.74	0.73	0.74	0.72	0.71	0.72	0.71	0.70	0.69
3	0.76	0.73	0.71	0.75	0.73	0.71	0.73	0.71	0.69	0.72	0.70	0.68	0.70	0.69	0.67	0.66
4	0.73	0.70	0.68	0.72	0.70	0.67	0.71	0.68	0.67	0.69	0.67	0.66	0.68	0.67	0.65	0.64
5	0.70	0.67	0.65	0.70	0.67	0.65	0.69	0.66	0.64	0.67	0.65	0.64	0.66	0.65	0.63	0.62
6	0.68	0.65	0.62	0.67	0.64	0.62	0.66	0.64	0.62	0.65	0.63	0.62	0.65	0.63	0.61	0.60
7	0.66	0.63	0.60	0.65	0.62	0.60	0.64	0.62	0.60	0.64	0.61	0.60	0.63	0.61	0.59	0.59
8	0.64	0.60	0.58	0.63	0.60	0.58	0.63	0.60	0.58	0.62	0.60	0.58	0.61	0.59	0.58	0.57
9	0.62	0.59	0.57	0.61	0.58	0.56	0.61	0.58	0.56	0.60	0.58	0.56	0.60	0.58	0.56	0.55
10	0.60	0.57	0.55	0.60	0.57	0.55	0.59	0.56	0.55	0.59	0.56	0.55	0.58	0.56	0.54	0.54





Luminaire Lumens:  
FL=936.89,FM=10.05,FH=8.17,FVH=1.73  
BL=832.99,BM=8.38,BH=8.6,BVH=1.53  
UL=2.84,UH=13.52

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	6391.64	6402.32	6383.29	6336.42	6258.47	6148.95	6004.18	5828.77	5630.16
45.0	6322.04	6368.91	6388.86	6380.97	6348.49	6285.38	6189.32	6059.40	5895.13
90.0	6352.20	6339.67	6298.84	6227.84	6125.75	6019.49	5825.06	5674.71	5464.04
135.0	6341.06	6326.21	6304.40	6244.08	6104.87	6025.98	5870.07	5687.70	5483.53
180.0	6391.64	6355.91	6291.41	6193.04	6090.49	5897.91	5709.98	5543.85	5313.23
225.0	6322.04	6244.54	6134.57	5991.18	5814.85	5615.78	5486.78	5154.99	5004.18
270.0	6352.20	6338.28	6297.91	6224.13	6118.33	5980.51	5811.60	5618.56	5400.93
315.0	6341.06	6329.00	6288.63	6217.63	6112.76	5975.41	5808.82	5618.10	5404.18
360.0	6391.64	6402.32	6383.29	6336.42	6258.47	6148.95	6004.18	5828.77	5630.16

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	5407.89	5167.99	4914.62	4646.88	4369.85	4086.32	3783.31	3456.63	3250.60
45.0	5707.19	5496.06	5260.79	5013.00	4858.94	4592.12	4201.87	4026.46	3719.74
90.0	5233.42	4991.19	4734.58	4463.58	4184.70	3892.36	3578.21	3243.18	2894.69
135.0	5257.55	5014.39	4759.17	4490.50	4214.40	3924.84	3614.87	3277.51	2934.13
180.0	5067.29	4810.68	4541.54	4264.05	3971.71	3660.34	3327.17	2982.85	2635.29
225.0	4743.40	4468.22	4188.41	3895.61	3580.06	3240.86	2891.44	2546.66	2217.66
270.0	5164.27	4914.62	4653.84	4380.06	4097.46	3799.09	3478.91	3276.12	2793.53
315.0	5170.31	4918.80	4657.55	4384.70	4104.42	3806.05	3484.47	3144.80	2800.02
360.0	5407.89	5167.99	4914.62	4646.88	4369.85	4086.32	3783.31	3456.63	3250.60

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	2762.90	2555.94	2222.77	1886.34	1558.27	858.46	858.46	709.41	484.40
45.0	3389.35	3043.18	2558.73	2357.34	2016.74	1682.63	1360.13	1058.51	786.12
90.0	2549.45	2214.88	1877.99	1551.77	853.96	853.96	702.55	564.73	362.73
135.0	2590.28	2256.64	1918.82	1591.22	1342.96	993.54	736.00	549.46	348.07
180.0	2297.48	1959.20	1631.12	1315.12	1018.60	750.39	517.91	324.41	291.92
225.0	1878.45	1546.67	844.36	844.36	645.80	428.91	318.51	180.83	58.61
270.0	2585.64	2253.39	1918.36	1592.61	1280.31	987.05	725.79	500.27	312.34
315.0	2593.53	2124.86	1792.61	1599.11	906.86	906.86	706.17	480.09	294.20
360.0	2762.90	2555.94	2222.77	1886.34	1558.27	858.46	858.46	709.41	484.40

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	300.42	171.00	81.72	24.96	15.78	11.60	10.53	9.84	9.33
45.0	549.93	350.86	232.53	232.53	28.21	18.33	11.93	10.02	9.14
90.0	211.32	111.83	39.63	18.79	12.85	11.32	10.26	9.65	9.28
135.0	313.73	251.55	35.22	19.07	13.78	12.30	11.28	10.58	10.12
180.0	291.92	45.75	20.51	13.55	11.42	10.44	9.74	9.23	8.82
225.0	28.40	14.99	11.18	9.88	9.14	8.68	8.21	7.80	7.38
270.0	249.70	137.63	24.41	14.43	11.74	10.67	9.65	9.23	8.86
315.0	160.79	77.26	22.88	14.39	11.74	10.95	10.30	9.51	9.14
360.0	300.42	171.00	81.72	24.96	15.78	11.60	10.53	9.84	9.33

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	8.82	8.40	8.12	7.89	7.66	7.42	7.24	7.19	7.05
45.0	8.54	7.98	7.61	7.33	7.01	6.77	6.59	6.40	6.22
90.0	8.86	8.58	8.31	8.07	7.89	7.61	7.38	7.29	7.15
135.0	9.65	9.47	9.00	8.77	8.58	8.40	8.17	8.03	7.89
180.0	8.40	8.07	7.89	7.75	7.56	7.47	7.33	7.24	7.19
225.0	7.10	6.87	6.59	6.40	6.36	6.17	5.99	5.94	5.80
270.0	8.63	8.35	8.07	7.89	7.66	7.42	7.19	7.05	6.91
315.0	8.86	8.68	8.45	8.17	7.93	7.75	7.61	7.52	7.38
360.0	8.82	8.40	8.12	7.89	7.66	7.42	7.24	7.19	7.05

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	6.91	6.82	6.73	6.68	6.50	6.40	6.31	6.26	6.13
45.0	6.08	5.94	5.89	5.75	5.61	5.52	5.43	5.38	5.29
90.0	7.05	6.91	6.77	6.64	6.54	6.45	6.36	6.26	6.26
135.0	7.80	7.75	7.66	7.52	7.47	7.47	7.42	7.38	7.42
180.0	7.01	6.91	6.87	6.82	6.73	6.59	6.54	6.50	6.45
225.0	5.71	5.66	5.52	5.34	5.34	5.24	5.10	5.06	5.06
270.0	6.82	6.68	6.54	6.45	6.36	6.17	6.08	6.03	5.94
315.0	7.33	7.29	7.10	7.01	6.96	6.96	6.82	6.82	6.82
360.0	6.91	6.82	6.73	6.68	6.50	6.40	6.31	6.26	6.13
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	6.08	5.94	5.85	5.80	5.80	5.71	5.66	5.71	5.80
45.0	5.15	5.10	5.01	4.97	4.83	4.73	4.69	4.59	4.50
90.0	6.22	6.17	6.08	6.03	5.89	5.80	5.57	5.48	5.34
135.0	7.47	7.38	7.24	7.15	7.01	6.91	6.73	6.64	6.59
180.0	6.36	6.26	6.22	6.17	6.13	6.08	6.17	6.26	6.36
225.0	4.97	4.92	4.83	4.78	4.73	4.59	4.50	4.45	4.41
270.0	5.89	5.80	5.80	5.71	5.71	5.61	5.52	5.38	5.38
315.0	6.87	6.77	6.77	6.73	6.59	6.59	6.45	6.40	6.45
360.0	6.08	5.94	5.85	5.80	5.80	5.71	5.66	5.71	5.80
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	5.94	6.13	6.45	6.82	7.05	7.42	8.07	8.96	9.93
45.0	4.45	4.41	4.32	4.18	4.13	4.08	3.94	3.85	3.81
90.0	5.24	5.10	5.15	5.20	5.43	6.17	6.64	7.42	8.31
135.0	6.64	6.82	7.29	8.17	9.37	10.81	12.44	14.25	16.10
180.0	6.50	6.68	6.91	7.01	7.56	9.05	10.02	11.74	13.46
225.0	4.27	4.13	4.04	3.99	3.85	3.81	3.67	3.62	3.62
270.0	5.29	5.20	5.20	5.24	5.48	5.80	6.17	6.68	7.19
315.0	6.45	6.64	7.10	7.84	8.82	9.88	11.14	12.62	13.97
360.0	5.94	6.13	6.45	6.82	7.05	7.42	8.07	8.96	9.93
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	10.90	11.51	12.85	13.64	14.06	14.34	13.69	12.76	11.32
45.0	3.76	3.62	3.57	3.48	3.43	3.39	3.25	3.20	3.11
90.0	9.14	9.98	10.58	10.90	11.28	11.28	10.81	9.74	7.70
135.0	17.87	19.40	20.46	20.93	21.02	20.14	17.96	14.76	11.14
180.0	14.76	15.55	15.73	15.45	14.80	13.32	10.49	7.80	5.15
225.0	3.48	3.39	3.29	3.29	3.20	2.97	2.74	2.46	2.23
270.0	7.70	8.17	8.63	8.77	8.91	8.91	8.68	8.12	7.05
315.0	15.13	16.10	16.84	17.26	17.26	16.52	15.03	12.11	10.12
360.0	10.90	11.51	12.85	13.64	14.06	14.34	13.69	12.76	11.32
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	9.10	5.43	3.11	2.18	2.27	2.23	2.23	2.23	2.23
45.0	3.06	2.88	2.78	2.60	2.41	2.55	2.78	2.88	3.02
90.0	5.66	4.08	2.83	2.23	2.00	1.90	1.86	1.86	2.09
135.0	6.73	3.25	2.55	2.37	2.32	2.27	2.27	2.41	2.78
180.0	2.88	2.55	2.46	2.27	2.18	2.37	2.74	2.92	3.16
225.0	1.95	1.81	1.81	1.67	1.58	1.62	1.72	1.95	2.04
270.0	5.34	2.97	2.27	1.81	1.67	1.58	1.48	1.44	1.58
315.0	6.87	3.99	2.97	2.41	2.18	2.09	1.95	2.13	2.41
360.0	9.10	5.43	3.11	2.18	2.27	2.23	2.23	2.23	2.23

Intensity data(cd)

C/ $\gamma$ (°)	90.0
0.0	2.51
45.0	3.16
90.0	2.27
135.0	3.11
180.0	3.16
225.0	1.95
270.0	1.90
315.0	2.78
360.0	2.51