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Nata

LumCAT: 2-2188-M	
Luminaire: 92.70.129.00	
Report No: NATA0100	Voltage(V): 35.7200
Test No: GC20200211715	Current(A): 0.6000
LampCAT: CREE CXA1830	Power (W): 21.4300
Lamp flux(lm): 3098.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 0	Width(mm): 0
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 2472.04
Efficiency(%): 79.79%
Lumens(lm)/Power(W): 115.35
Central intensity(cd): 7065.563
Maximum intensity(cd): 7065.563
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=36.2
 [C90/270]Total=36.2
Field angle(10%Imax): [C0/180]Total=53.8
 [C90/270]Total=53.8
Maximum s/h(1/2): C0_180=0.60 C90_270=0.60
Maximum s/h(1/4): C0_180=0.57 C90_270=0.57
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 79.79%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.717%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	7065.563	0.000	0	.000%	.000%
1.0	7052.273	6.755	6.755	.218%	.273%
2.0	7005.586	20.177	26.932	.651%	1.089%
3.0	6933.656	33.338	60.27	1.076%	2.438%
4.0	6845.133	46.122	106.392	1.489%	4.304%
5.0	6718.992	58.352	164.745	1.884%	6.664%
6.0	6566.625	69.819	234.564	2.254%	9.489%
7.0	6399.281	80.479	315.043	2.598%	12.744%
8.0	6202.898	90.191	405.235	2.911%	16.393%
9.0	5990.063	98.817	504.052	3.190%	20.390%
10.0	5767.734	106.404	610.456	3.435%	24.694%
11.0	5523.680	112.824	723.28	3.642%	29.258%
12.0	5292.633	118.238	841.518	3.817%	34.041%
13.0	5035.922	122.574	964.092	3.957%	39.000%
14.0	4759.664	125.383	1089.474	4.047%	44.072%
15.0	4504.359	127.181	1216.655	4.105%	49.217%
16.0	4230.563	127.991	1344.646	4.131%	54.394%
17.0	3884.273	126.370	1471.016	4.079%	59.506%
18.0	3561.398	122.763	1593.779	3.963%	64.472%
19.0	3244.711	118.412	1712.191	3.822%	69.262%
20.0	2883.305	112.160	1824.351	3.620%	73.799%
21.0	2534.977	104.042	1928.393	3.358%	78.008%
22.0	2232.984	95.814	2024.207	3.093%	81.884%
23.0	1888.594	86.482	2110.689	2.792%	85.383%
24.0	1519.903	74.522	2185.211	2.405%	88.397%
25.0	1197.717	61.793	2247.004	1.995%	90.897%
26.0	957.178	50.867	2297.87	1.642%	92.954%
27.0	684.949	40.175	2338.045	1.297%	94.580%
28.0	461.588	29.028	2367.073	.937%	95.754%
29.0	292.198	19.721	2386.794	.637%	96.552%
30.0	167.991	12.425	2399.219	.401%	97.054%
31.0	77.576	6.834	2406.053	.221%	97.331%
32.0	49.486	3.640	2409.693	.118%	97.478%
33.0	34.699	2.480	2412.173	.080%	97.578%
34.0	26.353	1.848	2414.021	.060%	97.653%
35.0	21.094	1.474	2415.494	.048%	97.713%
36.0	18.155	1.250	2416.744	.040%	97.763%
37.0	16.580	1.133	2417.877	.037%	97.809%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	15.469	1.070	2418.947	.035%	97.852%
39.0	14.625	1.027	2419.974	.033%	97.894%
40.0	14.091	1.001	2420.975	.032%	97.934%
41.0	13.584	0.985	2421.961	.032%	97.974%
42.0	13.127	0.970	2422.931	.031%	98.013%
43.0	12.804	0.961	2423.892	.031%	98.052%
44.0	12.509	0.955	2424.847	.031%	98.091%
45.0	12.255	0.952	2425.799	.031%	98.129%
46.0	12.038	0.950	2426.749	.031%	98.168%
47.0	11.841	0.950	2427.699	.031%	98.206%
48.0	11.679	0.951	2428.65	.031%	98.245%
49.0	11.517	0.953	2429.602	.031%	98.283%
50.0	11.370	0.954	2430.556	.031%	98.322%
51.0	11.257	0.957	2431.514	.031%	98.361%
52.0	11.152	0.962	2432.475	.031%	98.400%
53.0	11.039	0.965	2433.441	.031%	98.439%
54.0	10.948	0.969	2434.41	.031%	98.478%
55.0	10.856	0.973	2435.383	.031%	98.517%
56.0	10.765	0.977	2436.36	.032%	98.557%
57.0	10.716	0.982	2437.342	.032%	98.596%
58.0	10.638	0.987	2438.329	.032%	98.636%
59.0	10.575	0.992	2439.321	.032%	98.676%
60.0	10.498	0.996	2440.317	.032%	98.717%
61.0	10.455	1.000	2441.317	.032%	98.757%
62.0	10.406	1.005	2442.322	.032%	98.798%
63.0	10.371	1.011	2443.332	.033%	98.839%
64.0	10.315	1.015	2444.347	.033%	98.880%
65.0	10.273	1.019	2445.366	.033%	98.921%
66.0	10.252	1.024	2446.39	.033%	98.962%
67.0	10.216	1.029	2447.42	.033%	99.004%
68.0	10.188	1.034	2448.453	.033%	99.046%
69.0	10.174	1.039	2449.492	.034%	99.088%
70.0	10.139	1.043	2450.535	.034%	99.130%
71.0	10.132	1.048	2451.583	.034%	99.173%
72.0	10.104	1.052	2452.635	.034%	99.215%
73.0	10.083	1.056	2453.691	.034%	99.258%
74.0	10.083	1.060	2454.751	.034%	99.301%
75.0	10.048	1.064	2455.815	.034%	99.344%

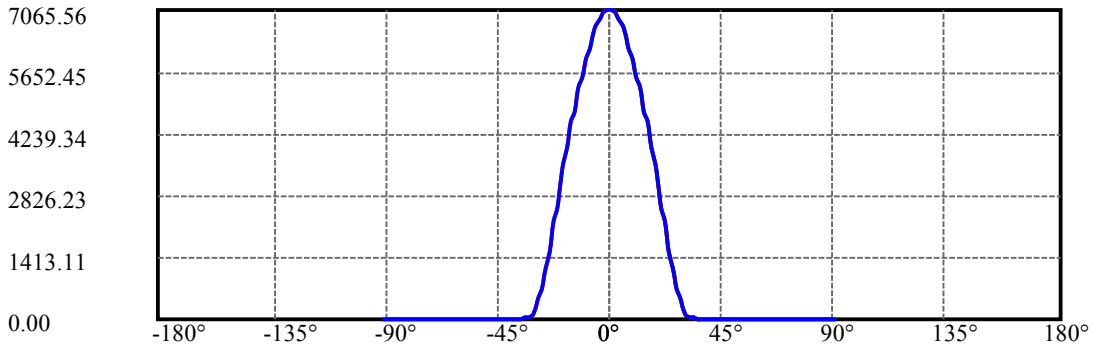
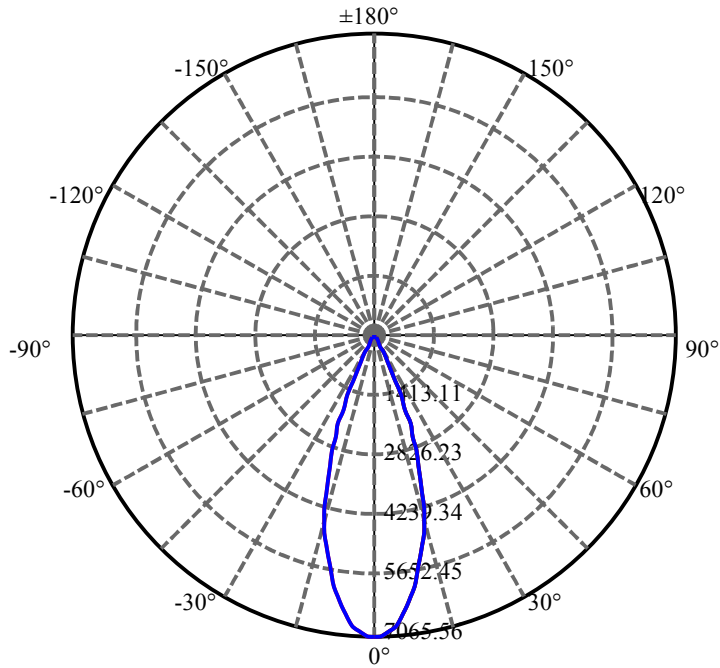
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	10.048	1.067	2456.881	.034%	99.387%
77.0	10.005	1.069	2457.95	.035%	99.430%
78.0	10.027	1.072	2459.023	.035%	99.473%
79.0	9.984	1.075	2460.098	.035%	99.517%
80.0	10.005	1.078	2461.176	.035%	99.561%
81.0	9.963	1.080	2462.256	.035%	99.604%
82.0	9.984	1.082	2463.337	.035%	99.648%
83.0	9.963	1.084	2464.422	.035%	99.692%
84.0	9.977	1.086	2465.508	.035%	99.736%
85.0	9.956	1.088	2466.596	.035%	99.780%
86.0	9.949	1.088	2467.684	.035%	99.824%
87.0	9.949	1.089	2468.773	.035%	99.868%
88.0	9.928	1.089	2469.862	.035%	99.912%
89.0	9.928	1.088	2470.95	.035%	99.956%
90.0	9.928	1.089	2472.039	.035%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	2399.22	77.44%	97.05%
0-40	2420.98	78.15%	97.93%
0-60	2440.32	78.77%	98.72%
0-90	2470.95	79.76%	99.96%
0-120	2470.95	79.76%	99.96%
0-180	2472.04	79.79%	100.00%
60-90	31.63	1.02%	1.28%
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%
0-21.51	1977.63	63.84%	80.00%

ZONAL LUMEN SUMMARY

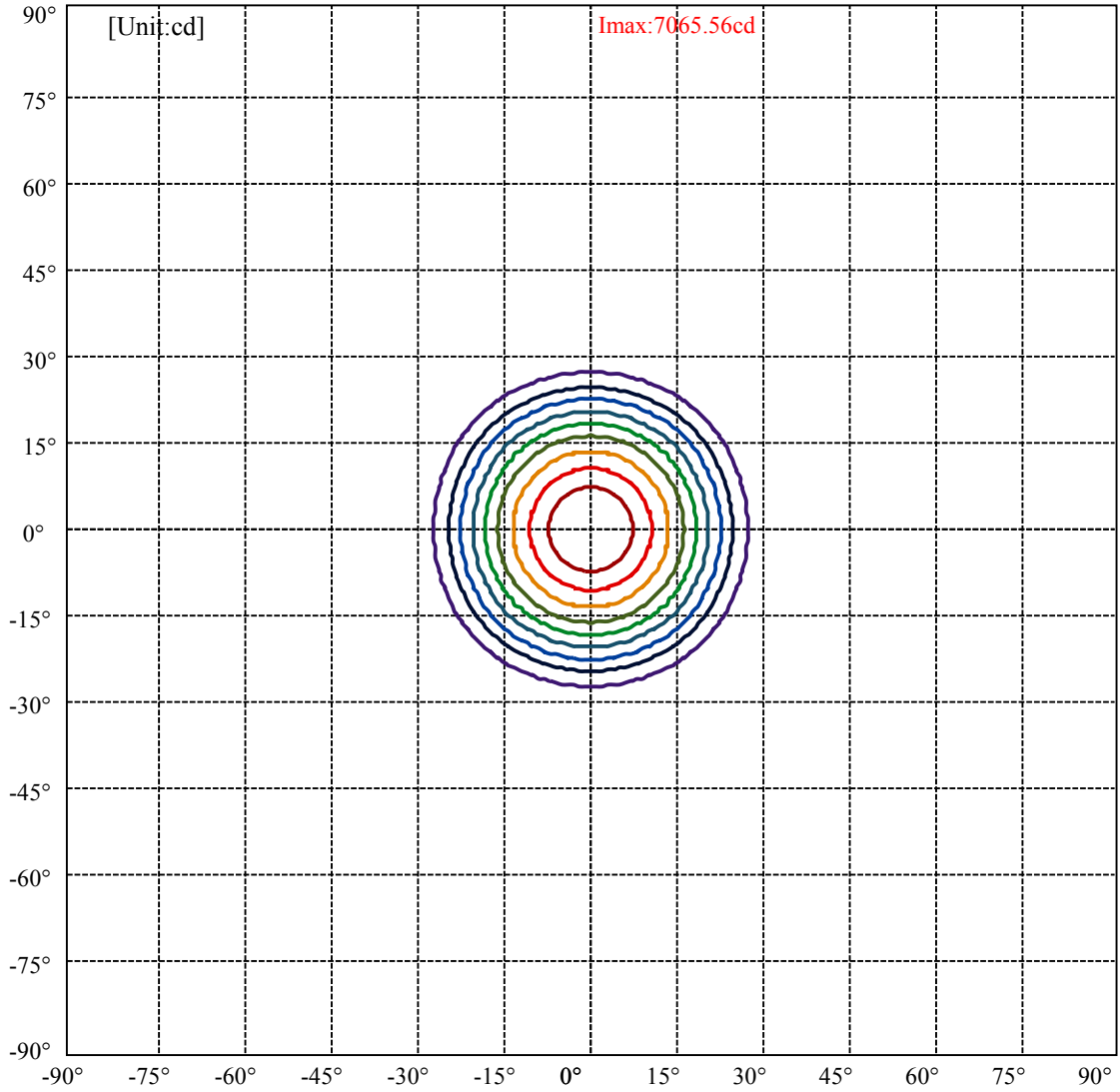
0-10	610.46
10-20	1213.90
20-30	574.87
30-40	21.76
40-50	9.58
50-60	9.76
60-70	10.22
70-80	10.64
80-90	9.77
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00



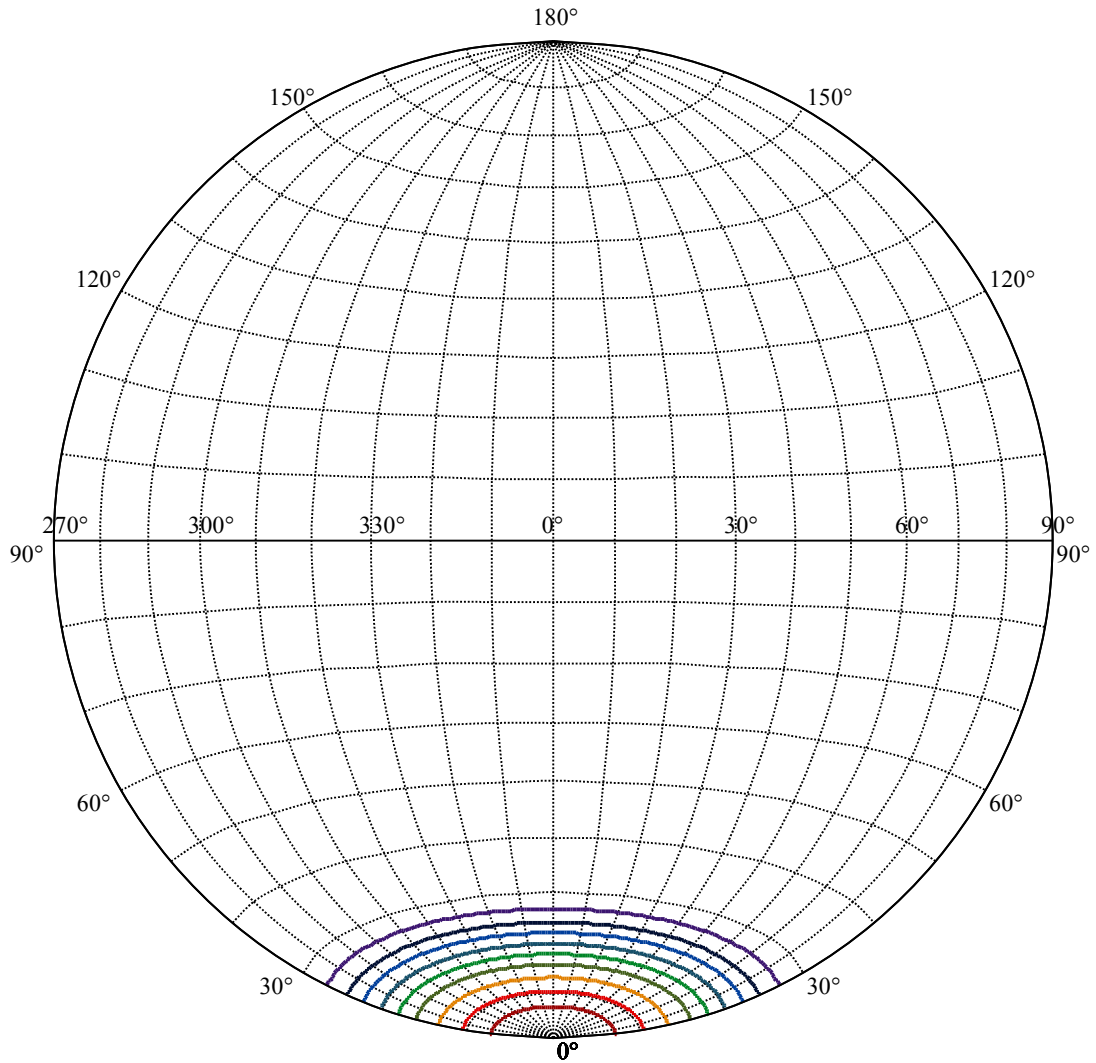
C0(Max): —————
C0/C180: —————
C90/C270: —————

Field angle(10%Imax):C0/180Left:26.9 Right:26.9
:C90/270Left:26.9 Right:26.9

Beam Angle(50%Imax):C0/180Left:18.1 Right:18.1
:C90/270Left:18.1 Right:18.1



(10%Imax) 706.556	—
(20%Imax) 1413.11	—
(30%Imax) 2119.67	—
(40%Imax) 2826.23	—
(50%Imax) 3532.78	—
(60%Imax) 4239.34	—
(70%Imax) 4945.89	—
(80%Imax) 5652.45	—
(90%Imax) 6359.01	—



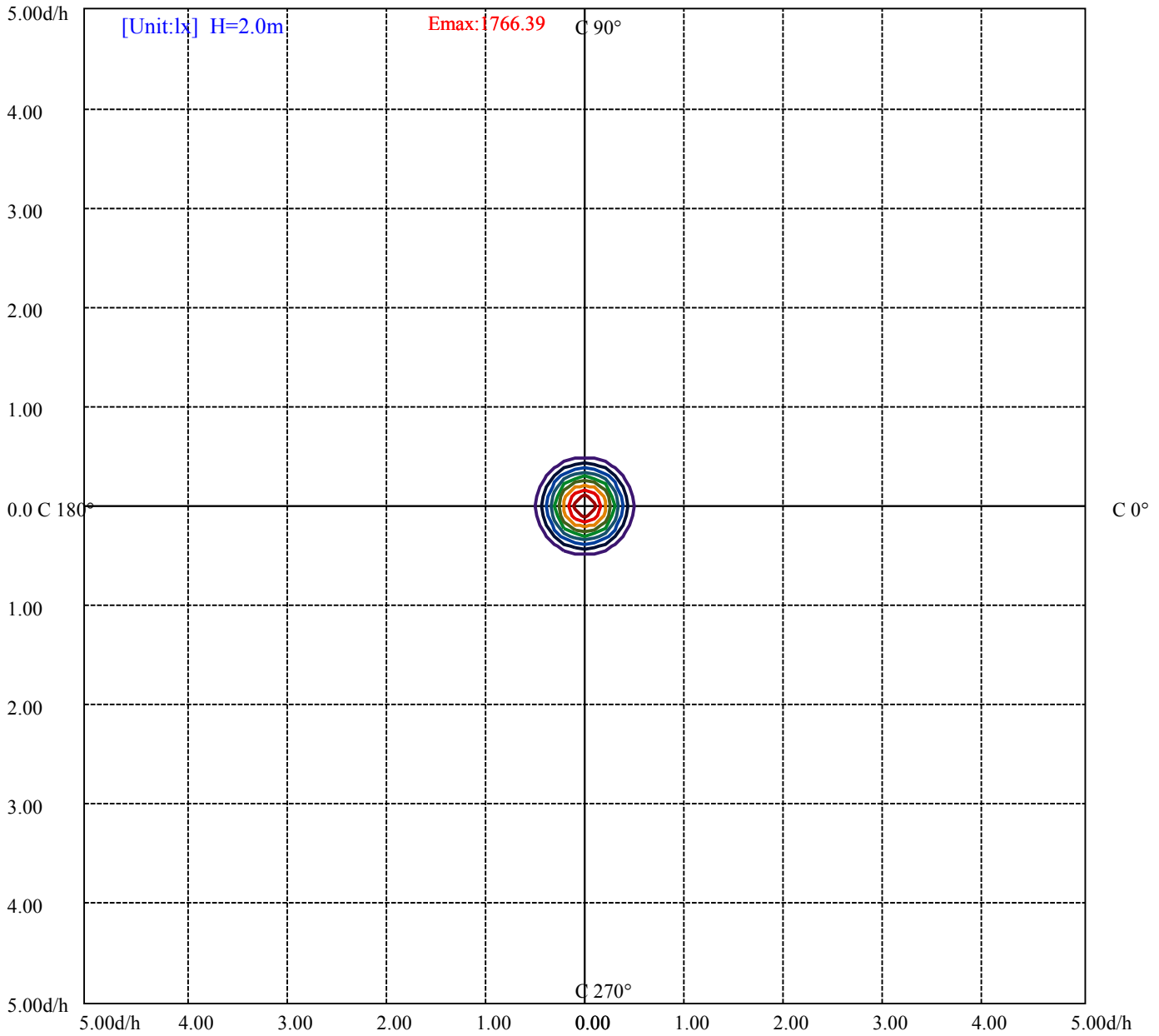
House

[Unit:cd]

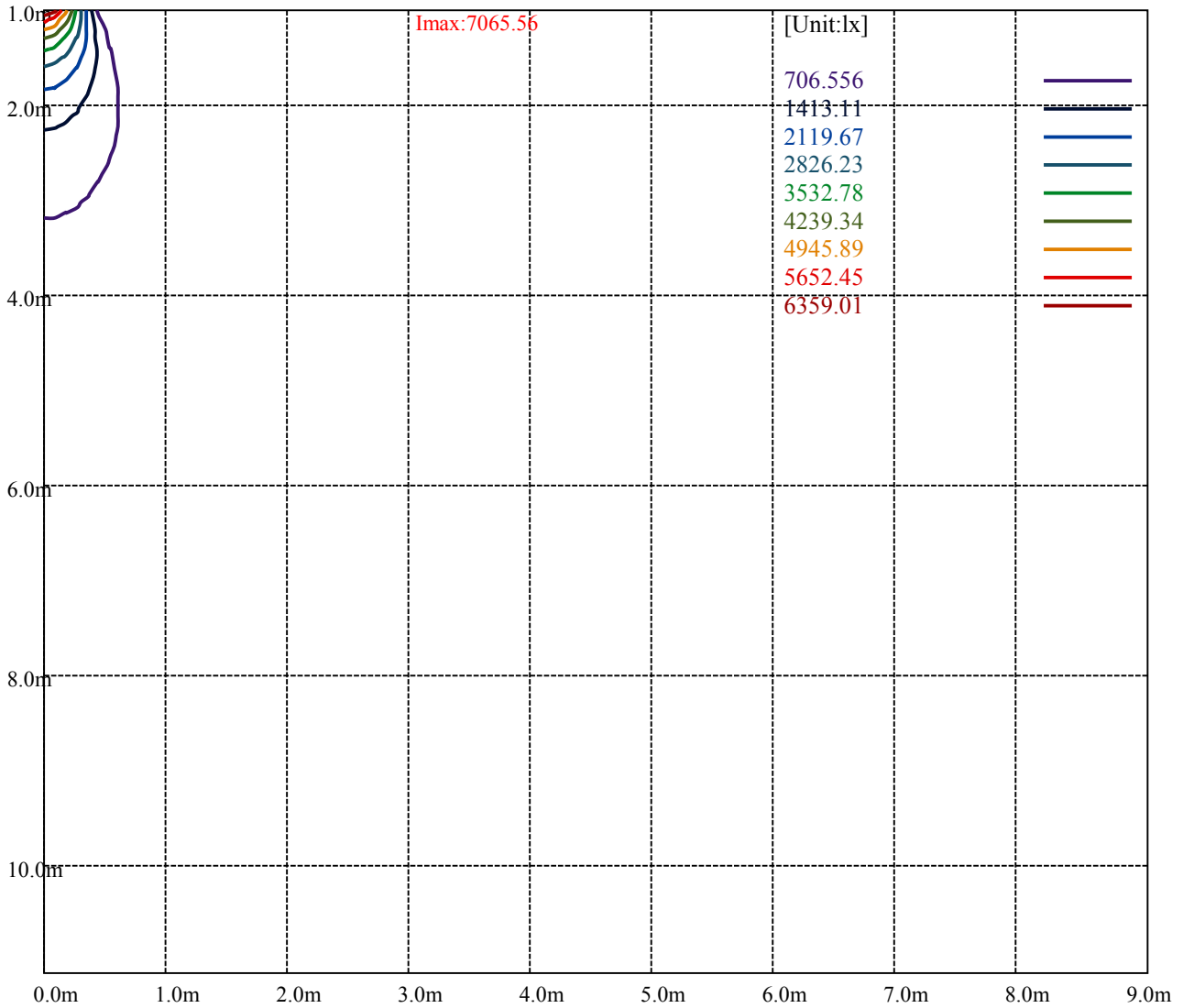
Road

Imax:7065.56

(10%Imax) 706.556	—
(20%Imax) 1413.11	—
(30%Imax) 2119.67	—
(40%Imax) 2826.23	—
(50%Imax) 3532.78	—
(60%Imax) 4239.34	—
(70%Imax) 4945.89	—
(80%Imax) 5652.45	—
(90%Imax) 6359.01	—



(10%Emax) 176.639	—
(20%Emax) 353.2775	—
(30%Emax) 529.9175	—
(40%Emax) 706.555	—
(50%Emax) 883.195	—
(60%Emax) 1059.835	—
(70%Emax) 1236.473	—
(80%Emax) 1413.113	—
(90%Emax) 1589.75	—



Luminance Table

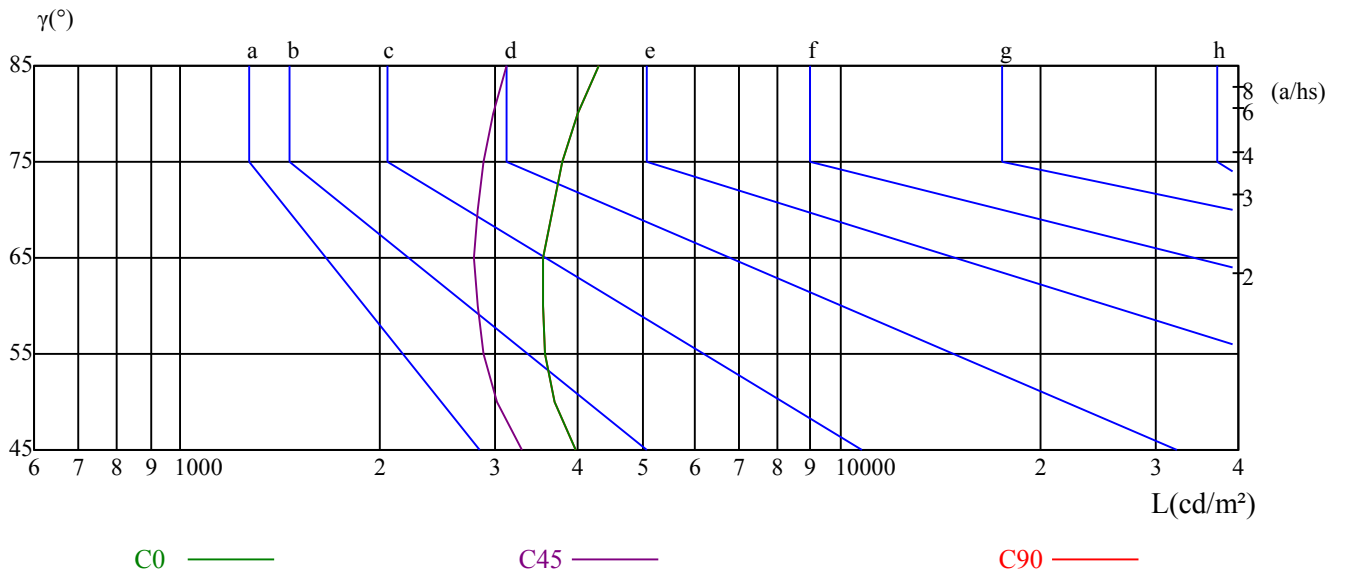
γ	45	50	55	60	65	70	75	80	85
C0	3955	3683	3556	3535	3547	3659	3797	4003	4302
C45	3296	3023	2875	2815	2780	2819	2873	2969	3120
C90	3955	3683	3556	3535	3547	3659	3797	4003	4302

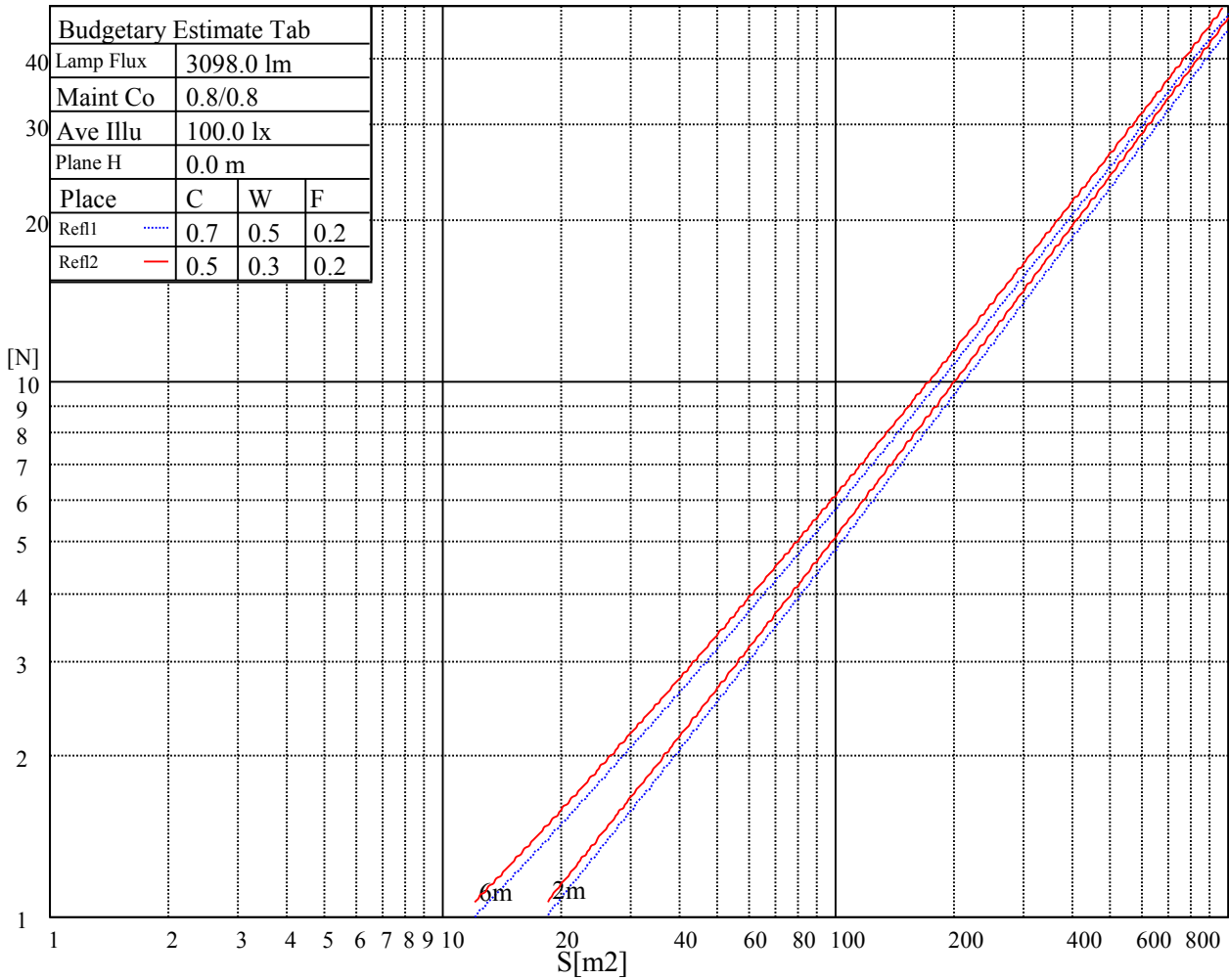
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
10648	10648	10648	17024	17024	17024	50197	50197	50197

Glare Table

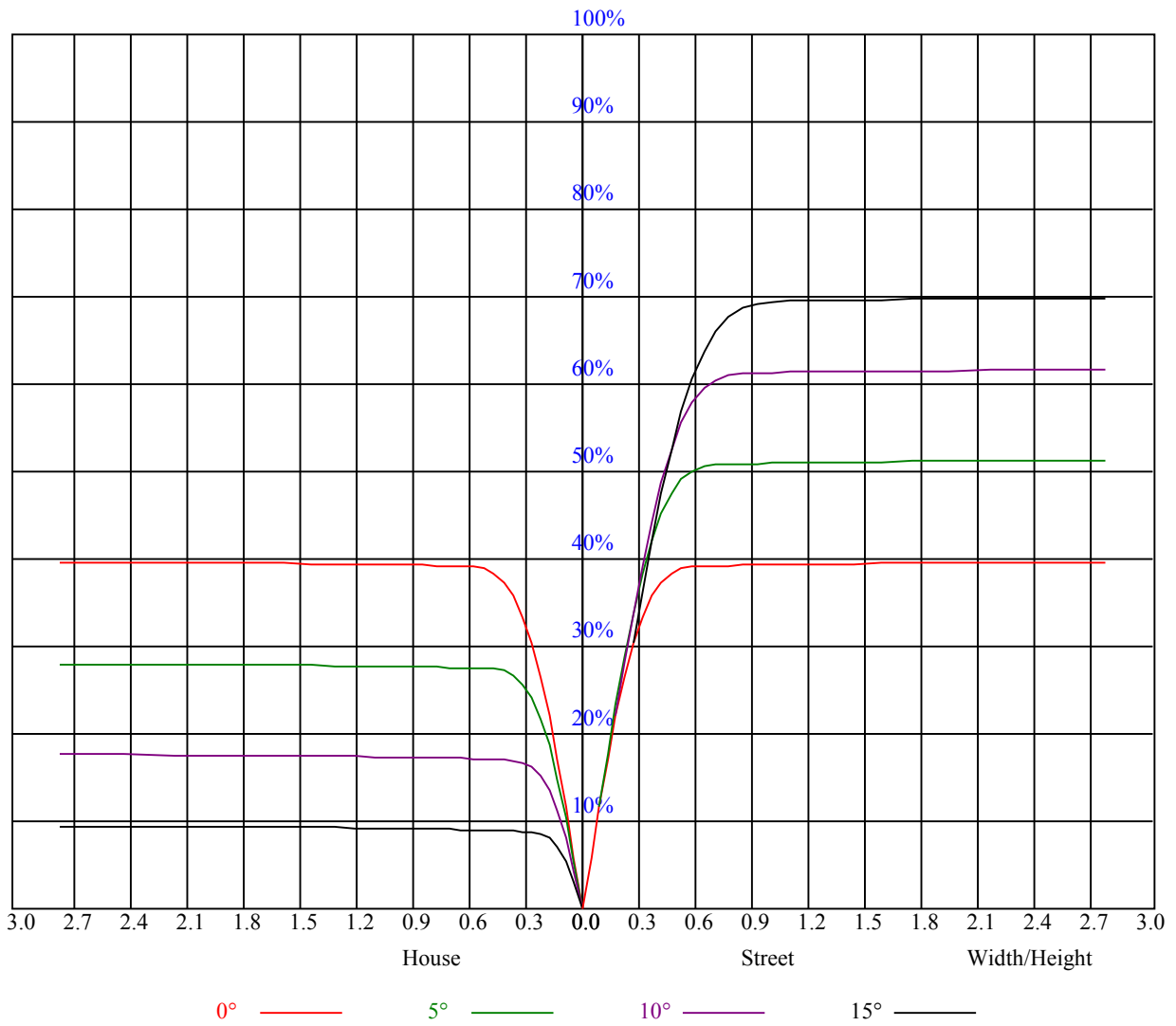
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	0.95	0.95	0.95	0.93	0.93	0.93	0.89	0.89	0.89	0.85	0.85	0.85	0.81	0.81	0.81	0.80
1	0.90	0.88	0.86	0.88	0.86	0.85	0.85	0.83	0.82	0.82	0.81	0.80	0.79	0.78	0.78	0.76
2	0.85	0.82	0.80	0.84	0.81	0.79	0.81	0.79	0.78	0.79	0.77	0.76	0.77	0.75	0.74	0.73
3	0.81	0.78	0.75	0.80	0.77	0.75	0.78	0.76	0.74	0.76	0.74	0.72	0.74	0.73	0.71	0.70
4	0.77	0.74	0.71	0.77	0.73	0.71	0.75	0.72	0.70	0.73	0.71	0.69	0.72	0.70	0.69	0.68
5	0.74	0.71	0.68	0.74	0.70	0.68	0.72	0.69	0.67	0.71	0.69	0.67	0.70	0.68	0.66	0.65
6	0.71	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.65	0.69	0.66	0.64	0.68	0.66	0.64	0.63
7	0.69	0.65	0.63	0.68	0.65	0.62	0.67	0.64	0.62	0.67	0.64	0.62	0.66	0.63	0.62	0.61
8	0.66	0.63	0.60	0.66	0.63	0.60	0.65	0.62	0.60	0.64	0.62	0.60	0.64	0.61	0.59	0.59
9	0.64	0.61	0.58	0.64	0.60	0.58	0.63	0.60	0.58	0.62	0.60	0.58	0.62	0.59	0.58	0.57
10	0.62	0.58	0.56	0.62	0.58	0.56	0.61	0.58	0.56	0.61	0.58	0.56	0.60	0.58	0.56	0.55



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	7061.06	7042.50	6992.44	6923.25	6821.44	6704.44	6544.69	6360.75	6183.00
45.0	7070.63	7048.69	6986.25	6909.19	6811.88	6659.44	6508.69	6333.75	6122.25
90.0	7066.69	7040.81	6979.50	6889.50	6787.13	6645.38	6467.06	6286.50	6066.56
135.0	7063.88	7065.00	7028.44	6970.50	6892.31	6764.63	6634.13	6497.44	6278.63
180.0	7061.06	7051.50	7015.50	6937.88	6852.38	6745.50	6577.31	6415.31	6234.75
225.0	7070.63	7066.13	7032.38	6967.69	6888.38	6769.69	6643.69	6476.63	6285.38
270.0	7066.69	7067.25	7031.81	6977.81	6909.75	6785.44	6643.69	6496.88	6309.00
315.0	7063.88	7036.31	6978.38	6893.44	6797.81	6677.44	6513.75	6327.00	6143.63
360.0	7061.06	7042.50	6992.44	6923.25	6821.44	6704.44	6544.69	6360.75	6183.00
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	5966.44	5731.88	5512.50	5285.25	4991.06	4746.94	4496.06	4223.81	3855.38
45.0	5897.25	5680.69	5424.75	5191.88	4926.94	4653.00	4396.50	4085.44	3749.06
90.0	5859.56	5616.56	5365.13	5137.88	4875.19	4602.94	4342.50	4061.25	3682.69
135.0	6064.31	5884.31	5612.63	5387.63	5158.13	4860.56	4615.31	4356.00	4005.00
180.0	6013.13	5776.88	5558.63	5304.38	5043.94	4804.31	4524.75	4259.25	3936.38
225.0	6096.38	5865.19	5619.94	5392.69	5155.88	4855.50	4611.38	4350.38	3992.06
270.0	6100.88	5902.31	5663.81	5442.75	5179.50	4905.56	4656.94	4396.50	4042.13
315.0	5922.56	5684.06	5432.06	5198.63	4956.75	4648.50	4391.44	4111.88	3811.50
360.0	5966.44	5731.88	5512.50	5285.25	4991.06	4746.94	4496.06	4223.81	3855.38
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	3546.56	3236.06	2846.81	2532.38	2225.25	1878.19	1529.44	1232.44	918.56
45.0	3435.75	3106.13	2700.56	2387.81	2101.50	1692.00	1393.88	1125.00	825.75
90.0	3362.06	3038.63	2721.94	2331.00	2032.88	1728.56	1411.16	1077.58	821.98
135.0	3697.88	3370.50	2963.25	2648.25	2356.88	1960.31	1657.13	1375.31	1047.38
180.0	3584.25	3267.56	2951.44	2559.38	2257.31	1955.25	1577.25	1105.48	1005.47
225.0	3691.69	3382.88	3027.38	2671.88	2358.00	2014.31	1707.75	1119.60	1085.68
270.0	3743.44	3438.00	3049.31	2736.00	2423.81	2088.00	1738.13	1430.44	1101.38
315.0	3429.56	3117.94	2805.75	2413.13	2108.25	1792.13	1444.50	1115.89	851.23
360.0	3546.56	3236.06	2846.81	2532.38	2225.25	1878.19	1529.44	1232.44	918.56
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	664.88	425.25	291.94	120.88	65.14	42.64	30.83	24.13	19.63
45.0	570.38	377.44	313.88	104.46	60.92	40.44	29.70	22.89	19.52
90.0	570.49	357.30	208.18	103.73	65.42	44.27	31.50	24.64	20.08
135.0	768.94	544.50	333.56	292.50	92.70	59.96	43.31	31.28	24.19
180.0	696.15	481.78	298.29	136.01	78.75	50.06	33.41	26.55	21.21
225.0	793.24	560.93	345.43	184.11	99.68	59.63	40.05	29.48	23.29
270.0	830.81	566.44	343.69	302.06	96.30	58.50	40.44	29.48	21.88
315.0	584.72	379.07	202.61	100.18	61.71	40.39	28.35	22.39	18.96
360.0	664.88	425.25	291.94	120.88	65.14	42.64	30.83	24.13	19.63
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	17.72	16.48	15.41	14.68	14.23	13.67	13.28	12.94	12.60
45.0	17.33	16.14	15.36	14.68	14.18	13.73	13.28	12.99	12.71
90.0	17.55	16.14	15.24	14.46	14.01	13.56	13.11	12.77	12.49
135.0	20.31	17.83	16.09	15.19	14.51	13.84	13.39	13.05	12.71
180.0	18.06	16.65	15.58	14.57	14.06	13.61	13.11	12.77	12.43
225.0	18.90	16.99	15.75	14.68	14.12	13.61	13.11	12.77	12.49
270.0	18.68	16.76	15.53	14.68	14.01	13.50	12.99	12.66	12.38
315.0	16.71	15.64	14.79	14.06	13.61	13.16	12.77	12.49	12.26
360.0	17.72	16.48	15.41	14.68	14.23	13.67	13.28	12.94	12.60

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	12.38	12.15	11.98	11.81	11.59	11.42	11.31	11.19	11.08
45.0	12.49	12.26	12.04	11.87	11.70	11.53	11.42	11.25	11.19
90.0	12.21	12.09	11.87	11.70	11.53	11.42	11.31	11.19	11.03
135.0	12.38	12.15	11.93	11.81	11.59	11.42	11.36	11.25	11.08
180.0	12.21	11.98	11.81	11.59	11.48	11.31	11.19	11.08	10.97
225.0	12.21	11.93	11.76	11.59	11.48	11.31	11.14	11.08	10.97
270.0	12.15	11.93	11.70	11.59	11.42	11.31	11.19	11.14	11.03
315.0	12.04	11.81	11.64	11.48	11.36	11.25	11.14	11.03	10.97
360.0	12.38	12.15	11.98	11.81	11.59	11.42	11.31	11.19	11.08
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	10.97	10.86	10.74	10.74	10.63	10.58	10.46	10.46	10.41
45.0	11.08	10.91	10.86	10.80	10.74	10.63	10.52	10.52	10.46
90.0	10.97	10.91	10.80	10.74	10.63	10.58	10.52	10.46	10.41
135.0	11.03	10.97	10.86	10.74	10.69	10.63	10.58	10.46	10.46
180.0	10.86	10.80	10.69	10.63	10.58	10.52	10.46	10.46	10.41
225.0	10.91	10.80	10.74	10.74	10.63	10.58	10.52	10.41	10.41
270.0	10.91	10.80	10.74	10.69	10.58	10.58	10.46	10.41	10.35
315.0	10.86	10.80	10.69	10.63	10.63	10.52	10.46	10.46	10.35
360.0	10.97	10.86	10.74	10.74	10.63	10.58	10.46	10.46	10.41
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	10.35	10.29	10.18	10.18	10.18	10.13	10.07	10.13	10.07
45.0	10.41	10.35	10.35	10.29	10.24	10.24	10.18	10.13	10.18
90.0	10.35	10.29	10.29	10.29	10.24	10.24	10.18	10.18	10.13
135.0	10.46	10.41	10.35	10.35	10.29	10.18	10.24	10.18	10.24
180.0	10.35	10.29	10.24	10.18	10.13	10.18	10.18	10.07	10.07
225.0	10.41	10.29	10.29	10.29	10.29	10.18	10.18	10.13	10.13
270.0	10.41	10.35	10.24	10.24	10.18	10.18	10.24	10.18	10.13
315.0	10.24	10.24	10.24	10.18	10.18	10.18	10.13	10.13	10.13
360.0	10.35	10.29	10.18	10.18	10.18	10.13	10.07	10.13	10.07
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	10.01	10.01	10.01	9.96	9.96	9.96	9.90	9.90	9.96
45.0	10.07	10.07	10.13	10.01	10.07	9.96	10.01	10.01	10.01
90.0	10.13	10.13	10.07	10.01	10.01	10.01	10.07	9.96	10.01
135.0	10.18	10.13	10.13	10.13	10.13	10.07	10.13	10.01	10.07
180.0	10.07	10.07	10.01	10.01	10.01	9.96	10.01	9.90	9.96
225.0	10.13	10.07	10.13	10.07	10.01	10.01	10.01	10.01	10.01
270.0	10.13	10.13	10.13	10.13	10.13	10.07	10.07	10.07	10.07
315.0	10.13	10.07	10.07	10.07	10.07	10.01	10.01	10.01	9.96
360.0	10.01	10.01	10.01	9.96	9.96	9.96	9.90	9.90	9.96
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	9.96	9.90	9.90	9.90	9.90	9.90	9.90	9.84	9.84
45.0	9.96	10.01	9.90	10.01	9.90	9.96	9.96	9.96	9.96
90.0	10.01	10.01	10.01	10.01	9.96	9.96	9.96	9.96	9.96
135.0	9.96	10.01	10.01	10.01	9.96	9.96	9.96	9.96	9.96
180.0	9.90	9.96	9.84	9.84	9.90	9.90	9.90	9.84	9.84
225.0	9.96	9.96	10.01	9.96	9.96	9.96	10.01	9.96	9.96
270.0	10.01	10.01	10.01	10.01	10.01	10.01	10.01	9.96	9.96
315.0	9.96	10.01	10.01	10.07	10.07	9.96	9.90	9.96	9.96
360.0	9.96	9.90	9.90	9.90	9.90	9.90	9.90	9.84	9.84

Intensity data(cd)

C/ γ (°)	90.0
0.0	9.84
45.0	9.96
90.0	10.01
135.0	9.96
180.0	9.90
225.0	9.90
270.0	9.96
315.0	9.90
360.0	9.84