



NATA LIGHTING CO.,LTD.  
www.nata.cn  
Email:info@nata.com  
Tel:+86-750-3770000 Fax:+86-750-3771111  
Address:380JinOU Road,GaoXin Zone,Jiang Men City,Guangdong,China

---

## Nata

---

LumCAT: 3-2545-M	
Luminaire: 92.70.131.00	
Report No: 200919-B047	Voltage(V): 230.7000
Test No: 200919-C047	Current(A): 0.0910
LampCAT: OSRAM OPTO SOLERIQ S15	Power (W): 20.2300
Lamp flux(lm): 2197.0	PF: 0.9560
Number of Lamps: 1	Ballast type: AC
Length(feet)(ft.):0.000	Width(feet)(ft.):0.000
Phm Type: C	Height(feet)(ft.):0.000

---

## Photometric Results

---

Lumens(lm): 2089.64  
Efficiency(%): 95.12%  
Lumens(lm)/Power(W): 103.29  
Central intensity(cd): 16655.780  
Maximum intensity(cd): 16655.780  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=15.1  
                                  [C90/270]Total=15.1  
Field angle(10%Imax): [C0/180]Total=33.2  
                                  [C90/270]Total=33.2  
Maximum s/h(1/2): C0\_180=0.26 C90\_270=0.26  
Maximum s/h(1/4): C0\_180=0.27 C90\_270=0.27  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 95.29%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 99.629%

---

Equipment: GMS 1800  
Temperature(°C): 25.0

Date: 2020/9/19  
Humidity(%): 60.0%

Operator: NT0100  
Distance(feet): 22.35

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	16655.783	3.985	3.985	.181%	.191%
1.0	16413.326	31.413	35.397	1.430%	1.694%
2.0	15810.663	60.509	95.907	2.754%	4.590%
3.0	14963.802	85.880	181.787	3.909%	8.699%
4.0	13517.033	103.399	285.186	4.706%	13.648%
5.0	11744.367	112.248	397.434	5.109%	19.019%
6.0	10372.888	118.901	516.335	5.412%	24.709%
7.0	9118.315	121.860	638.195	5.547%	30.541%
8.0	7664.556	116.975	755.17	5.324%	36.139%
9.0	6218.454	106.676	861.846	4.856%	41.244%
10.0	4997.524	95.165	957.011	4.332%	45.798%
11.0	4040.223	84.539	1041.55	3.848%	49.844%
12.0	3295.043	75.126	1116.676	3.420%	53.439%
13.0	2729.155	67.324	1184	3.064%	56.661%
14.0	2336.466	61.985	1245.985	2.821%	59.627%
15.0	2103.928	59.714	1305.699	2.718%	62.485%
16.0	1865.501	56.388	1362.087	2.567%	65.183%
17.0	1529.976	49.054	1411.141	2.233%	67.530%
18.0	1331.950	45.136	1456.277	2.054%	69.690%
19.0	1184.005	42.271	1498.548	1.924%	71.713%
20.0	1055.583	39.591	1538.139	1.802%	73.608%
21.0	975.155	38.323	1576.461	1.744%	75.442%
22.0	917.017	37.671	1614.132	1.715%	77.245%
23.0	857.586	36.746	1650.878	1.673%	79.003%
24.0	812.389	36.235	1687.113	1.649%	80.737%
25.0	780.261	36.161	1723.274	1.646%	82.468%
26.0	750.986	36.102	1759.376	1.643%	84.195%
27.0	726.346	36.161	1795.537	1.646%	85.926%
28.0	706.810	36.388	1831.925	1.656%	87.667%
29.0	686.015	36.472	1868.397	1.660%	89.413%
30.0	651.967	35.748	1904.145	1.627%	91.123%
31.0	605.749	34.212	1938.357	1.557%	92.761%
32.0	545.587	31.705	1970.062	1.443%	94.278%
33.0	459.480	27.443	1997.505	1.249%	95.591%
34.0	378.344	23.201	2020.705	1.056%	96.701%
35.0	295.125	18.563	2039.268	.845%	97.590%
36.0	227.330	14.653	2053.921	.667%	98.291%
37.0	162.203	10.705	2064.626	.487%	98.803%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	106.182	7.169	2071.795	.326%	99.146%
39.0	47.685	3.291	2075.086	.150%	99.304%
40.0	19.228	1.355	2076.441	.062%	99.369%
41.0	11.827	0.851	2077.292	.039%	99.409%
42.0	9.605	0.705	2077.997	.032%	99.443%
43.0	8.167	0.611	2078.607	.028%	99.472%
44.0	7.146	0.544	2079.152	.025%	99.498%
45.0	6.699	0.519	2079.671	.024%	99.523%
46.0	6.218	0.491	2080.162	.022%	99.547%
47.0	5.887	0.472	2080.634	.021%	99.569%
48.0	5.632	0.459	2081.093	.021%	99.591%
49.0	5.429	0.449	2081.542	.020%	99.613%
50.0	5.255	0.441	2081.984	.020%	99.634%
51.0	5.070	0.432	2082.416	.020%	99.655%
52.0	4.861	0.420	2082.836	.019%	99.675%
53.0	4.577	0.401	2083.237	.018%	99.694%
54.0	4.292	0.381	2083.617	.017%	99.712%
55.0	4.054	0.364	2083.982	.017%	99.729%
56.0	3.962	0.360	2084.342	.016%	99.747%
57.0	3.933	0.362	2084.704	.016%	99.764%
58.0	3.892	0.362	2085.065	.016%	99.781%
59.0	3.788	0.356	2085.421	.016%	99.798%
60.0	3.625	0.344	2085.766	.016%	99.815%
61.0	3.353	0.322	2086.087	.015%	99.830%
62.0	3.051	0.295	2086.383	.013%	99.844%
63.0	2.825	0.276	2086.659	.013%	99.858%
64.0	2.645	0.261	2086.919	.012%	99.870%
65.0	2.535	0.252	2087.171	.011%	99.882%
66.0	2.442	0.245	2087.416	.011%	99.894%
67.0	2.367	0.239	2087.655	.011%	99.905%
68.0	2.245	0.228	2087.883	.010%	99.916%
69.0	2.036	0.208	2088.092	.009%	99.926%
70.0	1.746	0.180	2088.271	.008%	99.935%
71.0	1.415	0.147	2088.418	.007%	99.942%
72.0	1.096	0.114	2088.533	.005%	99.947%
73.0	0.882	0.092	2088.625	.004%	99.952%
74.0	0.719	0.076	2088.701	.003%	99.955%
75.0	0.673	0.071	2088.772	.003%	99.959%

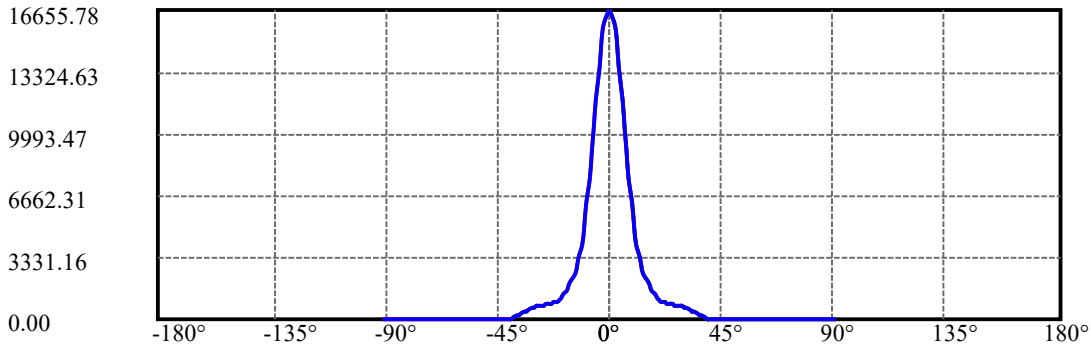
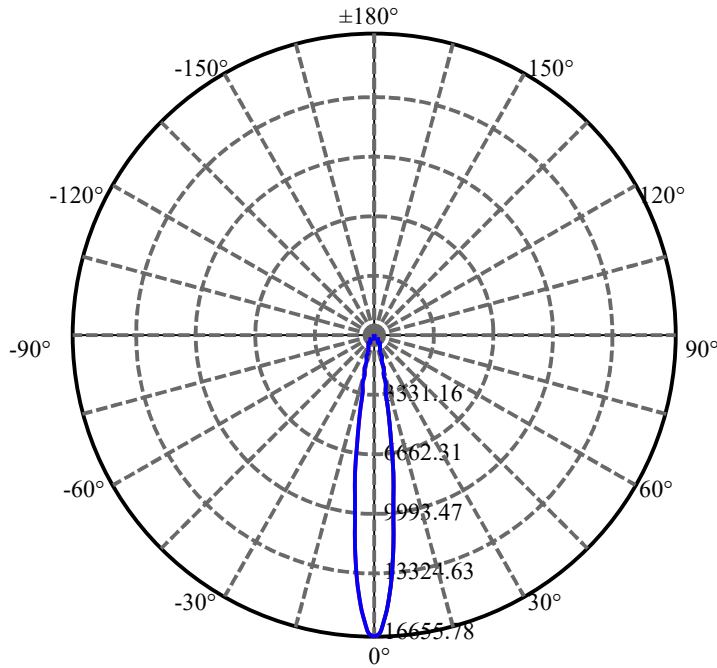
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	0.626	0.067	2088.839	.003%	99.962%
77.0	0.632	0.068	2088.906	.003%	99.965%
78.0	0.731	0.078	2088.985	.004%	99.969%
79.0	0.708	0.076	2089.061	.003%	99.973%
80.0	0.626	0.068	2089.129	.003%	99.976%
81.0	0.545	0.059	2089.188	.003%	99.979%
82.0	0.487	0.053	2089.241	.002%	99.981%
83.0	0.487	0.053	2089.294	.002%	99.984%
84.0	0.464	0.051	2089.344	.002%	99.986%
85.0	0.464	0.051	2089.395	.002%	99.988%
86.0	0.534	0.058	2089.453	.003%	99.991%
87.0	0.510	0.056	2089.509	.003%	99.994%
88.0	0.458	0.050	2089.559	.002%	99.996%
89.0	0.458	0.050	2089.61	.002%	99.999%
90.0	0.470	0.026	2089.635	.001%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1904.14	86.67%	91.12%
0-40	2076.44	94.51%	99.37%
0-60	2085.77	94.94%	99.81%
0-90	2089.61	95.11%	100.00%
0-120	2089.61	95.11%	100.00%
0-180	2089.64	95.12%	100.00%
60-90	4.19	0.19%	0.20%
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%
0-23.57	1671.71	76.09%	80.00%

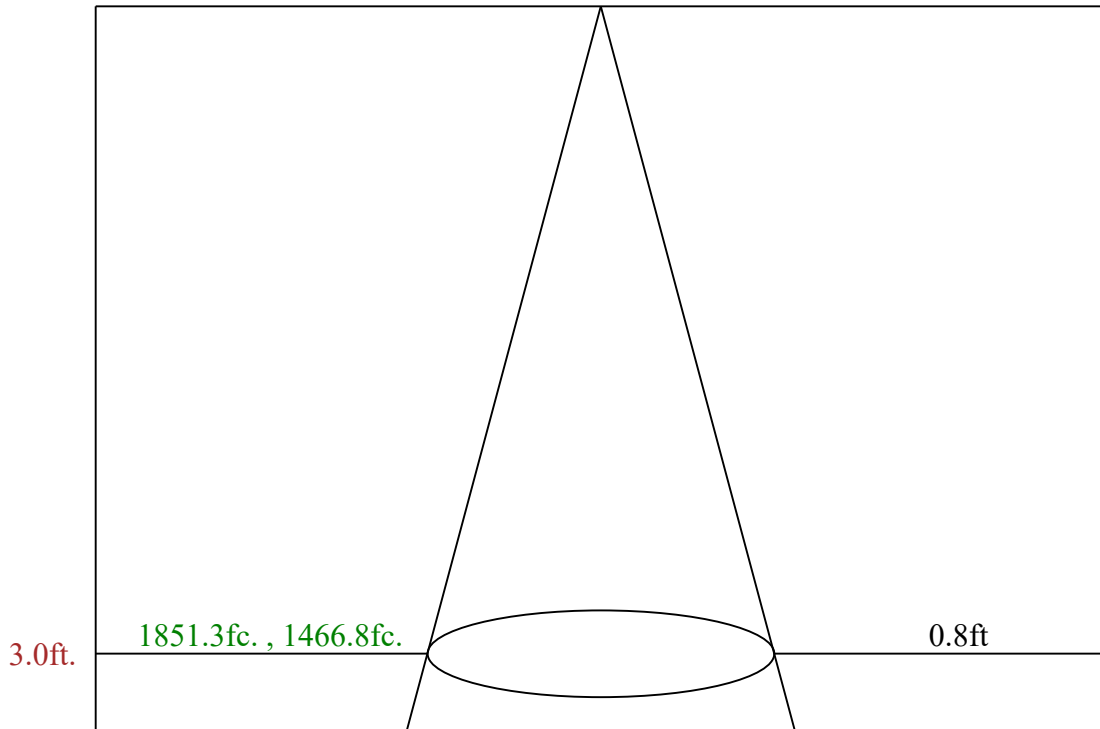
ZONAL LUMEN SUMMARY

0-10	957.01
10-20	581.13
20-30	366.01
30-40	172.30
40-50	5.54
50-60	3.78
60-70	2.51
70-80	0.86
80-90	0.48
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

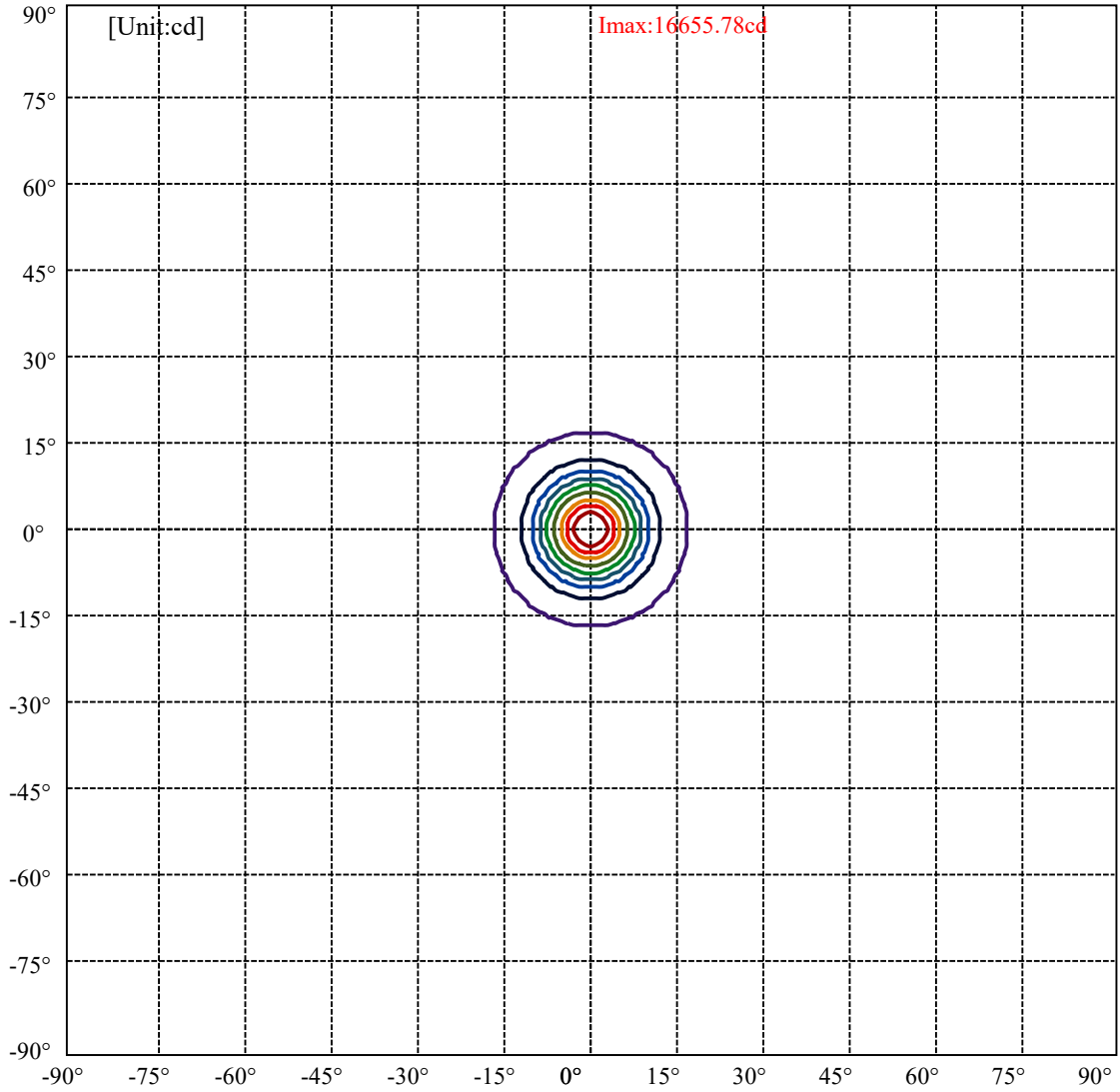


C0(Max): —————  
C0/C180: —————  
C90/C270: —————

Field angle(10%Imax):C0/180Left:16.6 Right:16.6  
:C90/270Left:16.6 Right:16.6  
Beam Angle(50%Imax):C0/180Left:7.5 Right:7.5  
:C90/270Left:7.5 Right:7.5

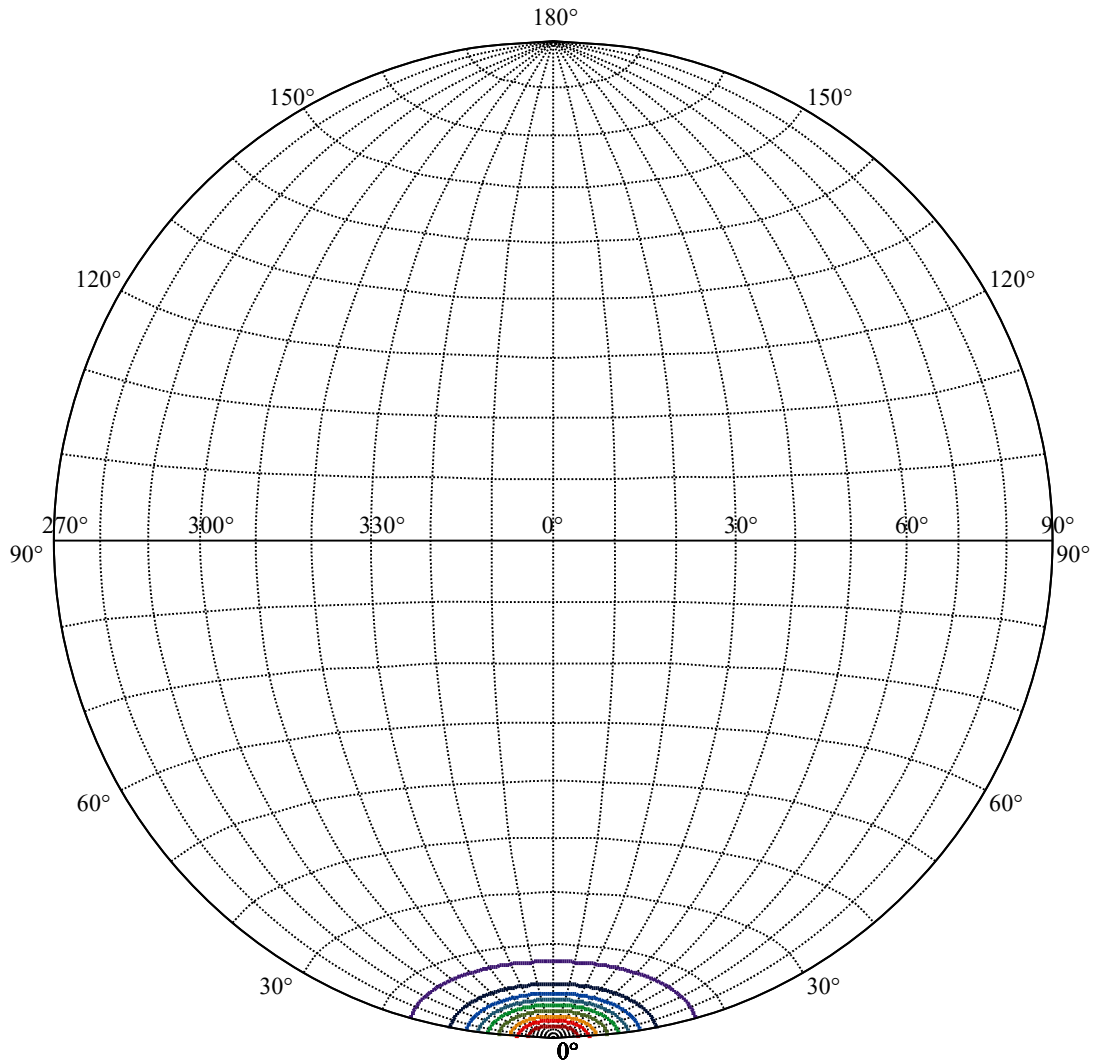


Max , Ave      Beam angle of C0 plane 15.25



(10%Imax) 1665.58	—
(20%Imax) 3331.16	—
(30%Imax) 4996.73	—
(40%Imax) 6662.31	—
(50%Imax) 8327.89	—
(60%Imax) 9993.47	—
(70%Imax) 11659	—
(80%Imax) 13324.6	—
(90%Imax) 14990.2	—





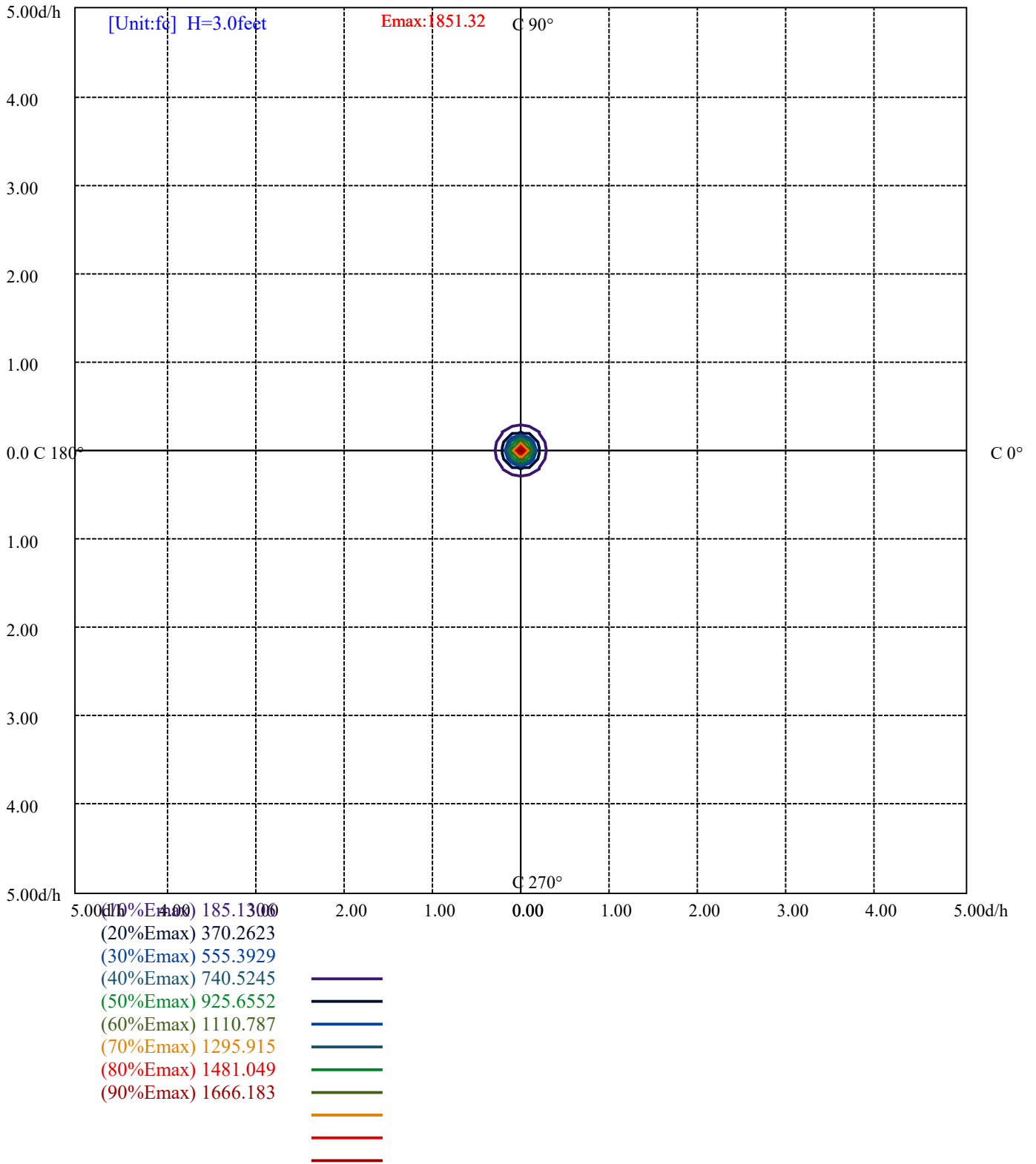
House

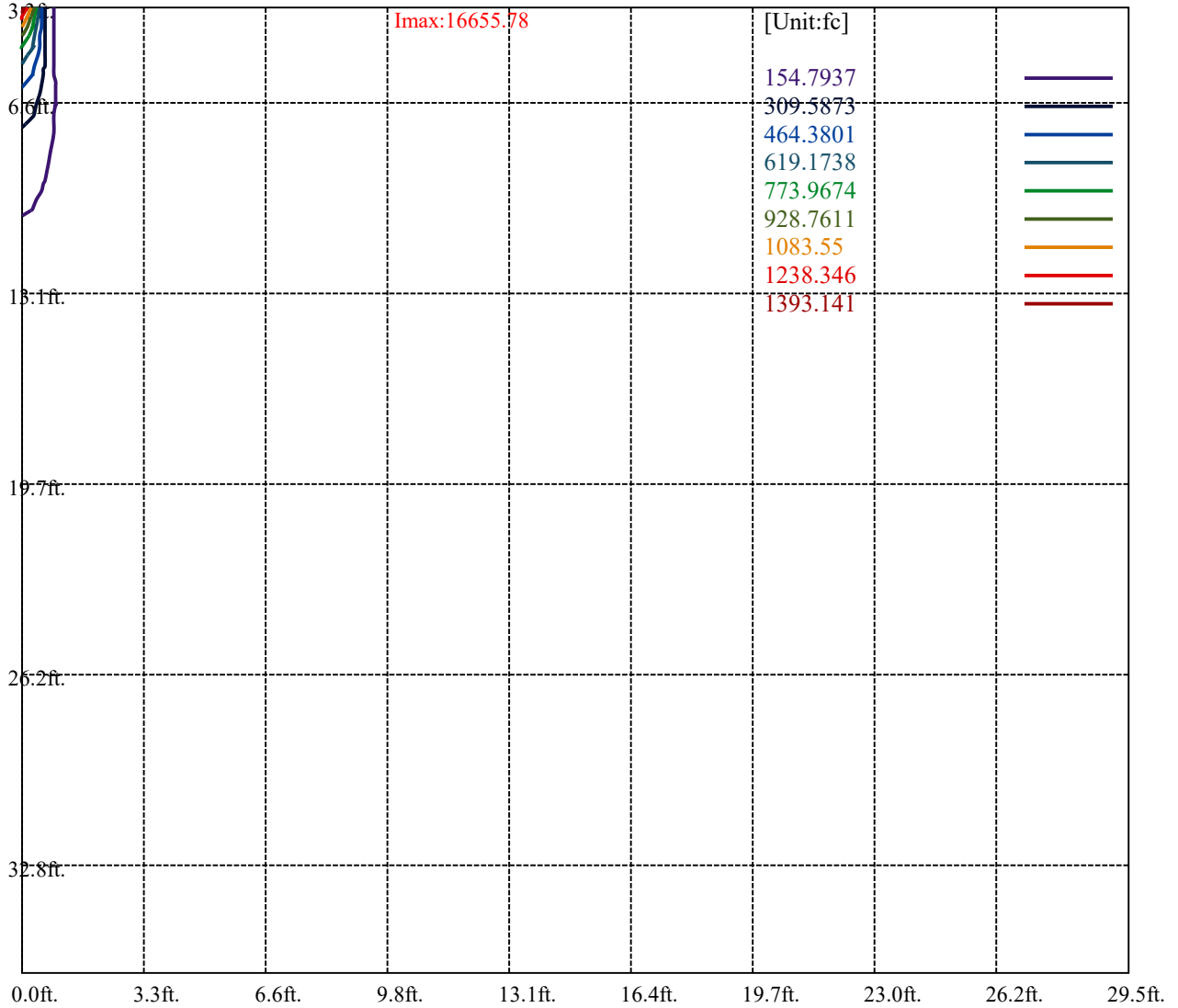
[Unit:cd]

Road

**Imax:16655.78**

(10%Imax)	1665.58	—
(20%Imax)	3331.16	—
(30%Imax)	4996.73	—
(40%Imax)	6662.31	—
(50%Imax)	8327.89	—
(60%Imax)	9993.47	—
(70%Imax)	11659	—
(80%Imax)	13324.6	—
(90%Imax)	14990.2	—





Luminance Table

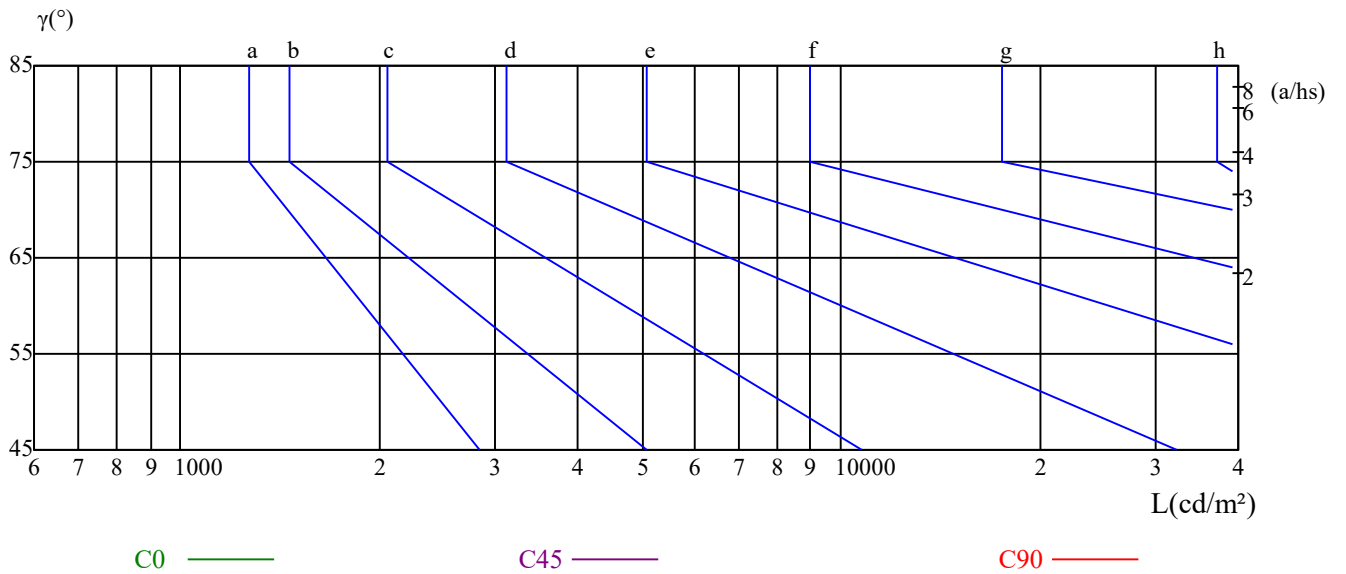
$\gamma$	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

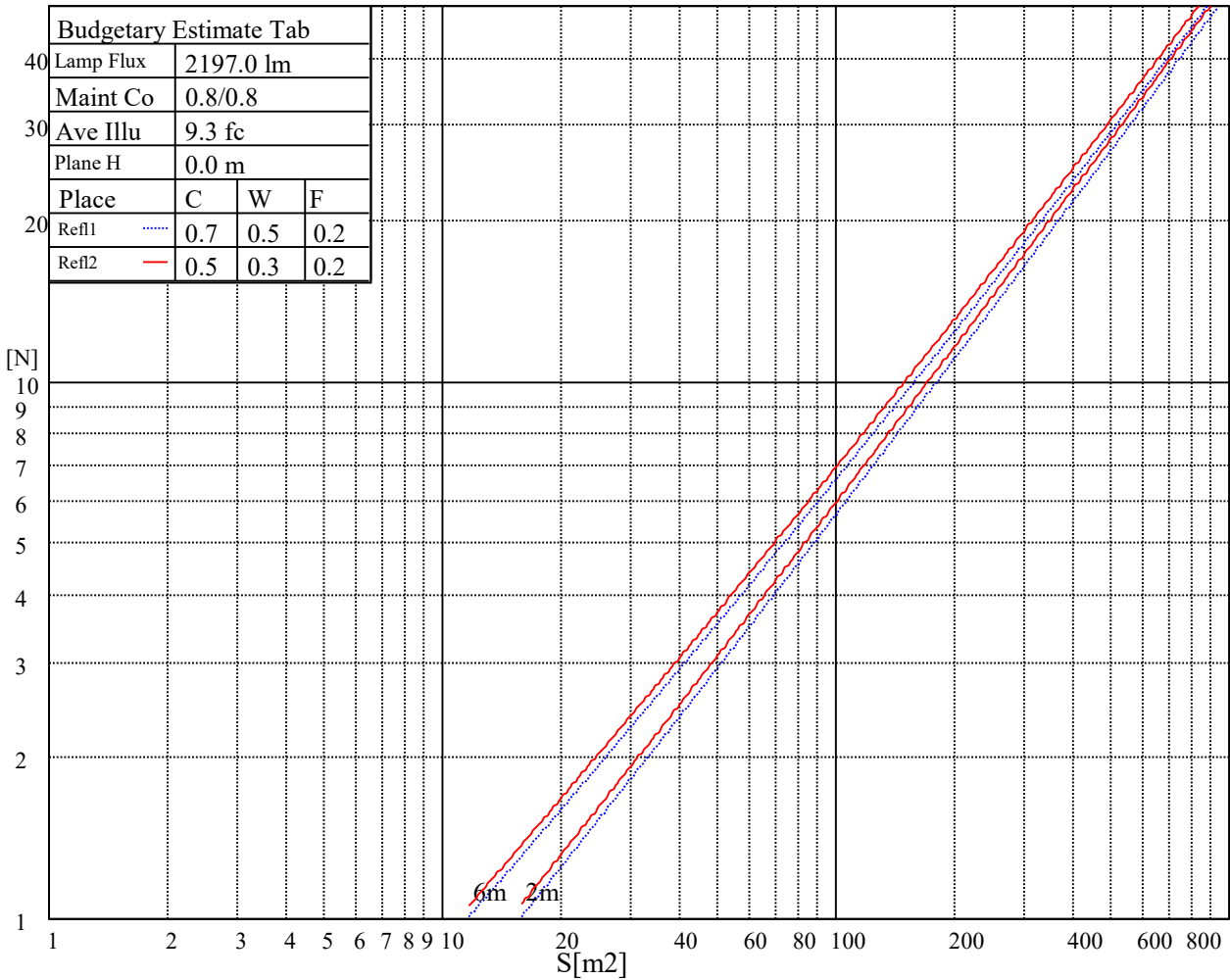
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

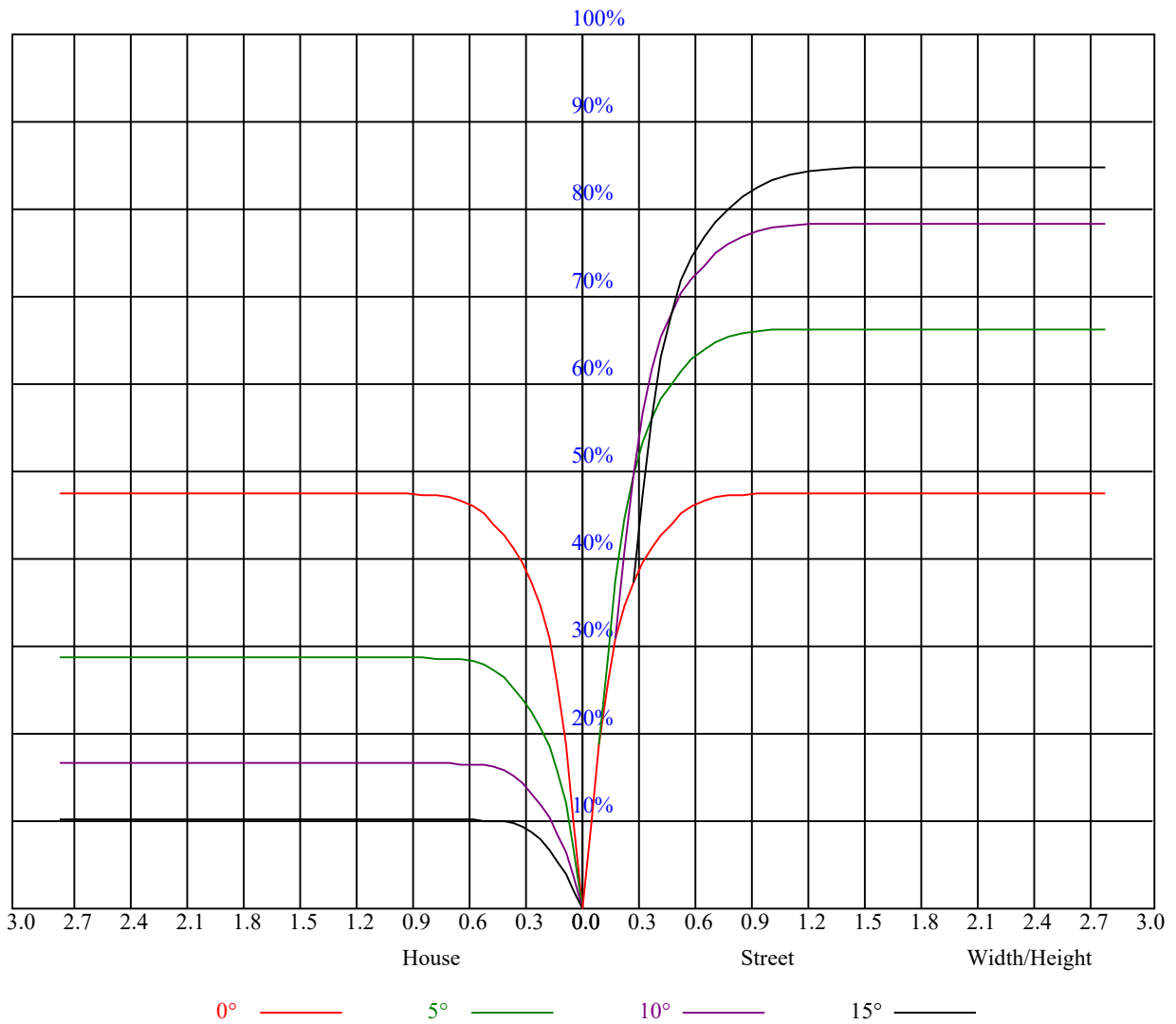
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	1.13	1.13	1.13	1.11	1.11	1.11	1.06	1.06	1.06	1.01	1.01	1.01	0.97	0.97	0.97	0.95
1	1.07	1.06	1.04	1.05	1.04	1.02	1.02	1.00	0.99	0.98	0.97	0.96	0.95	0.94	0.93	0.92
2	1.03	1.00	0.97	1.01	0.98	0.96	0.98	0.96	0.94	0.95	0.94	0.92	0.93	0.91	0.90	0.89
3	0.98	0.95	0.92	0.97	0.94	0.91	0.95	0.92	0.90	0.92	0.90	0.89	0.90	0.89	0.87	0.86
4	0.94	0.91	0.88	0.93	0.90	0.87	0.92	0.89	0.86	0.90	0.87	0.85	0.88	0.86	0.85	0.83
5	0.91	0.87	0.84	0.90	0.87	0.84	0.89	0.86	0.83	0.87	0.85	0.83	0.86	0.84	0.82	0.81
6	0.88	0.84	0.81	0.87	0.84	0.81	0.86	0.83	0.81	0.85	0.82	0.80	0.84	0.82	0.80	0.79
7	0.85	0.81	0.79	0.85	0.81	0.79	0.84	0.81	0.78	0.83	0.80	0.78	0.82	0.79	0.77	0.76
8	0.83	0.79	0.76	0.82	0.79	0.76	0.82	0.78	0.76	0.81	0.78	0.76	0.80	0.77	0.75	0.75
9	0.81	0.77	0.74	0.80	0.77	0.74	0.80	0.76	0.74	0.79	0.76	0.74	0.78	0.76	0.74	0.73
10	0.79	0.75	0.72	0.78	0.75	0.72	0.78	0.74	0.72	0.77	0.74	0.72	0.76	0.74	0.72	0.71



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	16452.77	15557.19	13840.26	12977.16	9031.71	8369.54	8038.68	6466.54	5147.29
45.0	16977.13	16499.17	15659.27	14568.79	13264.86	11770.67	10114.07	8448.19	6842.64
90.0	16564.14	15933.05	15000.34	13817.06	12392.48	9097.14	9097.14	7441.47	5944.50
135.0	16629.10	16796.15	16610.54	15868.09	15074.59	13835.62	12373.92	10731.24	9042.16
180.0	16452.77	16824.00	17130.26	17000.33	16364.60	15357.65	14025.87	12489.92	10800.84
225.0	16977.13	17018.89	16578.06	15687.11	14726.57	12995.72	8879.05	8879.05	8202.95
270.0	16564.14	16805.44	16587.34	15933.05	14870.42	14118.68	12044.45	11046.78	9366.98
315.0	16629.10	15872.73	15079.23	13858.82	12411.04	8409.91	8409.91	7443.33	5969.09
360.0	16452.77	15557.19	13840.26	12977.16	9031.71	8369.54	8038.68	6466.54	5147.29
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	4136.16	3392.78	2840.12	2396.50	2045.69	1760.31	1571.45	1341.75	1194.65
45.0	5436.62	4346.14	3524.80	2940.12	2471.44	2397.20	2397.20	1665.65	1453.12
90.0	4715.74	3802.99	3249.86	2705.55	2289.31	1965.88	1701.38	1490.71	1317.16
135.0	7353.07	5854.25	4657.04	3756.81	3083.97	2582.81	2499.28	2499.28	1724.12
180.0	9060.72	7376.28	5868.17	4652.40	3719.69	3051.48	2554.97	2392.56	2025.27
225.0	6589.51	5202.97	4115.28	3329.67	2762.62	2328.29	1992.33	1724.12	1504.63
270.0	7687.18	6155.87	4889.06	3914.59	3190.69	2657.06	2327.59	2327.59	1641.05
315.0	4768.64	3848.93	3177.47	2664.71	2269.82	1948.71	1787.22	1482.35	1379.80
360.0	4136.16	3392.78	2840.12	2396.50	2045.69	1760.31	1571.45	1341.75	1194.65
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1096.28	903.89	903.89	870.11	824.12	786.95	758.00	735.63	715.82
45.0	1283.28	1145.47	1035.03	951.96	887.93	837.81	797.44	765.42	739.44
90.0	1176.56	1061.48	910.94	910.94	855.49	810.81	775.77	758.51	733.36
135.0	1425.74	1321.80	1177.95	1058.69	966.35	897.67	843.84	802.55	768.21
180.0	1668.90	1458.23	1287.00	1149.64	1039.67	957.07	890.71	838.28	797.91
225.0	1331.08	1188.62	1069.37	908.90	908.90	861.34	814.52	778.37	750.39
270.0	1441.98	1280.96	1144.54	1035.03	983.05	886.07	834.10	808.11	772.38
315.0	1231.78	1111.59	915.96	915.96	870.62	822.96	784.73	755.21	730.39
360.0	1096.28	903.89	903.89	870.11	824.12	786.95	758.00	735.63	715.82
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	698.09	677.58	633.78	566.63	485.56	432.02	306.54	219.35	171.00
45.0	718.09	699.07	682.36	652.66	607.19	515.31	448.49	361.71	274.01
90.0	704.77	694.89	675.96	637.07	573.68	492.39	401.99	311.51	222.60
135.0	742.22	719.95	701.85	687.47	664.73	614.61	543.15	461.48	371.92
180.0	765.89	739.90	718.09	699.53	683.75	650.34	590.48	512.99	428.07
225.0	727.42	709.23	692.71	672.01	624.36	552.90	469.23	382.50	295.54
270.0	744.08	721.34	704.17	687.47	665.66	616.93	548.26	464.73	372.85
315.0	710.20	692.52	679.21	612.90	541.06	490.20	367.70	312.48	225.01
360.0	698.09	677.58	633.78	566.63	485.56	432.02	306.54	219.35	171.00
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	98.05	43.94	18.19	13.97	11.97	9.84	9.28	8.58	8.40
45.0	256.84	162.13	49.42	19.26	12.30	9.74	7.52	6.50	5.89
90.0	140.88	73.87	28.49	13.41	10.95	8.12	6.54	6.08	5.61
135.0	280.04	280.04	247.10	64.04	24.41	13.13	11.65	9.47	8.07
180.0	375.17	287.00	251.74	156.38	49.28	20.74	14.20	12.34	9.98
225.0	244.04	131.32	64.73	36.57	13.74	12.81	10.72	8.45	7.10
270.0	280.04	245.71	162.32	65.52	21.11	11.93	10.35	8.03	6.36
315.0	143.57	73.60	27.47	12.34	10.07	8.31	6.59	5.89	5.75
360.0	98.05	43.94	18.19	13.97	11.97	9.84	9.28	8.58	8.40



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	7.89	7.24	6.68	6.45	6.36	6.22	5.89	5.57	5.29
45.0	5.85	5.34	4.97	4.69	4.45	4.45	4.36	4.18	3.76
90.0	5.24	4.78	4.32	4.08	4.08	3.90	3.62	3.39	3.11
135.0	7.80	6.96	6.45	6.03	5.71	5.43	5.29	5.15	4.73
180.0	8.82	8.26	7.93	7.38	6.77	6.17	5.99	5.89	5.71
225.0	6.64	6.22	5.75	5.38	5.10	5.01	4.87	4.64	4.32
270.0	5.80	5.38	5.34	5.34	5.24	5.10	5.06	5.01	4.87
315.0	5.57	5.57	5.66	5.71	5.71	5.75	5.48	5.06	4.83
360.0	7.89	7.24	6.68	6.45	6.36	6.22	5.89	5.57	5.29
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	5.10	4.87	4.73	4.59	4.45	4.22	3.81	3.34	3.11
45.0	3.34	3.16	3.20	3.34	3.39	3.29	3.11	2.78	2.41
90.0	2.92	2.88	2.88	2.83	2.74	2.74	2.55	2.32	2.04
135.0	4.41	4.04	3.71	3.62	3.67	3.67	3.53	3.39	3.20
180.0	5.61	5.06	4.83	4.69	4.55	4.45	4.41	4.27	3.94
225.0	4.04	3.81	3.85	3.85	3.94	3.76	3.71	3.34	3.11
270.0	4.55	4.27	4.18	4.08	3.99	3.90	3.85	3.67	3.29
315.0	4.36	4.36	4.32	4.45	4.41	4.27	4.04	3.71	3.29
360.0	5.10	4.87	4.73	4.59	4.45	4.22	3.81	3.34	3.11
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	2.92	2.74	2.60	2.51	2.37	2.04	1.67	1.25	0.93
45.0	2.23	2.13	2.09	2.04	2.00	1.90	1.76	1.48	1.11
90.0	2.04	2.00	1.95	1.90	1.86	1.72	1.44	1.11	0.93
135.0	2.92	2.64	2.60	2.55	2.41	2.27	2.18	2.00	1.67
180.0	3.48	3.11	2.92	2.74	2.69	2.69	2.69	2.55	2.18
225.0	2.83	2.69	2.55	2.41	2.46	2.41	2.18	1.86	1.44
270.0	3.11	2.88	2.74	2.64	2.60	2.51	2.32	2.09	1.81
315.0	3.06	2.97	2.83	2.74	2.55	2.41	2.04	1.62	1.25
360.0	2.92	2.74	2.60	2.51	2.37	2.04	1.67	1.25	0.93
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	0.79	0.70	0.65	0.65	0.65	0.60	0.65	0.51	0.51
45.0	0.84	0.70	0.65	0.65	0.60	0.60	0.70	0.65	0.60
90.0	0.70	0.60	0.60	0.60	0.51	0.60	0.60	0.51	0.46
135.0	1.30	1.07	0.79	0.65	0.65	0.60	0.65	0.60	0.56
180.0	1.76	1.39	0.97	0.84	0.70	0.60	0.65	0.65	0.88
225.0	1.07	0.84	0.65	0.60	0.60	0.84	1.48	1.62	0.88
270.0	1.39	1.02	0.79	0.74	0.65	0.60	0.56	0.56	0.56
315.0	0.93	0.74	0.65	0.65	0.65	0.60	0.56	0.56	0.56
360.0	0.79	0.70	0.65	0.65	0.65	0.60	0.65	0.51	0.51
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	0.51	0.51	0.46	0.51	0.56	1.02	0.88	0.56	0.60
45.0	0.46	0.51	0.46	0.46	0.46	0.46	0.51	0.51	0.51
90.0	0.51	0.42	0.46	0.42	0.46	0.46	0.46	0.46	0.46
135.0	0.56	0.51	0.51	0.46	0.46	0.51	0.51	0.42	0.46
180.0	0.70	0.56	0.51	0.46	0.46	0.46	0.46	0.46	0.42
225.0	0.65	0.46	0.51	0.46	0.46	0.46	0.42	0.42	0.42
270.0	0.51	0.46	0.46	0.46	0.42	0.42	0.42	0.42	0.37
315.0	0.46	0.46	0.51	0.46	0.42	0.46	0.42	0.42	0.42
360.0	0.51	0.51	0.46	0.51	0.56	1.02	0.88	0.56	0.60

Intensity data(cd)

C/ $\gamma$ ( $^{\circ}$ )	90.0
0.0	0.60
45.0	0.42
90.0	0.42
135.0	0.51
180.0	0.46
225.0	0.46
270.0	0.46
315.0	0.42
360.0	0.60