

---

LumCAT: 1-0870-A  
Luminaire: 92.70.043.00  
Report No: NATA0100  
Test No: GC2019112603  
LampCAT: LUMINUS CXM-3-AC40  
Lamp flux(lm): 346.0  
Number of Lamps: 1  
Length(mm): 0  
Phm Type: C

Voltage(V): 35.5800  
Current(A): 0.0970  
Power (W): 3.4500  
PF: 1.0000  
Ballast type: DC  
Width(mm): 0  
Height(mm): 0

---

### Photometric Results

Lumens(lm): 311.44  
Efficiency(%): 90.01%  
Lumens(lm)/Power(W): 90.27  
Central intensity(cd): 5031.704  
Maximum intensity(cd): 5031.704  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=9.4  
                                  [C90/270]Total=9.4  
Field angle(10%Imax): [C0/180]Total=17.8  
                                  [C90/270]Total=17.8  
Maximum s/h(1/2): C0\_180=0.16 C90\_270=0.16  
Maximum s/h(1/4): C0\_180=0.16 C90\_270=0.16  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 90.01%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 98.288%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5031.703	0.000	0	.000%	.000%
1.0	4918.359	4.761	4.761	1.376%	1.529%
2.0	4566.797	13.614	18.375	3.935%	5.900%
3.0	3907.617	20.268	38.643	5.858%	12.408%
4.0	3104.227	23.471	62.114	6.783%	19.944%
5.0	2260.533	23.079	85.193	6.670%	27.355%
6.0	1522.983	19.883	105.076	5.747%	33.739%
7.0	974.377	15.501	120.577	4.480%	38.716%
8.0	709.791	12.053	132.63	3.484%	42.587%
9.0	482.084	9.659	142.29	2.792%	45.688%
10.0	344.292	7.478	149.768	2.161%	48.089%
11.0	281.995	6.258	156.026	1.809%	50.099%
12.0	246.902	5.782	161.808	1.671%	51.955%
13.0	215.670	5.490	167.297	1.587%	53.718%
14.0	200.791	5.331	172.628	1.541%	55.429%
15.0	189.492	5.358	177.986	1.549%	57.150%
16.0	180.520	5.422	183.408	1.567%	58.891%
17.0	173.095	5.507	188.915	1.592%	60.659%
18.0	167.323	5.613	194.527	1.622%	62.461%
19.0	161.817	5.726	200.254	1.655%	64.300%
20.0	157.092	5.837	206.091	1.687%	66.174%
21.0	152.114	5.937	212.028	1.716%	68.080%
22.0	147.213	6.015	218.043	1.738%	70.012%
23.0	143.550	6.101	224.144	1.763%	71.971%
24.0	139.092	6.180	230.324	1.786%	73.955%
25.0	133.938	6.208	236.532	1.794%	75.948%
26.0	129.987	6.230	242.762	1.801%	77.949%
27.0	126.021	6.263	249.025	1.810%	79.960%
28.0	121.774	6.274	255.299	1.813%	81.974%
29.0	118.125	6.276	261.575	1.814%	83.990%
30.0	115.235	6.301	267.876	1.821%	86.013%
31.0	111.213	6.302	274.178	1.821%	88.036%
32.0	105.405	6.206	280.383	1.794%	90.029%
33.0	93.171	5.850	286.234	1.691%	91.907%
34.0	73.076	5.031	291.265	1.454%	93.523%
35.0	52.530	3.901	295.166	1.127%	94.775%
36.0	33.096	2.726	297.892	.788%	95.651%
37.0	16.502	1.618	299.509	.468%	96.170%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	7.720	0.809	300.318	.234%	96.430%
39.0	4.964	0.433	300.751	.125%	96.569%
40.0	4.444	0.328	301.079	.095%	96.674%
41.0	4.064	0.303	301.382	.088%	96.771%
42.0	3.748	0.284	301.666	.082%	96.862%
43.0	3.516	0.269	301.935	.078%	96.949%
44.0	3.340	0.259	302.194	.075%	97.032%
45.0	3.206	0.252	302.445	.073%	97.113%
46.0	3.129	0.248	302.693	.072%	97.192%
47.0	3.045	0.246	302.939	.071%	97.271%
48.0	3.016	0.245	303.184	.071%	97.350%
49.0	3.052	0.249	303.433	.072%	97.430%
50.0	3.129	0.258	303.69	.074%	97.512%
51.0	3.164	0.266	303.957	.077%	97.598%
52.0	3.122	0.270	304.226	.078%	97.685%
53.0	2.932	0.263	304.49	.076%	97.769%
54.0	2.798	0.253	304.742	.073%	97.850%
55.0	2.679	0.244	304.987	.071%	97.929%
56.0	2.609	0.239	305.226	.069%	98.005%
57.0	2.496	0.233	305.459	.067%	98.080%
58.0	2.370	0.225	305.684	.065%	98.153%
59.0	2.243	0.216	305.9	.062%	98.222%
60.0	2.145	0.207	306.107	.060%	98.288%
61.0	2.102	0.203	306.31	.059%	98.353%
62.0	2.088	0.202	306.512	.058%	98.418%
63.0	2.102	0.204	306.715	.059%	98.484%
64.0	2.116	0.207	306.922	.060%	98.550%
65.0	2.046	0.206	307.128	.060%	98.616%
66.0	1.962	0.200	307.328	.058%	98.681%
67.0	1.884	0.193	307.522	.056%	98.743%
68.0	1.807	0.187	307.709	.054%	98.803%
69.0	1.786	0.183	307.892	.053%	98.862%
70.0	1.737	0.181	308.073	.052%	98.920%
71.0	1.730	0.179	308.252	.052%	98.977%
72.0	1.716	0.179	308.431	.052%	99.035%
73.0	1.695	0.178	308.61	.052%	99.092%
74.0	1.680	0.177	308.787	.051%	99.149%
75.0	1.673	0.177	308.964	.051%	99.206%

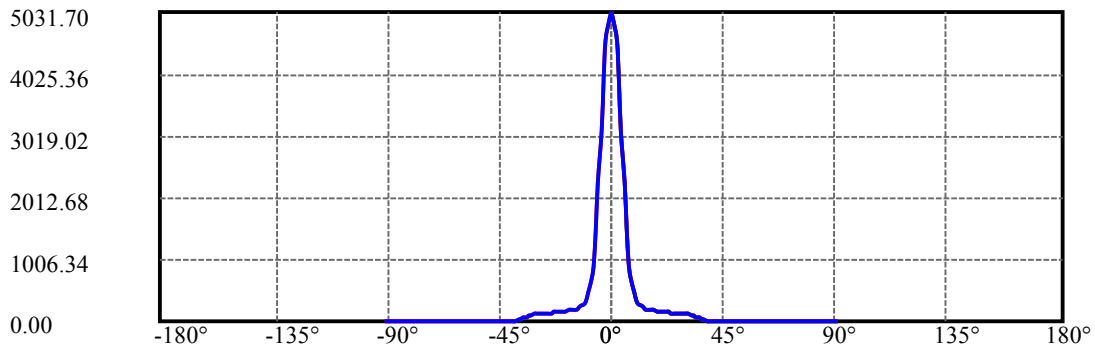
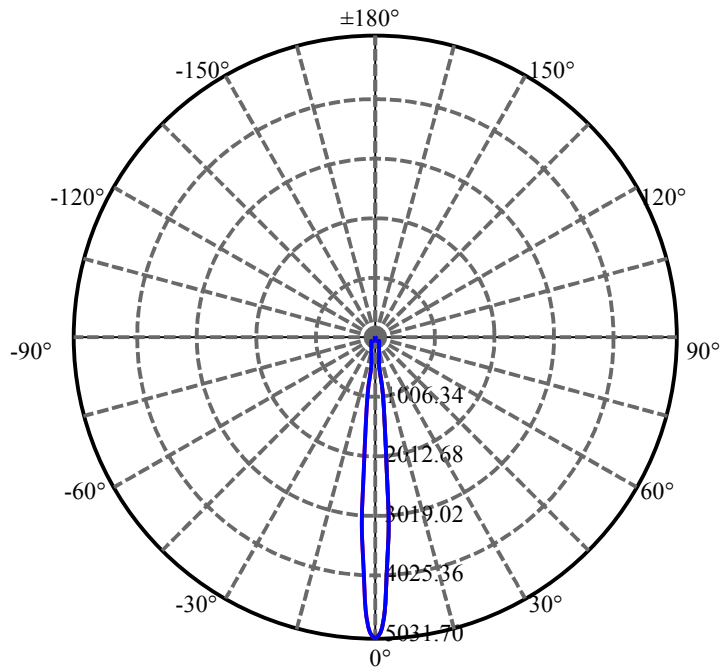
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	1.652	0.177	309.141	.051%	99.263%
77.0	1.638	0.175	309.316	.051%	99.319%
78.0	1.617	0.174	309.491	.050%	99.375%
79.0	1.582	0.172	309.662	.050%	99.430%
80.0	1.568	0.170	309.832	.049%	99.485%
81.0	1.561	0.169	310.001	.049%	99.539%
82.0	1.526	0.167	310.169	.048%	99.593%
83.0	1.498	0.164	310.333	.048%	99.645%
84.0	1.484	0.162	310.496	.047%	99.698%
85.0	1.463	0.161	310.656	.046%	99.749%
86.0	1.441	0.159	310.815	.046%	99.800%
87.0	1.441	0.158	310.973	.046%	99.851%
88.0	1.420	0.157	311.13	.045%	99.901%
89.0	1.406	0.155	311.285	.045%	99.951%
90.0	1.385	0.153	311.438	.044%	100.000%

## ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	267.88	77.42%	86.01%
0-40	301.08	87.02%	96.67%
0-60	306.11	88.47%	98.29%
0-90	311.28	89.97%	99.95%
0-120	311.28	89.97%	99.95%
0-180	311.44	90.01%	100.00%
60-90	5.38	1.56%	1.73%
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%
0-27.02	249.15	72.01%	80.00%

## ZONAL LUMEN SUMMARY

0-10	149.77
10-20	56.32
20-30	61.79
30-40	33.20
40-50	2.61
50-60	2.42
60-70	1.97
70-80	1.76
80-90	1.45
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: —————

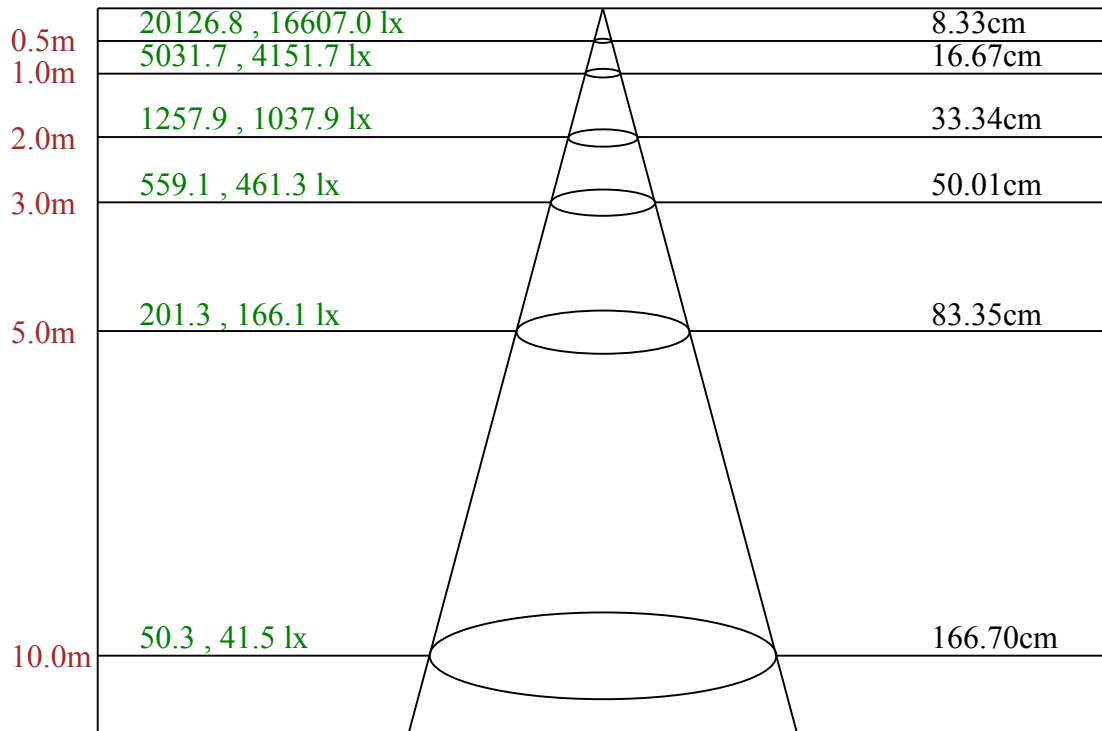
C90/C270: —————

Field angle(10%Imax):C0/180Left:8.9 Right:8.9

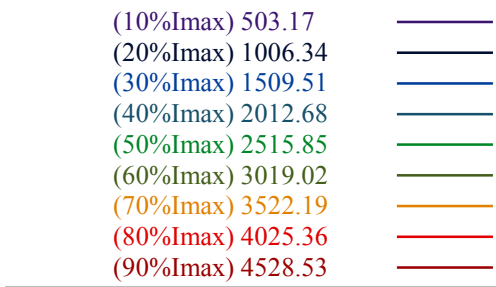
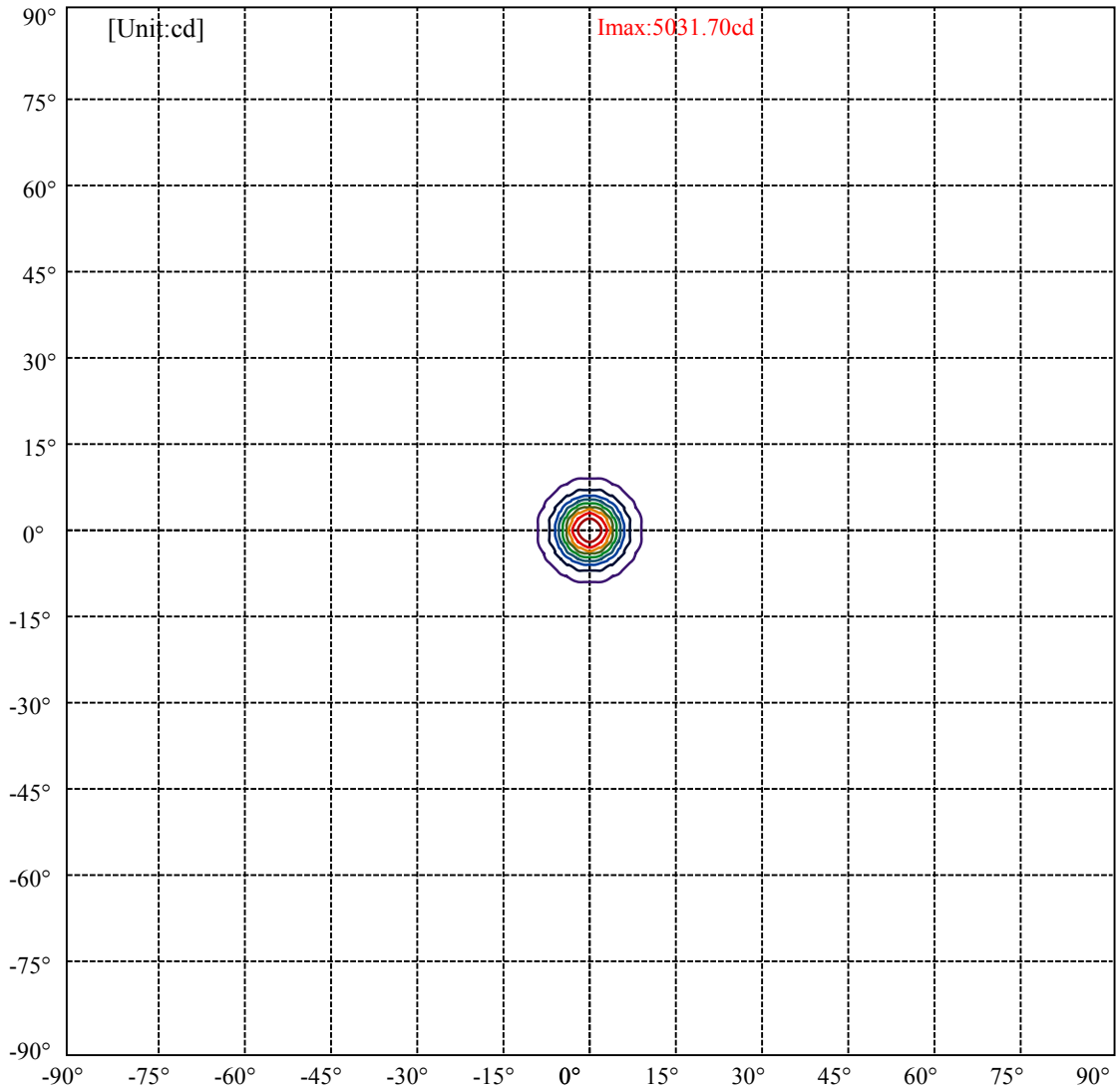
:C90/270Left:8.9 Right:8.9

Beam Angle(50%Imax):C0/180Left:4.7 Right:4.7

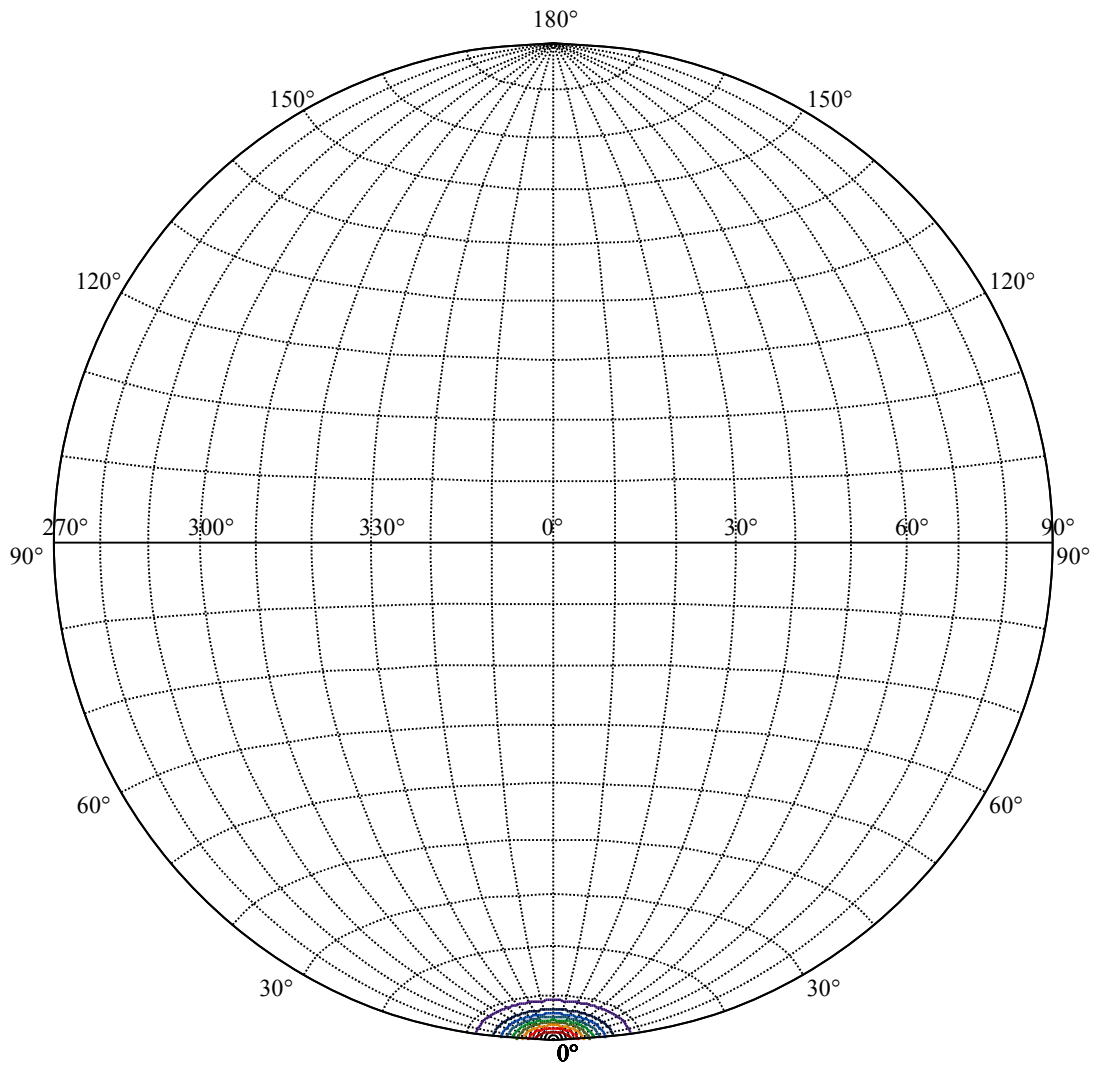
:C90/270Left:4.7 Right:4.7



Max , Ave      Beam angle of C0 plane 9.53







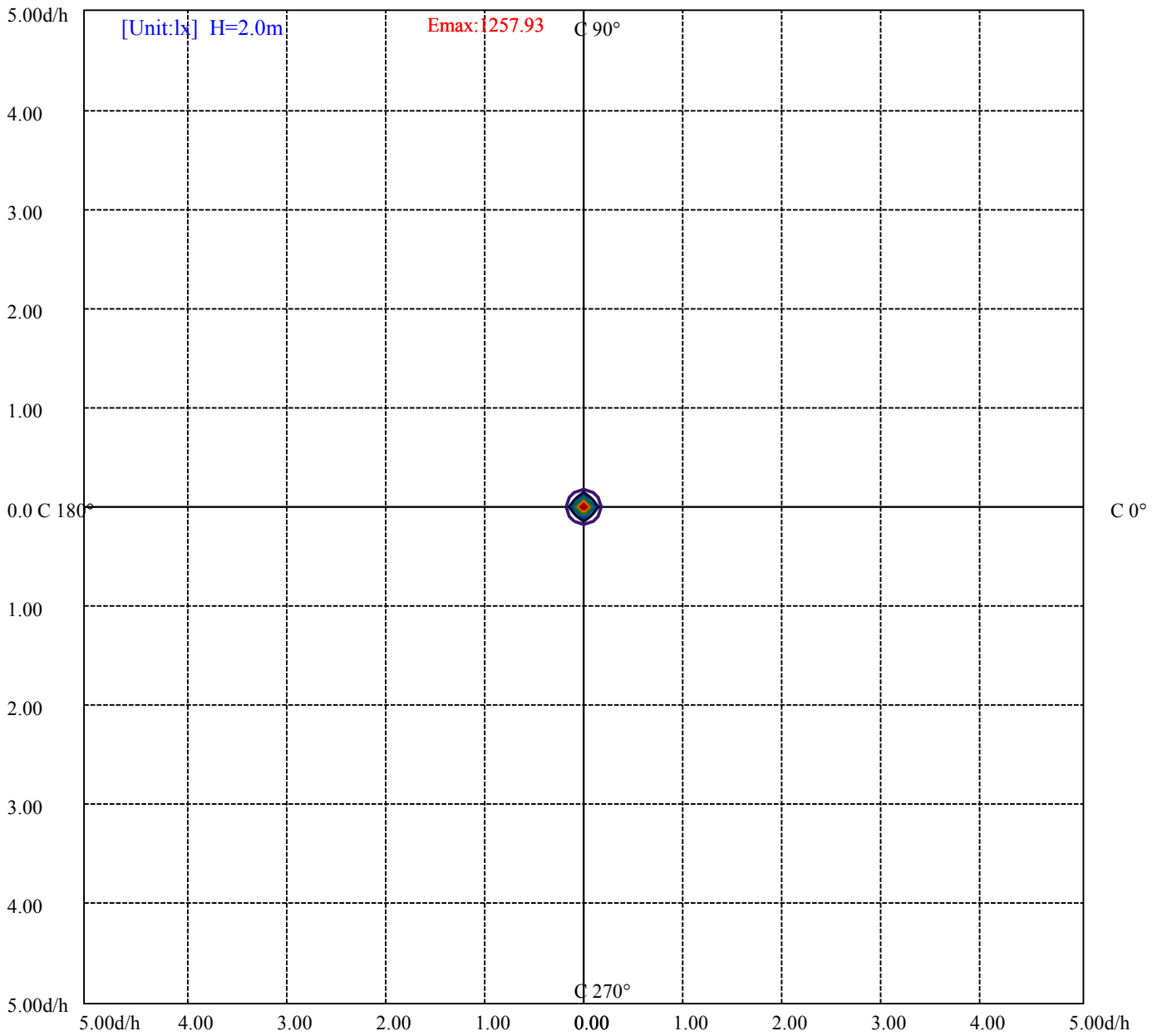
House

[Unit:cd]

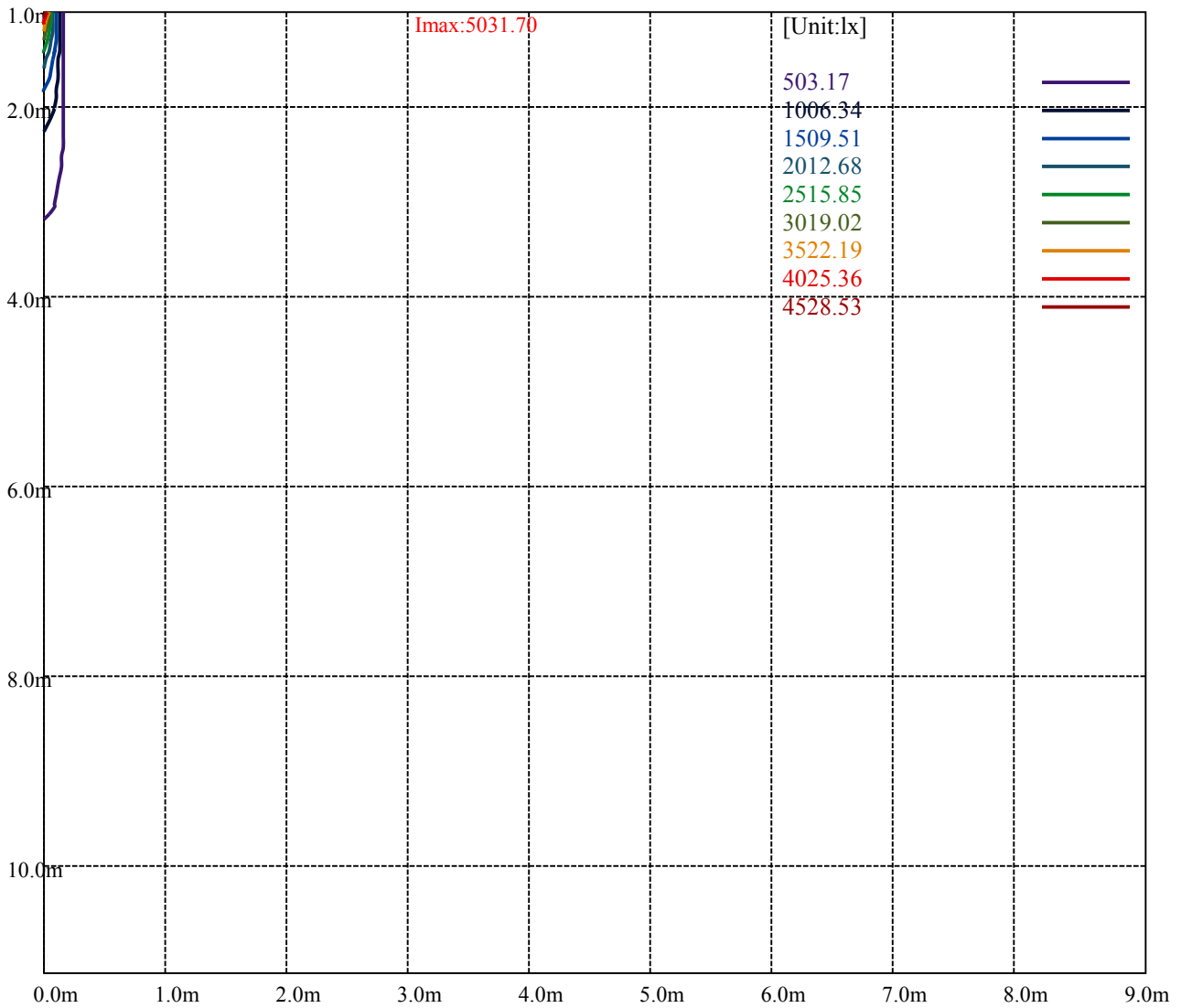
Road

**Imax:5031.70**

(10%Imax) 503.17	—
(20%Imax) 1006.34	—
(30%Imax) 1509.51	—
(40%Imax) 2012.68	—
(50%Imax) 2515.85	—
(60%Imax) 3019.02	—
(70%Imax) 3522.19	—
(80%Imax) 4025.36	—
(90%Imax) 4528.53	—



(10%Emax) 125.7923	—
(20%Emax) 251.585	—
(30%Emax) 377.3775	—
(40%Emax) 503.1675	—
(50%Emax) 628.96	—
(60%Emax) 754.7525	—
(70%Emax) 880.545	—
(80%Emax) 1006.338	—
(90%Emax) 1132.13	—



Luminance Table

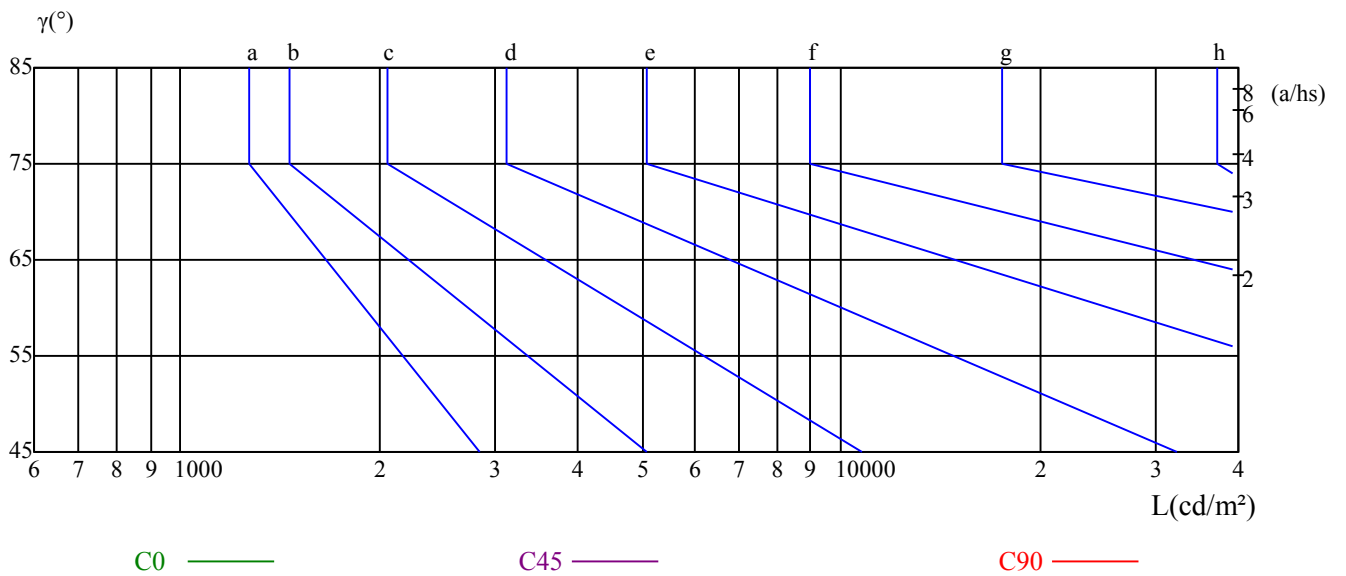
$\gamma$	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

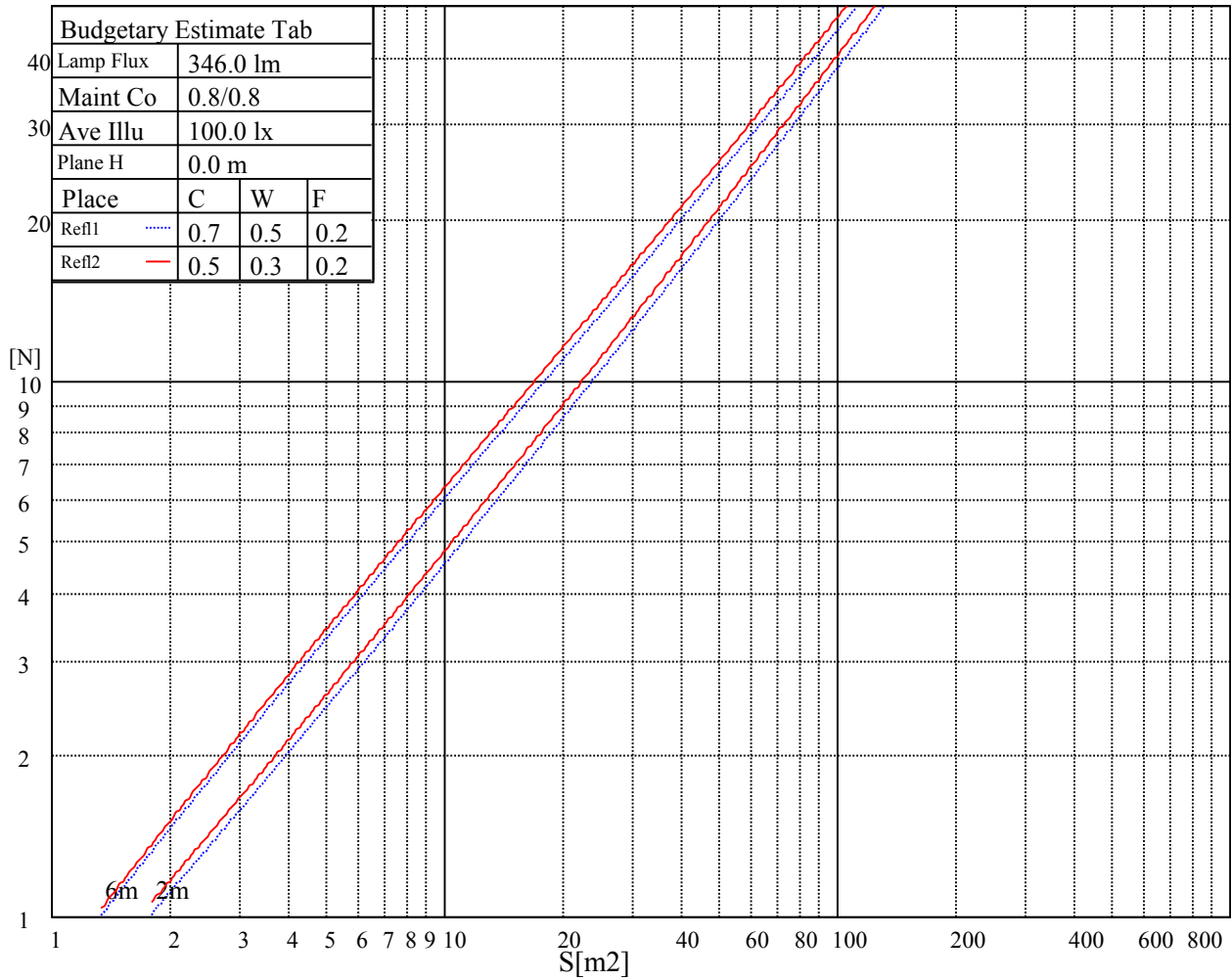
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

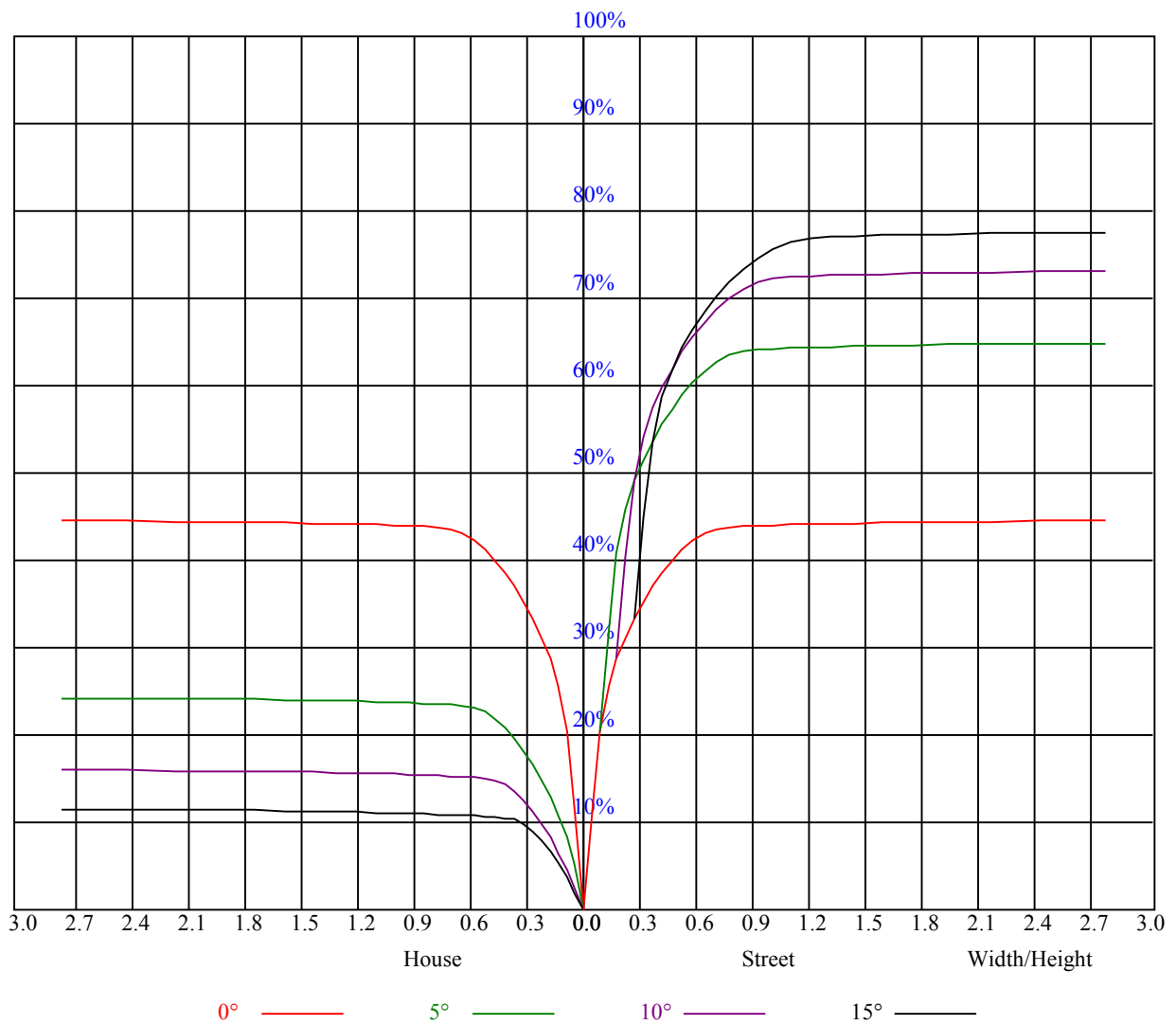
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	1.07	1.07	1.07	1.05	1.05	1.05	1.00	1.00	1.00	0.96	0.96	0.96	0.92	0.92	0.92	0.90
1	1.01	0.99	0.98	0.99	0.98	0.96	0.96	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.88	0.86
2	0.96	0.93	0.91	0.95	0.92	0.90	0.92	0.90	0.88	0.89	0.87	0.86	0.87	0.85	0.84	0.83
3	0.92	0.88	0.86	0.91	0.87	0.85	0.88	0.86	0.84	0.86	0.84	0.82	0.84	0.83	0.81	0.80
4	0.88	0.84	0.81	0.87	0.84	0.81	0.85	0.82	0.80	0.84	0.81	0.79	0.82	0.80	0.78	0.77
5	0.85	0.81	0.78	0.84	0.80	0.78	0.82	0.79	0.77	0.81	0.78	0.76	0.80	0.77	0.76	0.75
6	0.82	0.78	0.75	0.81	0.77	0.75	0.80	0.77	0.74	0.79	0.76	0.74	0.78	0.75	0.73	0.72
7	0.79	0.75	0.72	0.79	0.75	0.72	0.78	0.74	0.72	0.77	0.74	0.72	0.76	0.73	0.71	0.70
8	0.77	0.73	0.70	0.76	0.73	0.70	0.75	0.72	0.70	0.75	0.72	0.70	0.74	0.71	0.69	0.68
9	0.75	0.71	0.68	0.74	0.71	0.68	0.73	0.70	0.68	0.73	0.70	0.68	0.72	0.70	0.68	0.67
10	0.73	0.69	0.66	0.72	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.66	0.71	0.68	0.66	0.65



## 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	5115.38	4744.69	4046.06	3119.06	2301.19	1614.38	1027.13	732.38	545.06
45.0	5050.13	4702.50	4092.19	3362.06	2503.69	1755.00	1255.50	857.25	620.44
90.0	4987.13	4834.69	4460.06	3562.88	2870.44	2116.13	1089.34	950.23	662.34
135.0	4974.19	5157.56	5157.00	4847.06	4246.88	3286.13	2415.38	1601.44	1077.19
180.0	5115.38	5294.81	5286.38	4992.19	4214.25	3278.81	2237.63	1093.33	927.06
225.0	5050.13	5150.25	5063.63	4530.38	3729.94	2783.25	1852.88	1067.46	784.24
270.0	4987.13	4965.19	4627.13	4005.56	3033.00	2162.25	1397.81	896.63	612.56
315.0	4974.19	4497.19	3801.94	2841.75	1934.44	1088.33	908.21	596.31	449.44
360.0	5115.38	4744.69	4046.06	3119.06	2301.19	1614.38	1027.13	732.38	545.06
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	401.63	329.63	285.19	248.46	225.17	211.22	201.66	195.24	188.21
45.0	447.75	344.25	289.69	284.06	220.95	204.02	190.29	179.55	171.45
90.0	478.52	344.36	283.28	245.70	215.78	199.86	189.28	180.68	173.19
135.0	681.75	441.00	326.81	285.19	228.32	211.73	199.46	186.41	178.03
180.0	590.85	345.66	258.47	219.94	201.32	193.44	185.12	177.36	167.46
225.0	471.88	330.41	255.71	212.23	195.41	177.64	162.00	152.10	144.51
270.0	420.75	316.69	286.88	234.45	213.69	199.97	190.69	184.44	179.55
315.0	363.54	302.34	269.94	245.19	224.72	208.46	197.44	188.38	182.36
360.0	401.63	329.63	285.19	248.46	225.17	211.22	201.66	195.24	188.21
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	180.17	173.76	165.94	157.95	150.08	146.76	140.91	136.13	131.46
45.0	164.31	157.44	150.47	144.73	138.94	132.92	127.86	122.51	118.41
90.0	167.29	159.69	152.21	145.69	138.71	134.27	126.96	120.54	116.94
135.0	173.14	169.99	166.39	164.70	158.91	155.03	152.16	147.88	142.48
180.0	161.21	152.94	149.91	144.17	143.44	142.88	142.65	138.60	136.58
225.0	138.54	138.94	142.43	143.61	143.33	142.14	136.29	132.19	129.88
270.0	175.78	171.11	165.66	159.75	154.69	150.36	146.93	140.46	135.11
315.0	178.14	170.66	163.74	156.32	149.63	144.06	138.99	133.20	129.04
360.0	180.17	173.76	165.94	157.95	150.08	146.76	140.91	136.13	131.46
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	126.90	121.95	118.13	114.75	110.93	103.89	86.74	65.14	43.03
45.0	114.98	111.77	106.82	103.56	99.79	94.16	80.83	61.09	42.08
90.0	112.84	111.71	108.11	107.21	105.53	104.40	93.94	75.83	54.68
135.0	136.86	131.51	126.84	124.65	117.79	113.57	109.29	92.36	74.19
180.0	134.21	130.73	129.43	127.58	122.29	116.49	107.89	86.96	64.46
225.0	125.16	119.70	116.21	111.77	108.68	104.01	92.70	74.98	55.35
270.0	132.13	126.79	122.85	118.74	114.69	110.81	96.75	75.49	52.93
315.0	125.10	120.04	116.61	113.63	110.03	95.91	77.23	52.76	33.53
360.0	126.90	121.95	118.13	114.75	110.93	103.89	86.74	65.14	43.03
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	23.63	9.23	4.84	4.22	3.83	3.43	3.21	3.04	2.81
45.0	25.31	14.51	6.69	6.02	5.63	5.01	4.50	4.16	3.83
90.0	35.27	14.96	6.19	4.61	4.11	3.83	3.60	3.43	3.38
135.0	54.00	31.56	13.73	5.18	4.33	4.05	3.60	3.32	3.21
180.0	44.78	23.51	10.63	5.34	4.67	4.11	3.71	3.54	3.54
225.0	32.57	18.06	8.94	5.79	5.29	5.01	4.67	4.44	4.11
270.0	33.47	14.63	6.64	4.89	4.44	3.99	3.77	3.60	3.43
315.0	15.75	5.57	4.11	3.66	3.26	3.09	2.93	2.59	2.42
360.0	23.63	9.23	4.84	4.22	3.83	3.43	3.21	3.04	2.81



## Intensity data(cd)

C/ $\gamma$ (°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	2.76	2.64	2.53	2.42	2.31	2.25	2.19	2.14	2.08
45.0	3.66	3.54	3.21	2.93	2.70	2.53	2.48	2.53	2.64
90.0	3.38	3.38	3.43	3.60	3.88	4.33	4.73	4.89	4.61
135.0	3.15	3.26	3.43	3.66	3.99	4.22	4.22	3.77	2.87
180.0	3.38	3.32	3.32	3.49	3.71	4.11	4.39	4.44	4.16
225.0	3.83	3.66	3.54	3.43	3.38	3.26	3.09	3.04	2.98
270.0	3.21	2.98	2.76	2.59	2.48	2.42	2.36	2.36	2.31
315.0	2.31	2.25	2.14	2.03	1.97	1.91	1.86	1.80	1.80
360.0	2.76	2.64	2.53	2.42	2.31	2.25	2.19	2.14	2.08
C/ $\gamma$ (°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	2.03	1.97	1.97	1.97	1.97	1.97	2.08	2.14	2.19
45.0	2.93	3.26	3.49	3.26	2.98	2.76	2.42	2.25	2.25
90.0	4.11	3.43	2.93	2.48	2.19	2.08	2.03	2.03	2.03
135.0	2.42	2.25	2.19	2.14	2.08	2.03	1.97	1.97	1.97
180.0	3.66	3.21	2.98	2.93	2.87	2.64	2.48	2.25	2.03
225.0	3.15	3.26	3.32	3.26	2.98	2.70	2.48	2.36	2.25
270.0	2.31	2.25	2.19	2.14	2.08	2.03	1.97	2.03	2.19
315.0	1.80	1.80	1.80	1.80	1.80	1.74	1.74	1.80	1.80
360.0	2.03	1.97	1.97	1.97	1.97	1.97	2.08	2.14	2.19
C/ $\gamma$ (°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	2.19	2.19	2.19	2.08	1.91	1.80	1.80	1.74	1.69
45.0	2.31	2.31	2.03	1.91	1.86	1.86	1.86	1.80	1.80
90.0	2.08	2.08	2.14	2.03	1.86	1.74	1.74	1.69	1.69
135.0	1.91	1.97	1.91	1.91	1.91	1.86	1.80	1.74	1.74
180.0	1.91	1.91	1.91	1.91	1.91	1.80	1.80	1.74	1.74
225.0	2.19	2.19	2.08	1.97	1.97	1.86	1.80	1.74	1.74
270.0	2.42	2.48	2.36	2.14	1.91	1.80	1.74	1.74	1.74
315.0	1.80	1.80	1.74	1.74	1.74	1.74	1.74	1.69	1.69
360.0	2.19	2.19	2.19	2.08	1.91	1.80	1.80	1.74	1.69
C/ $\gamma$ (°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	1.69	1.69	1.69	1.63	1.63	1.63	1.63	1.58	1.58
45.0	1.80	1.80	1.80	1.74	1.74	1.74	1.74	1.69	1.63
90.0	1.69	1.63	1.58	1.63	1.58	1.58	1.52	1.52	1.52
135.0	1.69	1.69	1.63	1.69	1.63	1.63	1.58	1.58	1.52
180.0	1.69	1.63	1.69	1.63	1.63	1.63	1.58	1.52	1.52
225.0	1.74	1.74	1.74	1.74	1.69	1.69	1.69	1.63	1.63
270.0	1.74	1.69	1.69	1.69	1.69	1.63	1.63	1.58	1.58
315.0	1.69	1.69	1.63	1.63	1.63	1.58	1.58	1.58	1.58
360.0	1.69	1.69	1.69	1.63	1.63	1.63	1.63	1.58	1.58
C/ $\gamma$ (°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	1.52	1.52	1.52	1.46	1.46	1.46	1.41	1.41	1.41
45.0	1.63	1.52	1.52	1.46	1.46	1.41	1.41	1.41	1.35
90.0	1.52	1.46	1.46	1.46	1.41	1.41	1.41	1.41	1.41
135.0	1.52	1.52	1.52	1.46	1.46	1.46	1.52	1.46	1.46
180.0	1.52	1.46	1.46	1.46	1.46	1.46	1.41	1.46	1.41
225.0	1.63	1.58	1.52	1.58	1.52	1.46	1.46	1.41	1.41
270.0	1.58	1.63	1.52	1.52	1.46	1.41	1.46	1.41	1.41
315.0	1.58	1.52	1.46	1.46	1.46	1.46	1.46	1.41	1.41
360.0	1.52	1.52	1.52	1.46	1.46	1.46	1.41	1.41	1.41

Intensity data(cd)

C/ $\gamma$ (°)	90.0
0.0	1.35
45.0	1.35
90.0	1.41
135.0	1.41
180.0	1.41
225.0	1.41
270.0	1.41
315.0	1.35
360.0	1.35