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Nata

LumCAT: 1-1009-S
Luminaire: BJB 47.360.1030
Report No: NATA0100
Test No: GC2019102806
LampCAT: LUMILEDS LUXEON 1203
Lamp flux(lm): 1288.0
Number of Lamps: 1
Length(mm): 0
Phm Type: C

Voltage(V): 35.3000
Current(A): 0.2970
Power (W): 10.4800
PF: 1.0000
Ballast type: DC
Width(mm): 0
Height(mm): 0

Photometric Results

Lumens(lm): 937.50
Efficiency(%): 72.79%
Lumens(lm)/Power(W): 89.46
Central intensity(cd): 5087.531
Maximum intensity(cd): 5087.531
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=24.3
 [C90/270]Total=24.3
Field angle(10%Imax): [C0/180]Total=40.6
 [C90/270]Total=40.6
Maximum s/h(1/2): C0_180=0.41 C90_270=0.41
Maximum s/h(1/4): C0_180=0.40 C90_270=0.40
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 72.79%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.158%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5087.531	0.000	0	.000%	.000%
1.0	5068.477	4.859	4.859	.377%	.518%
2.0	5012.367	14.469	19.328	1.123%	2.062%
3.0	4907.250	23.724	43.053	1.842%	4.592%
4.0	4765.500	32.378	75.431	2.514%	8.046%
5.0	4595.133	40.269	115.7	3.126%	12.341%
6.0	4353.469	47.027	162.727	3.651%	17.358%
7.0	4103.719	52.494	215.221	4.076%	22.957%
8.0	3844.336	56.883	272.103	4.416%	29.024%
9.0	3540.094	59.847	331.95	4.646%	35.408%
10.0	3213.563	61.118	393.068	4.745%	41.927%
11.0	2919.375	61.281	454.349	4.758%	48.464%
12.0	2601.844	60.355	514.704	4.686%	54.902%
13.0	2256.328	57.654	572.358	4.476%	61.052%
14.0	1970.016	54.097	626.455	4.200%	66.822%
15.0	1686.023	50.192	676.646	3.897%	72.176%
16.0	1411.298	45.384	722.031	3.524%	77.017%
17.0	1143.984	39.793	761.824	3.089%	81.262%
18.0	937.751	34.323	796.147	2.665%	84.923%
19.0	747.548	29.321	825.468	2.276%	88.050%
20.0	562.395	23.976	849.443	1.861%	90.608%
21.0	396.724	18.417	867.86	1.430%	92.572%
22.0	279.464	13.588	881.448	1.055%	94.022%
23.0	167.723	9.383	890.832	.729%	95.022%
24.0	92.391	5.687	896.519	.442%	95.629%
25.0	44.810	3.120	899.638	.242%	95.962%
26.0	24.708	1.641	901.279	.127%	96.137%
27.0	17.255	1.027	902.306	.080%	96.246%
28.0	14.295	0.799	903.105	.062%	96.332%
29.0	12.783	0.708	903.813	.055%	96.407%
30.0	11.679	0.660	904.474	.051%	96.478%
31.0	10.723	0.623	905.097	.048%	96.544%
32.0	9.921	0.591	905.688	.046%	96.607%
33.0	9.323	0.567	906.255	.044%	96.668%
34.0	8.789	0.548	906.804	.043%	96.726%
35.0	8.360	0.533	907.336	.041%	96.783%
36.0	7.995	0.521	907.857	.040%	96.839%
37.0	7.699	0.512	908.369	.040%	96.893%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	7.453	0.506	908.874	.039%	96.947%
39.0	7.228	0.501	909.376	.039%	97.001%
40.0	7.066	0.499	909.874	.039%	97.054%
41.0	6.933	0.499	910.373	.039%	97.107%
42.0	6.813	0.499	910.872	.039%	97.160%
43.0	6.722	0.501	911.373	.039%	97.214%
44.0	6.645	0.504	911.878	.039%	97.267%
45.0	6.560	0.507	912.385	.039%	97.322%
46.0	6.483	0.510	912.895	.040%	97.376%
47.0	6.420	0.513	913.409	.040%	97.431%
48.0	6.363	0.517	913.925	.040%	97.486%
49.0	6.293	0.520	914.445	.040%	97.541%
50.0	6.223	0.522	914.967	.041%	97.597%
51.0	6.152	0.524	915.49	.041%	97.653%
52.0	6.096	0.526	916.016	.041%	97.709%
53.0	6.026	0.527	916.543	.041%	97.765%
54.0	5.941	0.527	917.071	.041%	97.821%
55.0	5.857	0.527	917.597	.041%	97.878%
56.0	5.794	0.526	918.124	.041%	97.934%
57.0	5.709	0.526	918.65	.041%	97.990%
58.0	5.646	0.525	919.175	.041%	98.046%
59.0	5.590	0.525	919.7	.041%	98.102%
60.0	5.520	0.525	920.225	.041%	98.158%
61.0	5.491	0.525	920.751	.041%	98.214%
62.0	5.442	0.527	921.277	.041%	98.270%
63.0	5.414	0.528	921.805	.041%	98.326%
64.0	5.407	0.531	922.336	.041%	98.383%
65.0	5.442	0.537	922.873	.042%	98.440%
66.0	5.569	0.549	923.423	.043%	98.499%
67.0	5.759	0.570	923.992	.044%	98.560%
68.0	5.970	0.594	924.586	.046%	98.623%
69.0	6.265	0.624	925.211	.048%	98.690%
70.0	6.588	0.660	925.871	.051%	98.760%
71.0	6.827	0.693	926.564	.054%	98.834%
72.0	7.024	0.720	927.284	.056%	98.911%
73.0	7.214	0.745	928.029	.058%	98.990%
74.0	7.341	0.765	928.794	.059%	99.072%
75.0	7.193	0.768	929.562	.060%	99.154%

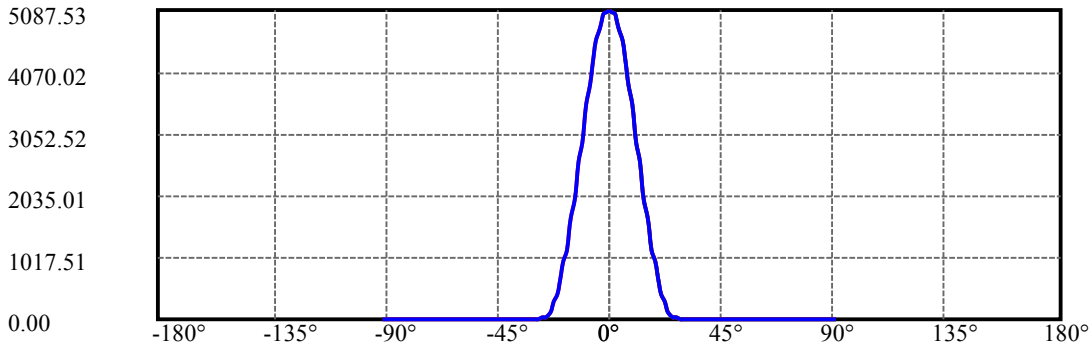
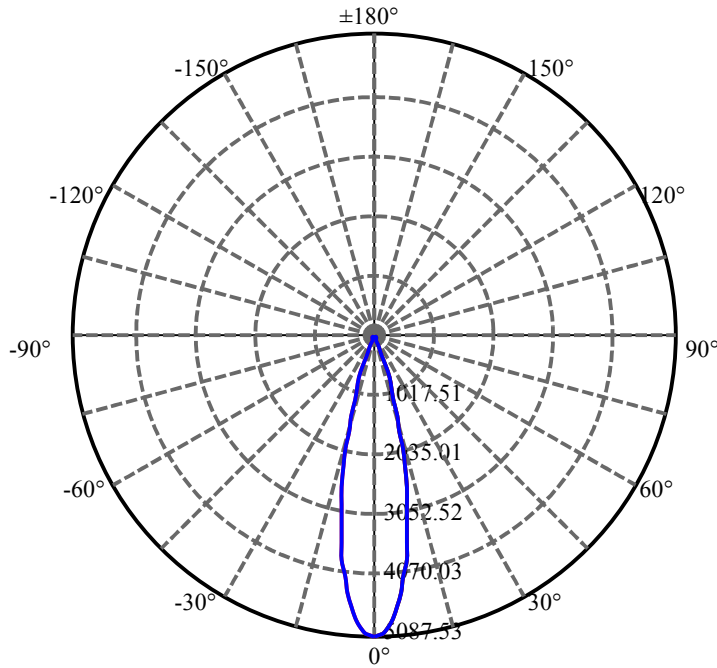
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	6.623	0.733	930.295	.057%	99.232%
77.0	5.857	0.665	930.961	.052%	99.303%
78.0	5.259	0.595	931.556	.046%	99.366%
79.0	4.922	0.547	932.103	.042%	99.425%
80.0	4.852	0.527	932.63	.041%	99.481%
81.0	4.704	0.517	933.147	.040%	99.536%
82.0	4.613	0.505	933.652	.039%	99.590%
83.0	4.598	0.501	934.152	.039%	99.643%
84.0	4.556	0.499	934.651	.039%	99.697%
85.0	4.563	0.498	935.149	.039%	99.750%
86.0	4.556	0.498	935.647	.039%	99.803%
87.0	4.205	0.479	936.127	.037%	99.854%
88.0	4.177	0.459	936.586	.036%	99.903%
89.0	4.141	0.456	937.042	.035%	99.952%
90.0	4.134	0.454	937.496	.035%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	904.47	70.22%	96.48%
0-40	909.87	70.64%	97.05%
0-60	920.23	71.45%	98.16%
0-90	937.04	72.75%	99.95%
0-120	937.04	72.75%	99.95%
0-180	937.50	72.79%	100.00%
60-90	17.34	1.35%	1.85%
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%
0-16.70	750.00	58.23%	80.00%

ZONAL LUMEN SUMMARY

0-10	393.07
10-20	456.38
20-30	55.03
30-40	5.40
40-50	5.09
50-60	5.26
60-70	5.65
70-80	6.76
80-90	4.41
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: —————

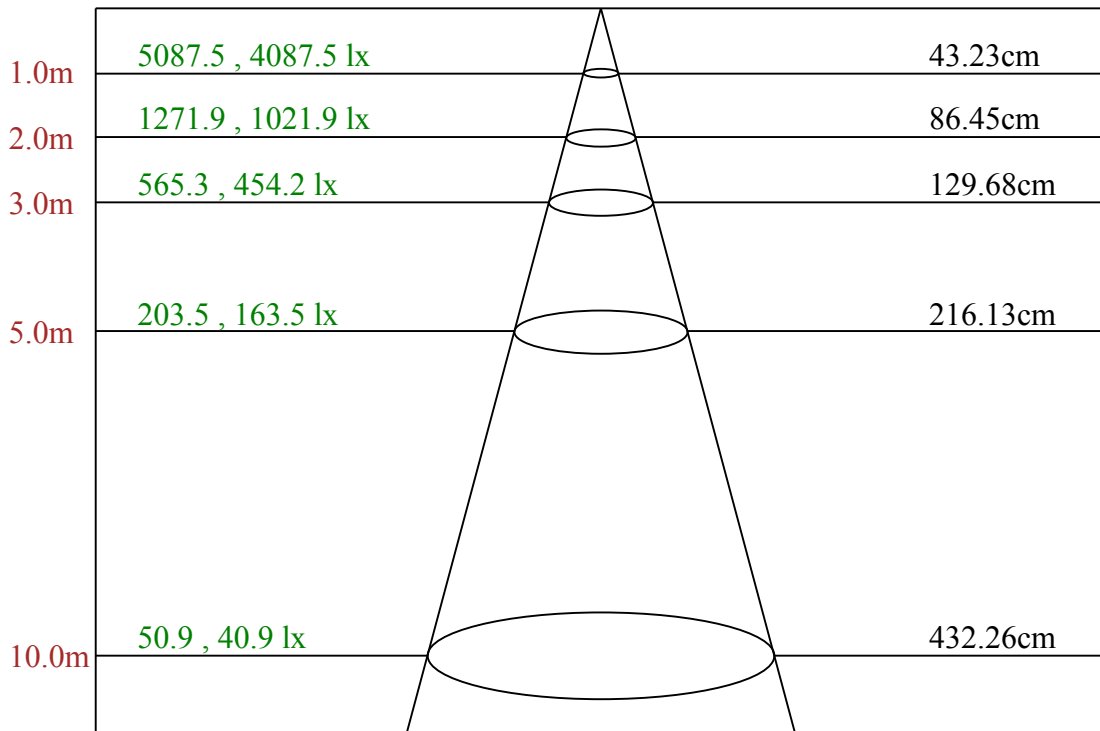
C90/C270: —————

Field angle(10%Imax):C0/180Left:20.3 Right:20.3

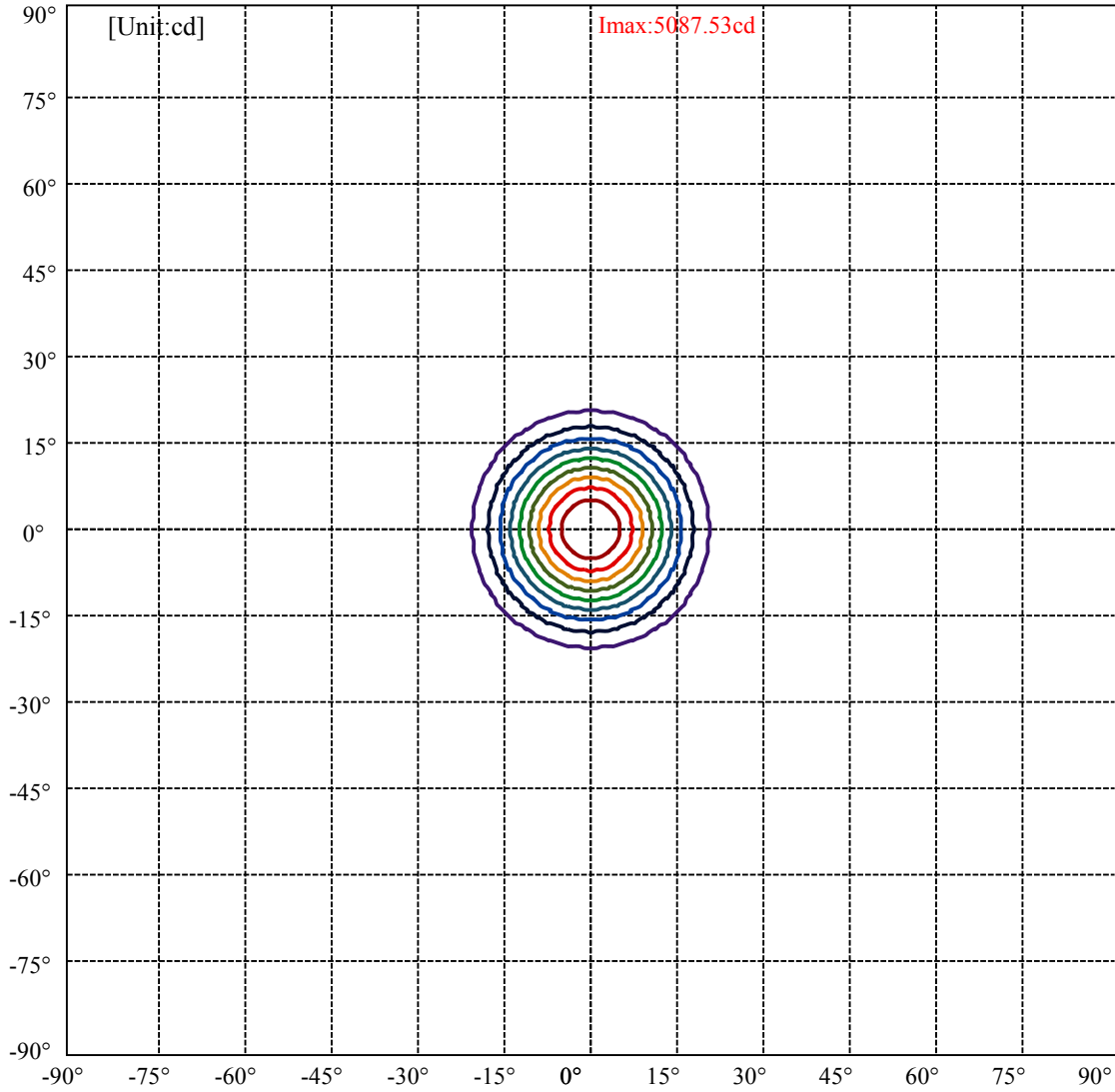
:C90/270Left:20.3 Right:20.3

Beam Angle(50%Imax):C0/180Left:12.2 Right:12.2

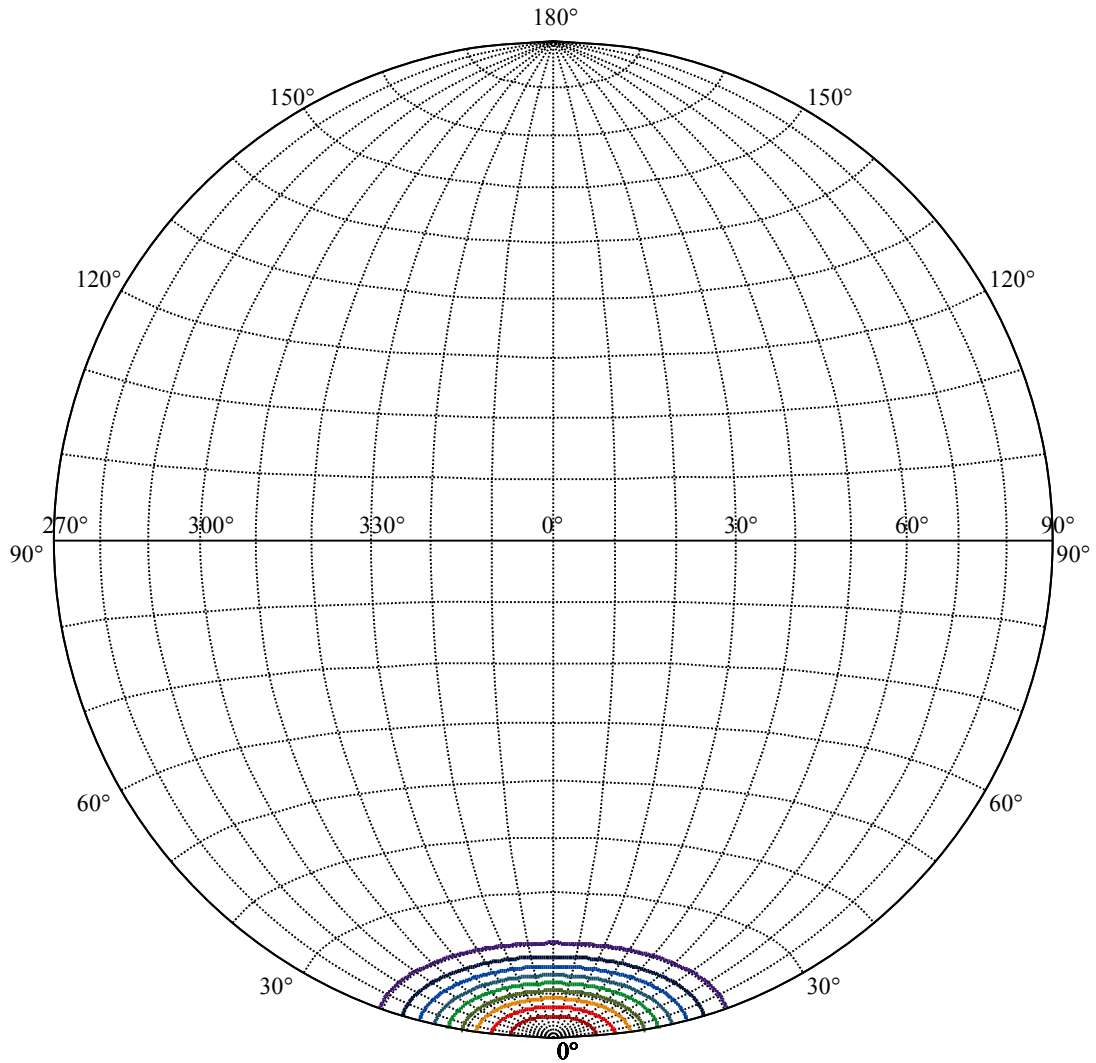
:C90/270Left:12.2 Right:12.2



Max , Ave Beam angle of C0 plane 24.39



(10%Imax) 508.753	—
(20%Imax) 1017.51	—
(30%Imax) 1526.26	—
(40%Imax) 2035.01	—
(50%Imax) 2543.77	—
(60%Imax) 3052.52	—
(70%Imax) 3561.27	—
(80%Imax) 4070.02	—
(90%Imax) 4578.78	—



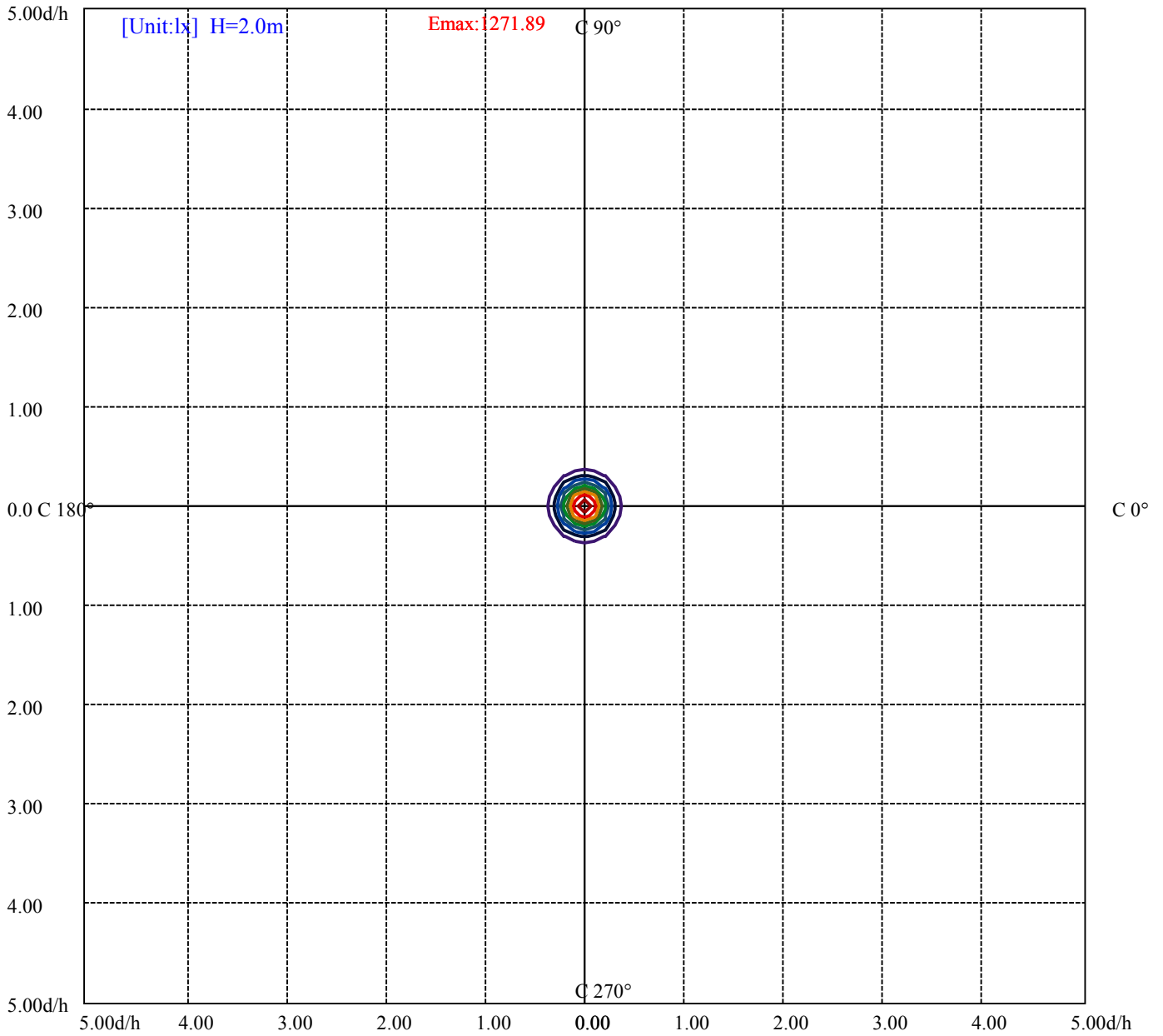
House

[Unit:cd]

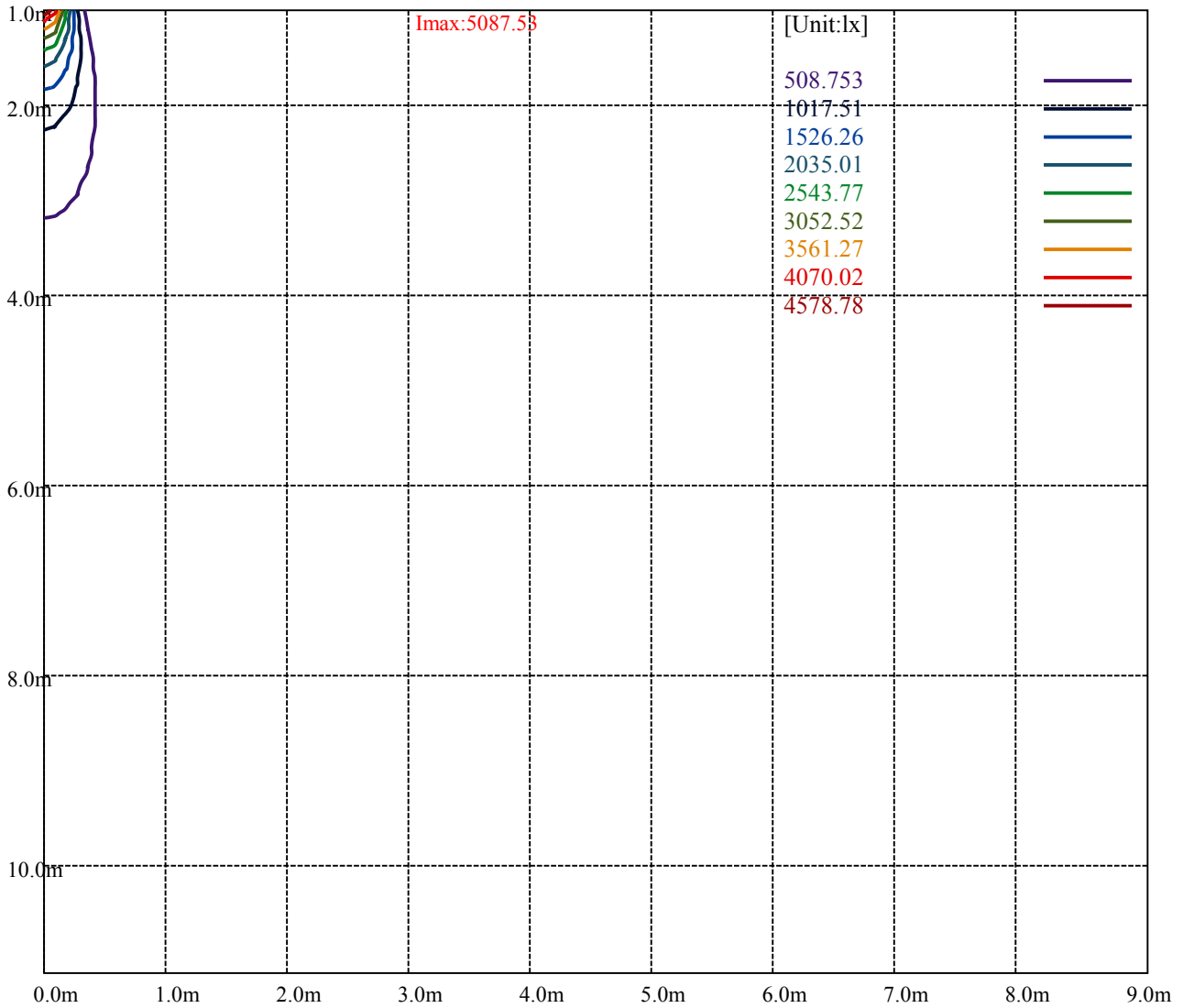
Road

Imax:5087.53

(10%Imax) 508.753	—
(20%Imax) 1017.51	—
(30%Imax) 1526.26	—
(40%Imax) 2035.01	—
(50%Imax) 2543.77	—
(60%Imax) 3052.52	—
(70%Imax) 3561.27	—
(80%Imax) 4070.02	—
(90%Imax) 4578.78	—



(10%Emax) 127.1882	—
(20%Emax) 254.3775	—
(30%Emax) 381.565	—
(40%Emax) 508.7525	—
(50%Emax) 635.94	—
(60%Emax) 763.13	—
(70%Emax) 890.3175	—
(80%Emax) 1017.505	—
(90%Emax) 1144.695	—



Luminance Table

γ	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

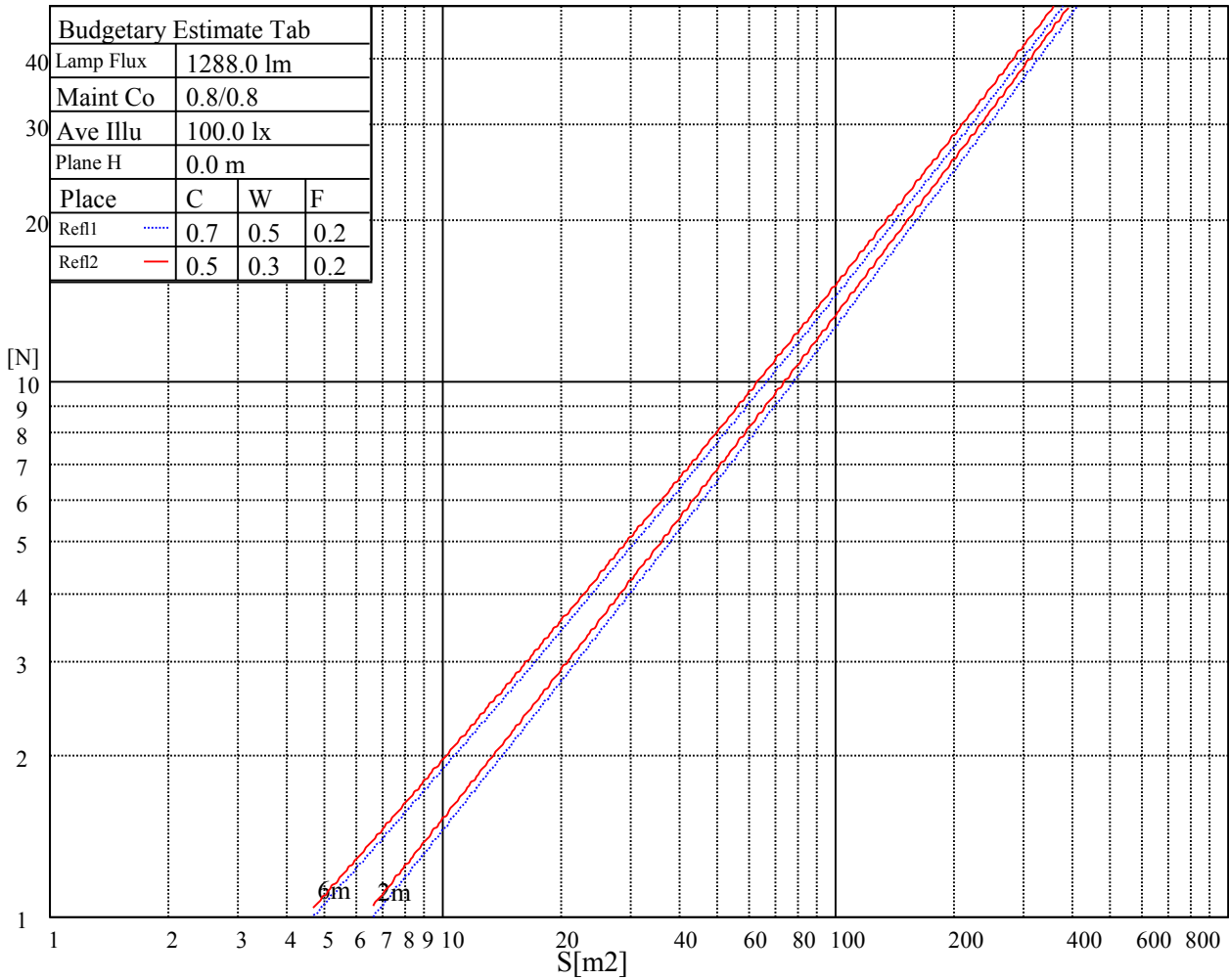
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

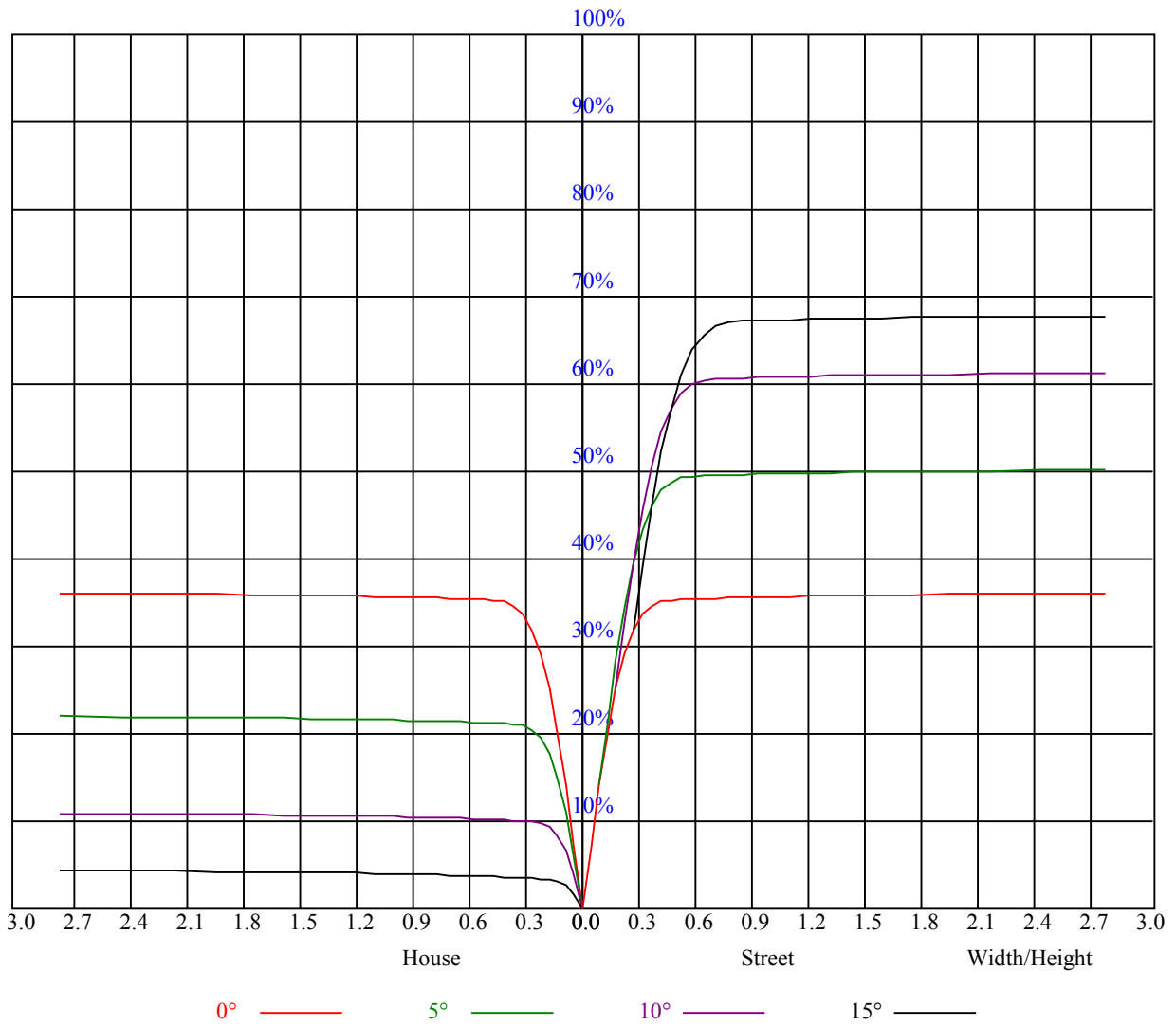
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	0.87	0.87	0.87	0.85	0.85	0.85	0.81	0.81	0.81	0.77	0.77	0.77	0.74	0.74	0.74	0.73
1	0.82	0.81	0.79	0.81	0.79	0.78	0.78	0.77	0.76	0.75	0.74	0.74	0.73	0.72	0.71	0.70
2	0.78	0.76	0.75	0.77	0.75	0.74	0.75	0.73	0.72	0.73	0.72	0.71	0.71	0.70	0.69	0.68
3	0.75	0.73	0.71	0.74	0.72	0.70	0.73	0.71	0.69	0.71	0.70	0.68	0.70	0.68	0.67	0.66
4	0.73	0.70	0.68	0.72	0.70	0.68	0.71	0.69	0.67	0.69	0.68	0.66	0.68	0.67	0.65	0.65
5	0.71	0.68	0.66	0.70	0.67	0.65	0.69	0.67	0.65	0.68	0.66	0.64	0.67	0.65	0.64	0.63
6	0.69	0.66	0.64	0.68	0.65	0.63	0.67	0.65	0.63	0.66	0.64	0.63	0.65	0.64	0.62	0.62
7	0.67	0.64	0.62	0.66	0.64	0.62	0.66	0.63	0.61	0.65	0.63	0.61	0.64	0.62	0.61	0.60
8	0.65	0.62	0.60	0.65	0.62	0.60	0.64	0.62	0.60	0.63	0.61	0.60	0.63	0.61	0.60	0.59
9	0.63	0.61	0.59	0.63	0.61	0.59	0.63	0.60	0.59	0.62	0.60	0.59	0.62	0.60	0.58	0.58
10	0.62	0.59	0.58	0.62	0.59	0.58	0.61	0.59	0.57	0.61	0.59	0.57	0.60	0.59	0.57	0.57



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	5079.94	5101.88	5082.75	5028.75	4919.63	4778.44	4577.63	4340.81	4102.31
45.0	5082.75	5112.00	5104.69	5054.63	4971.94	4850.44	4646.25	4438.69	4201.88
90.0	5096.25	5091.19	5051.25	4964.06	4829.63	4670.44	4476.94	4188.38	3931.88
135.0	5091.19	5078.81	5024.81	4926.94	4799.81	4661.44	4395.94	4164.19	3908.25
180.0	5079.94	5024.81	4936.50	4776.75	4610.81	4414.50	4126.50	3864.94	3584.25
225.0	5082.75	5009.63	4907.25	4752.00	4552.31	4339.69	4040.44	3776.63	3493.69
270.0	5096.25	5065.31	4988.81	4864.50	4712.63	4502.81	4257.00	4015.69	3751.88
315.0	5091.19	5064.19	5002.88	4890.38	4727.25	4543.31	4307.06	4040.44	3780.56
360.0	5079.94	5101.88	5082.75	5028.75	4919.63	4778.44	4577.63	4340.81	4102.31
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3812.06	3503.25	3218.63	2922.19	2549.25	2252.81	1964.81	1695.38	1386.00
45.0	3916.13	3607.88	3317.63	2980.69	2644.31	2350.13	2026.69	1757.81	1475.44
90.0	3657.38	3298.50	3003.19	2706.75	2374.31	2051.44	1779.75	1493.44	1114.09
135.0	3570.19	3286.13	2990.25	2649.38	2309.06	2017.13	1710.00	1454.06	1189.69
180.0	3255.75	2921.06	2621.81	2285.44	1958.06	1689.75	1405.69	1114.48	931.67
225.0	3201.75	2831.06	2532.38	2234.25	1878.19	1619.44	1372.50	1105.59	870.47
270.0	3403.69	3115.13	2822.63	2488.50	2159.44	1878.75	1585.69	1305.56	1077.19
315.0	3503.81	3145.50	2848.50	2547.56	2178.00	1900.69	1643.06	1364.06	1107.34
360.0	3812.06	3503.25	3218.63	2922.19	2549.25	2252.81	1964.81	1695.38	1386.00
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1161.56	969.19	736.88	567.56	398.81	284.06	152.78	87.36	32.74
45.0	1207.69	1002.38	792.56	599.63	439.88	302.63	215.94	89.89	43.43
90.0	1012.50	798.47	624.21	446.18	295.93	189.51	108.84	42.24	22.44
135.0	954.56	765.56	572.63	403.31	285.75	164.31	71.55	31.89	21.32
180.0	717.53	543.77	391.33	234.56	142.99	76.05	30.94	22.67	17.33
225.0	685.07	500.74	354.66	221.68	125.61	65.03	32.23	23.06	18.34
270.0	851.06	670.50	488.81	329.63	298.13	118.86	60.36	29.76	21.88
315.0	912.04	729.79	538.09	371.25	248.63	141.36	66.49	31.61	20.19
360.0	1161.56	969.19	736.88	567.56	398.81	284.06	152.78	87.36	32.74
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	19.97	15.81	13.56	12.26	11.25	10.13	9.45	8.89	8.27
45.0	21.83	15.92	13.95	12.66	11.42	10.52	9.84	9.17	8.72
90.0	16.59	13.95	12.43	11.42	10.41	9.62	9.11	8.55	8.16
135.0	16.03	13.44	12.09	10.97	10.13	9.45	8.78	8.33	7.93
180.0	14.29	12.77	11.70	10.63	10.01	9.34	8.78	8.38	8.04
225.0	15.81	13.78	12.66	11.70	10.69	10.07	9.51	9.00	8.61
270.0	16.99	14.63	13.28	12.26	11.19	10.46	9.90	9.28	8.94
315.0	16.54	14.06	12.60	11.53	10.69	9.79	9.23	8.72	8.21
360.0	19.97	15.81	13.56	12.26	11.25	10.13	9.45	8.89	8.27
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	7.88	7.54	7.20	6.92	6.75	6.53	6.41	6.24	6.19
45.0	8.27	7.93	7.65	7.37	7.14	6.92	6.75	6.69	6.58
90.0	7.82	7.54	7.26	7.09	6.92	6.75	6.69	6.64	6.58
135.0	7.54	7.26	7.03	6.81	6.64	6.53	6.36	6.30	6.19
180.0	7.65	7.43	7.26	6.98	6.81	6.69	6.58	6.47	6.36
225.0	8.33	7.99	7.82	7.65	7.48	7.37	7.26	7.09	7.03
270.0	8.61	8.33	8.10	7.93	7.82	7.82	7.71	7.71	7.71
315.0	7.88	7.59	7.31	7.09	6.98	6.86	6.75	6.64	6.53
360.0	7.88	7.54	7.20	6.92	6.75	6.53	6.41	6.24	6.19

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	6.08	5.96	5.85	5.79	5.74	5.68	5.63	5.57	5.46
45.0	6.47	6.36	6.30	6.24	6.13	6.08	6.02	5.96	5.85
90.0	6.58	6.53	6.53	6.47	6.41	6.41	6.36	6.24	6.24
135.0	6.08	6.02	5.96	5.85	5.79	5.74	5.68	5.68	5.63
180.0	6.24	6.19	6.08	6.02	5.96	5.85	5.79	5.74	5.74
225.0	6.98	6.81	6.75	6.69	6.58	6.47	6.36	6.30	6.19
270.0	7.65	7.65	7.65	7.65	7.59	7.54	7.43	7.31	7.20
315.0	6.41	6.36	6.24	6.19	6.13	6.02	5.96	5.96	5.91
360.0	6.08	5.96	5.85	5.79	5.74	5.68	5.63	5.57	5.46
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	5.46	5.40	5.40	5.29	5.29	5.23	5.18	5.18	5.12
45.0	5.79	5.74	5.63	5.63	5.57	5.51	5.46	5.40	5.34
90.0	6.08	6.02	5.91	5.79	5.63	5.57	5.46	5.40	5.34
135.0	5.57	5.51	5.51	5.46	5.40	5.40	5.34	5.34	5.29
180.0	5.68	5.57	5.57	5.46	5.46	5.40	5.34	5.34	5.29
225.0	6.08	5.96	5.96	5.85	5.85	5.79	5.74	5.68	5.63
270.0	7.03	6.86	6.64	6.53	6.36	6.19	6.08	6.02	6.02
315.0	5.85	5.79	5.74	5.68	5.63	5.63	5.57	5.57	5.51
360.0	5.46	5.40	5.40	5.29	5.29	5.23	5.18	5.18	5.12
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	5.12	5.06	5.01	4.95	4.95	4.95	4.89	4.89	4.84
45.0	5.29	5.29	5.29	5.29	5.23	5.23	5.23	5.23	5.29
90.0	5.29	5.29	5.29	5.29	5.23	5.34	6.02	7.09	8.49
135.0	5.29	5.23	5.23	5.23	5.18	5.18	5.18	5.18	5.12
180.0	5.23	5.23	5.18	5.18	5.12	5.12	5.06	5.06	5.01
225.0	5.63	5.63	5.57	5.63	5.79	5.91	6.19	6.41	6.58
270.0	6.02	6.08	6.58	7.59	9.23	10.69	12.21	13.56	14.06
315.0	5.46	5.46	5.40	5.40	5.34	5.34	5.34	5.29	5.23
360.0	5.12	5.06	5.01	4.95	4.95	4.95	4.89	4.89	4.84
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	4.84	4.84	4.78	4.78	4.73	4.73	4.67	4.61	4.56
45.0	5.40	5.68	5.96	6.13	6.02	5.79	5.51	5.18	4.95
90.0	9.73	10.46	10.80	10.13	8.61	6.36	5.18	5.01	4.84
135.0	5.12	5.51	6.30	7.09	7.03	6.64	5.96	5.12	5.18
180.0	4.95	4.95	4.89	4.89	4.78	4.73	4.67	4.61	4.56
225.0	6.75	6.98	6.81	6.41	6.08	5.63	5.23	4.78	4.56
270.0	14.23	14.01	13.50	11.98	9.51	7.03	5.23	4.95	4.89
315.0	5.18	5.29	5.68	6.13	6.24	5.96	5.63	5.12	5.29
360.0	4.84	4.84	4.78	4.78	4.73	4.73	4.67	4.61	4.56
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	4.50	4.44	4.44	4.44	4.39	4.33	4.28	4.22	4.22
45.0	4.67	4.50	4.39	4.33	4.33	4.28	4.28	4.22	4.16
90.0	4.73	4.61	4.56	4.61	4.61	4.78	4.16	4.16	4.11
135.0	5.01	4.89	5.01	4.89	4.89	5.06	4.16	4.16	4.11
180.0	4.50	4.50	4.44	4.39	4.44	4.22	4.22	4.16	4.16
225.0	4.44	4.39	4.33	4.33	4.28	4.22	4.16	4.16	4.16
270.0	4.67	4.61	4.56	4.61	4.67	4.61	4.16	4.16	4.11
315.0	5.12	4.95	5.06	4.84	4.89	4.95	4.22	4.16	4.11
360.0	4.50	4.44	4.44	4.44	4.39	4.33	4.28	4.22	4.22

Intensity data(cd)

C/γ(°)	90.0
0.0	4.16
45.0	4.16
90.0	4.11
135.0	4.11
180.0	4.16
225.0	4.16
270.0	4.11
315.0	4.11
360.0	4.16