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Nata

LumCAT: 1-0919-M	
Luminaire: 92.70.124.00	
Report No: NATA0100	Voltage(V): 35.4900
Test No: GC2019091819	Current(A): 0.3000
LampCAT: CITIZEN CLU028	Power (W): 10.6500
Lamp flux(lm): 1018.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 39	Width(mm): 39
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 788.47
Efficiency(%): 77.45%
Lumens(lm)/Power(W): 74.04
Central intensity(cd): 4375.969
Maximum intensity(cd): 4375.969
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=23.1
 [C90/270]Total=23.1
Field angle(10%Imax): [C0/180]Total=41.8
 [C90/270]Total=41.8
Maximum s/h(1/2): C0_180=0.39 C90_270=0.39
Maximum s/h(1/4): C0_180=0.39 C90_270=0.39
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 77.45%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.516%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4375.969	0.000	0	.000%	.000%
1.0	4353.820	4.177	4.177	.410%	.530%
2.0	4287.938	12.403	16.581	1.218%	2.103%
3.0	4172.695	20.235	36.816	1.988%	4.669%
4.0	4031.086	27.461	64.276	2.698%	8.152%
5.0	3843.492	33.876	98.152	3.328%	12.448%
6.0	3629.391	39.272	137.424	3.858%	17.429%
7.0	3393.914	43.594	181.018	4.282%	22.958%
8.0	3146.414	46.808	227.826	4.598%	28.894%
9.0	2873.742	48.790	276.616	4.793%	35.082%
10.0	2593.336	49.475	326.091	4.860%	41.357%
11.0	2330.297	49.197	375.288	4.833%	47.597%
12.0	2060.086	47.993	423.281	4.714%	53.684%
13.0	1801.477	45.827	469.108	4.502%	59.496%
14.0	1534.887	42.705	511.813	4.195%	64.912%
15.0	1327.402	39.295	551.108	3.860%	69.896%
16.0	1135.800	36.093	587.201	3.545%	74.473%
17.0	956.805	32.587	619.788	3.201%	78.606%
18.0	805.317	29.054	648.842	2.854%	82.291%
19.0	675.148	25.757	674.599	2.530%	85.558%
20.0	544.563	22.324	696.923	2.193%	88.389%
21.0	424.927	18.616	715.539	1.829%	90.750%
22.0	346.050	15.493	731.032	1.522%	92.715%
23.0	240.237	12.302	743.334	1.208%	94.275%
24.0	161.986	8.794	752.128	.864%	95.390%
25.0	95.738	5.860	757.988	.576%	96.134%
26.0	55.709	3.575	761.563	.351%	96.587%
27.0	29.152	2.076	763.639	.204%	96.850%
28.0	16.158	1.147	764.787	.113%	96.996%
29.0	10.526	0.698	765.485	.069%	97.084%
30.0	8.613	0.517	766.001	.051%	97.150%
31.0	7.685	0.454	766.455	.045%	97.207%
32.0	7.073	0.423	766.878	.042%	97.261%
33.0	6.609	0.403	767.281	.040%	97.312%
34.0	6.223	0.388	767.669	.038%	97.361%
35.0	5.899	0.376	768.046	.037%	97.409%
36.0	5.604	0.366	768.412	.036%	97.456%
37.0	5.386	0.358	768.77	.035%	97.501%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	5.175	0.353	769.123	.035%	97.546%
39.0	4.992	0.347	769.47	.034%	97.590%
40.0	4.845	0.343	769.813	.034%	97.633%
41.0	4.704	0.340	770.153	.033%	97.676%
42.0	4.605	0.338	770.491	.033%	97.719%
43.0	4.507	0.338	770.829	.033%	97.762%
44.0	4.444	0.338	771.167	.033%	97.805%
45.0	4.352	0.338	771.505	.033%	97.848%
46.0	4.296	0.338	771.843	.033%	97.891%
47.0	4.247	0.340	772.183	.033%	97.934%
48.0	4.205	0.342	772.524	.034%	97.977%
49.0	4.141	0.343	772.867	.034%	98.021%
50.0	4.120	0.344	773.212	.034%	98.064%
51.0	4.085	0.347	773.559	.034%	98.108%
52.0	4.043	0.349	773.907	.034%	98.153%
53.0	4.008	0.350	774.258	.034%	98.197%
54.0	3.994	0.353	774.61	.035%	98.242%
55.0	3.966	0.355	774.966	.035%	98.287%
56.0	3.945	0.357	775.323	.035%	98.332%
57.0	3.916	0.359	775.683	.035%	98.378%
58.0	3.895	0.361	776.044	.035%	98.423%
59.0	3.867	0.363	776.407	.036%	98.470%
60.0	3.853	0.365	776.771	.036%	98.516%
61.0	3.839	0.367	777.138	.036%	98.562%
62.0	3.832	0.370	777.508	.036%	98.609%
63.0	3.832	0.373	777.881	.037%	98.656%
64.0	3.790	0.374	778.255	.037%	98.704%
65.0	3.783	0.375	778.63	.037%	98.751%
66.0	3.776	0.377	779.007	.037%	98.799%
67.0	3.769	0.379	779.386	.037%	98.847%
68.0	3.762	0.381	779.768	.037%	98.896%
69.0	3.762	0.384	780.151	.038%	98.944%
70.0	3.734	0.385	780.536	.038%	98.993%
71.0	3.741	0.386	780.923	.038%	99.042%
72.0	3.727	0.388	781.311	.038%	99.092%
73.0	3.720	0.389	781.7	.038%	99.141%
74.0	3.720	0.391	782.091	.038%	99.190%
75.0	3.713	0.393	782.484	.039%	99.240%

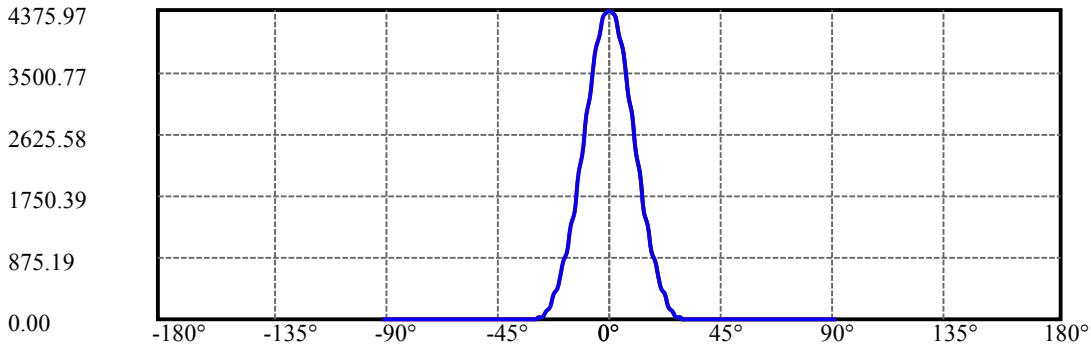
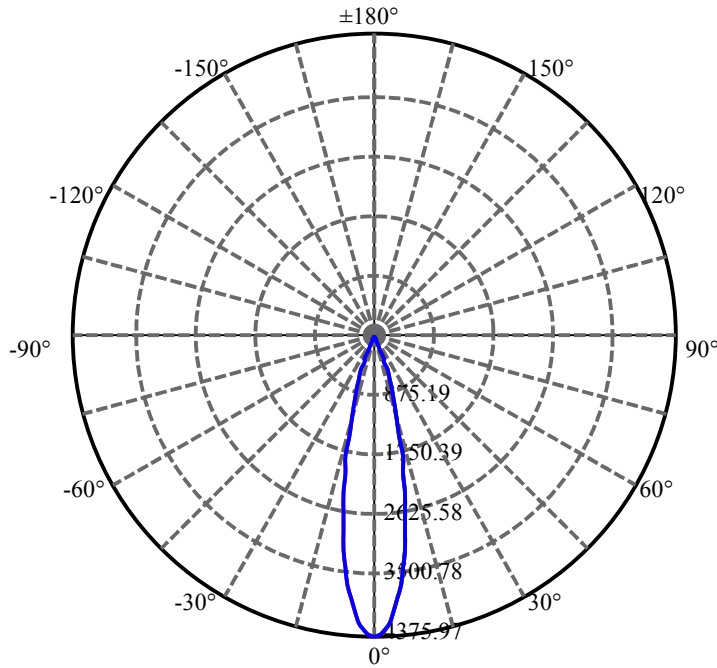
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	3.713	0.394	782.878	.039%	99.290%
77.0	3.713	0.396	783.274	.039%	99.340%
78.0	3.705	0.397	783.671	.039%	99.391%
79.0	3.691	0.397	784.069	.039%	99.441%
80.0	3.691	0.398	784.467	.039%	99.492%
81.0	3.684	0.399	784.866	.039%	99.542%
82.0	3.684	0.400	785.265	.039%	99.593%
83.0	3.677	0.400	785.665	.039%	99.644%
84.0	3.684	0.401	786.066	.039%	99.695%
85.0	3.677	0.402	786.468	.039%	99.746%
86.0	3.670	0.402	786.87	.039%	99.797%
87.0	3.670	0.402	787.272	.039%	99.847%
88.0	3.656	0.401	787.673	.039%	99.898%
89.0	3.656	0.401	788.074	.039%	99.949%
90.0	3.649	0.401	788.474	.039%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	766.00	75.25%	97.15%
0-40	769.81	75.62%	97.63%
0-60	776.77	76.30%	98.52%
0-90	788.07	77.41%	99.95%
0-120	788.07	77.41%	99.95%
0-180	788.47	77.45%	100.00%
60-90	11.67	1.15%	1.48%
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%
0-17.38	630.78	61.96%	80.00%

ZONAL LUMEN SUMMARY

0-10	326.09
10-20	370.83
20-30	69.08
30-40	3.81
40-50	3.40
50-60	3.56
60-70	3.76
70-80	3.93
80-90	3.61
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: —————

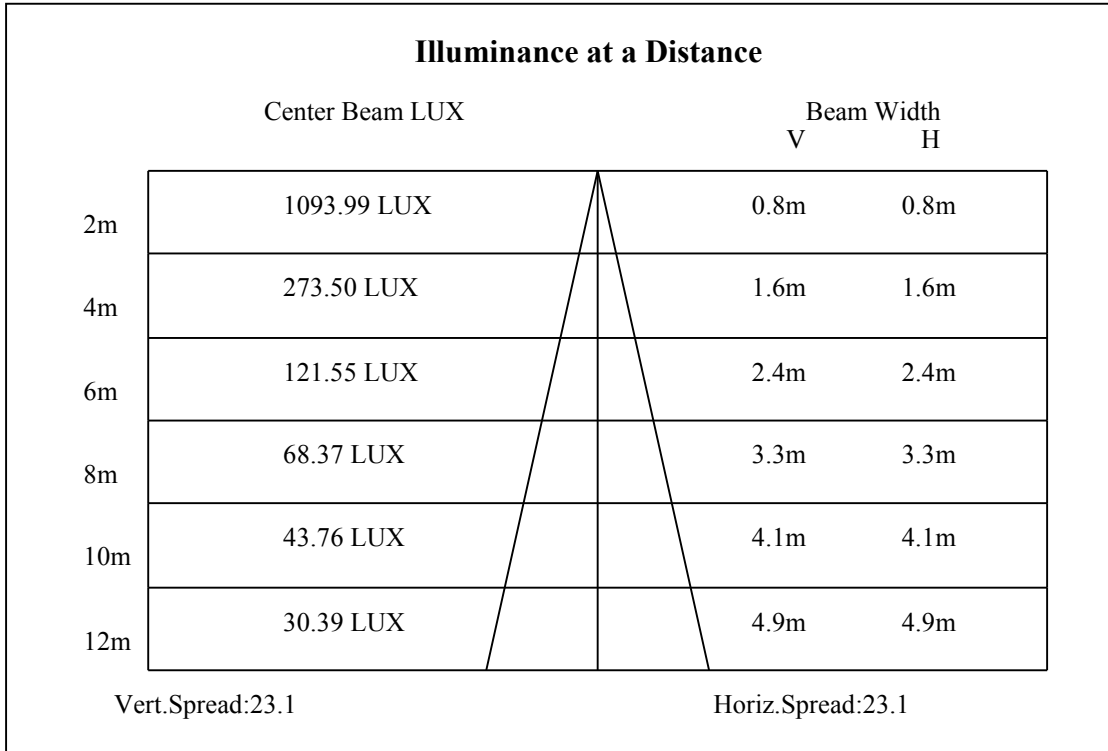
C90/C270: —————

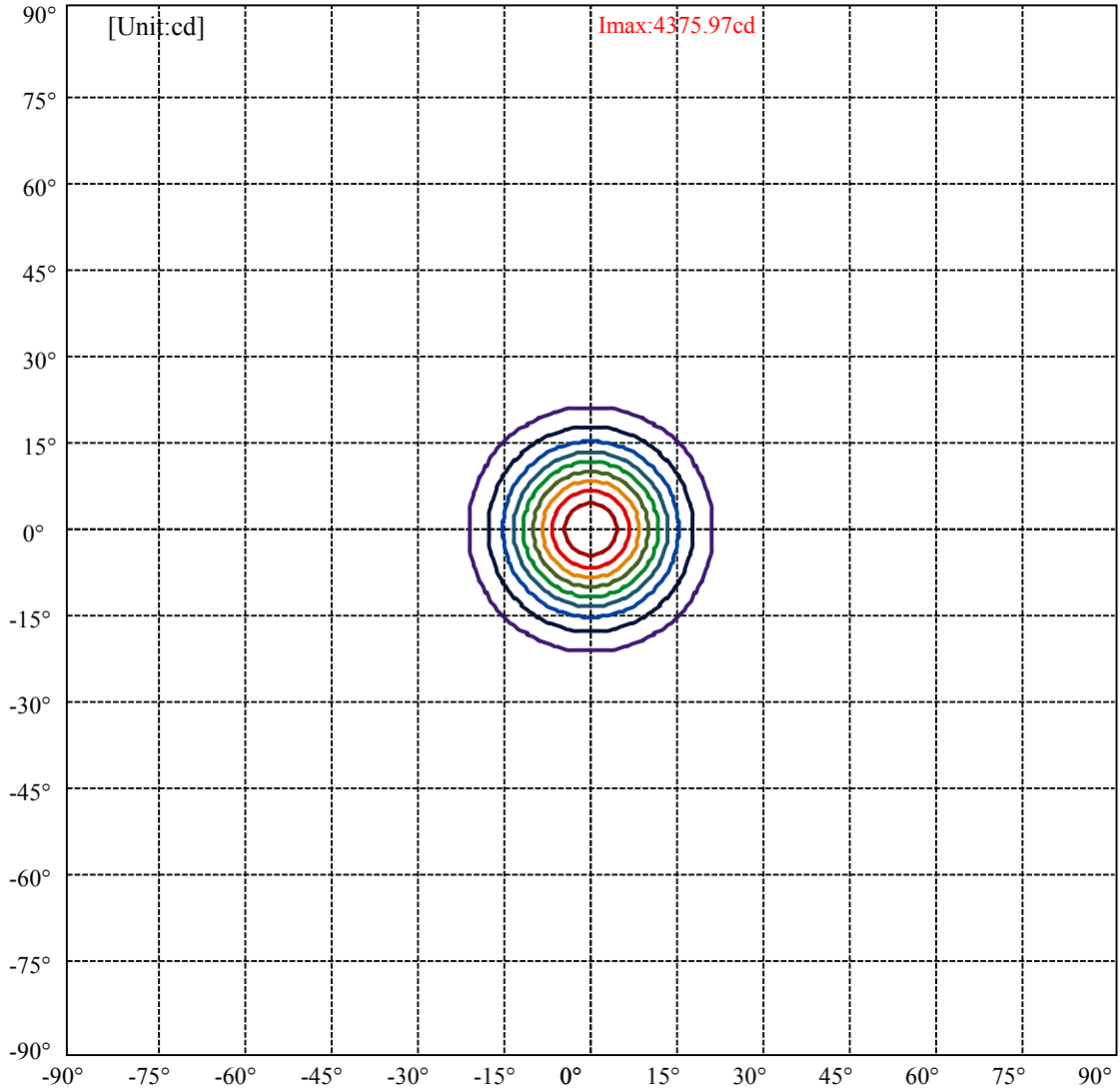
Field angle(10%Imax):C0/180Left:20.9 Right:20.9

:C90/270Left:20.9 Right:20.9

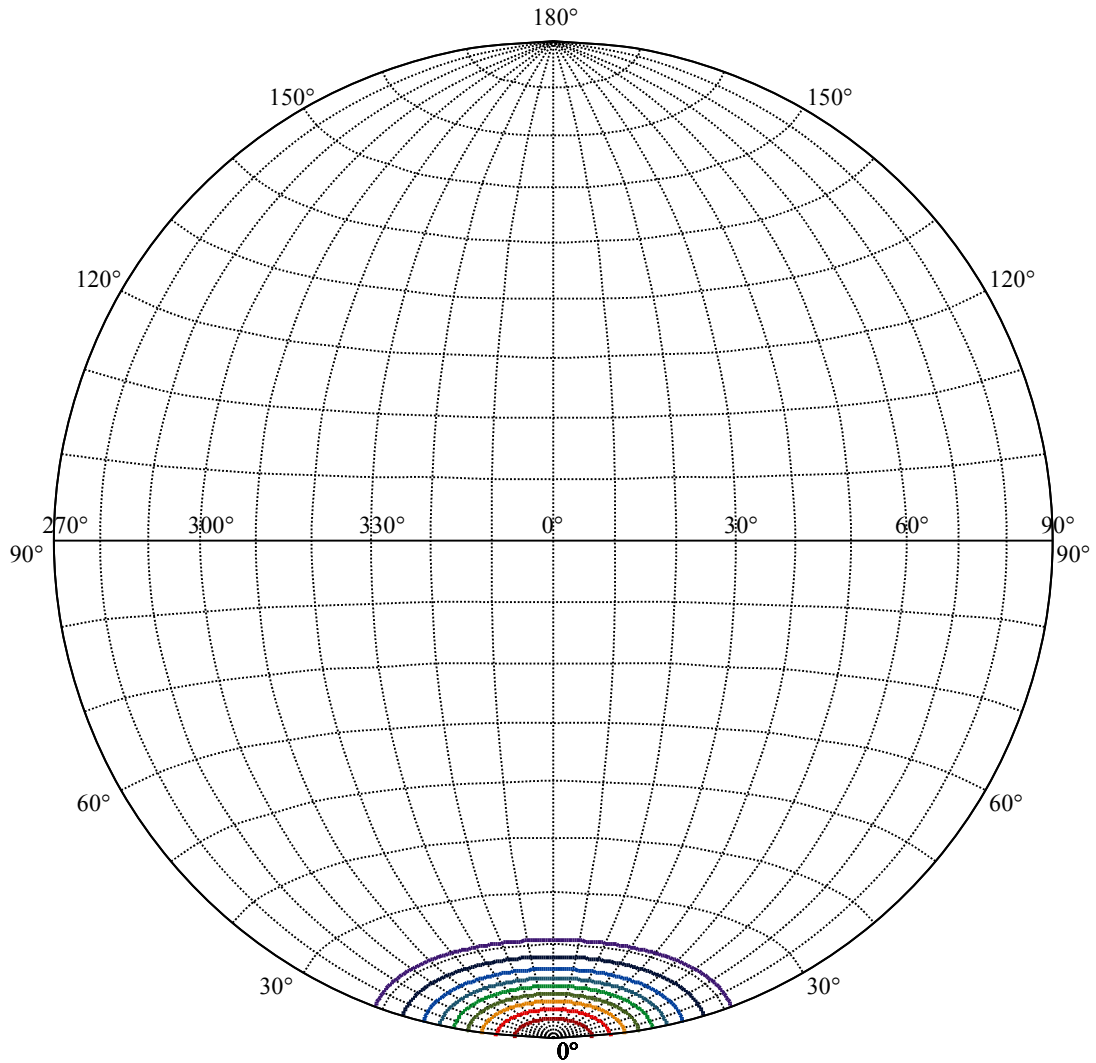
Beam Angle(50%Imax):C0/180Left:11.5 Right:11.5

:C90/270Left:11.5 Right:11.5





(10%Imax) 437.597	—
(20%Imax) 875.194	—
(30%Imax) 1312.79	—
(40%Imax) 1750.39	—
(50%Imax) 2187.98	—
(60%Imax) 2625.58	—
(70%Imax) 3063.18	—
(80%Imax) 3500.77	—
(90%Imax) 3938.37	—



House

[Unit:cd]

Road

Imax:4375.97

(10%Imax) 437.597

(20%Imax) 875.194

(30%Imax) 1312.79

(40%Imax) 1750.39

(50%Imax) 2187.98

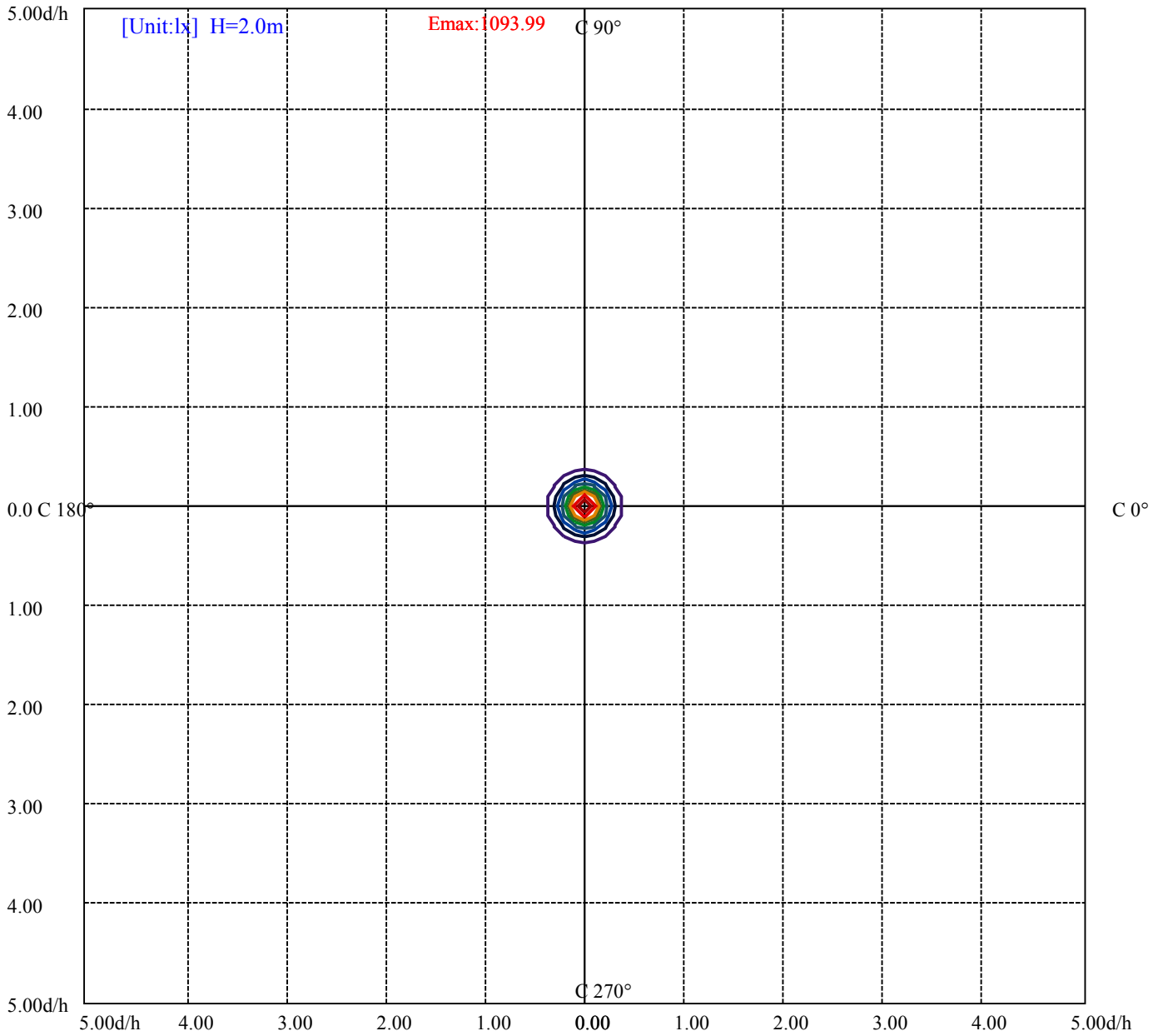
(60%Imax) 2625.58

(70%Imax) 3063.18

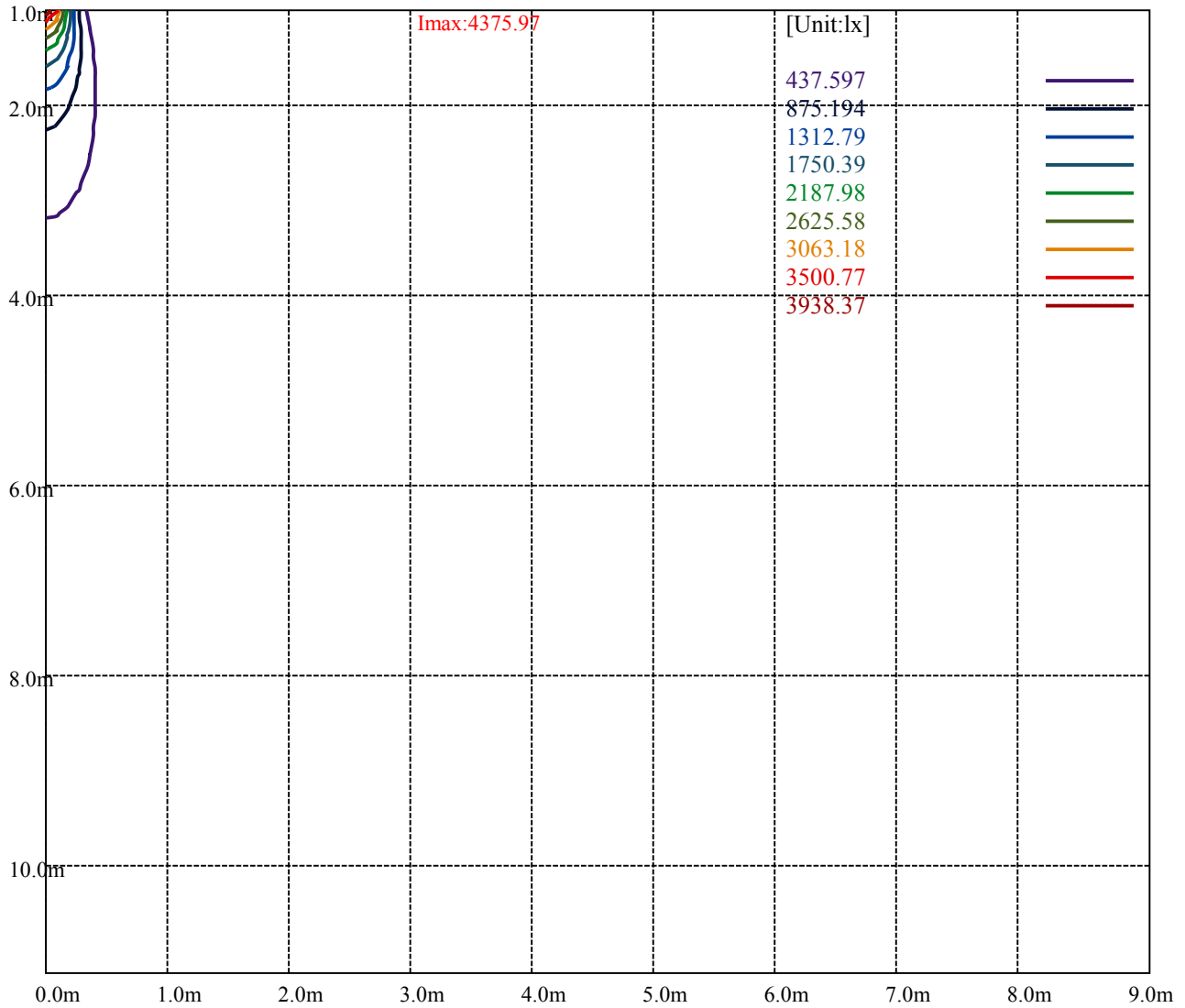
(80%Imax) 3500.77

(90%Imax) 3938.37





- (10%Emax) 109.3992
- (20%Emax) 218.7982
- (30%Emax) 328.1975
- (40%Emax) 437.5975
- (50%Emax) 546.995
- (60%Emax) 656.395
- (70%Emax) 765.795
- (80%Emax) 875.1925
- (90%Emax) 984.5925



Luminance Table

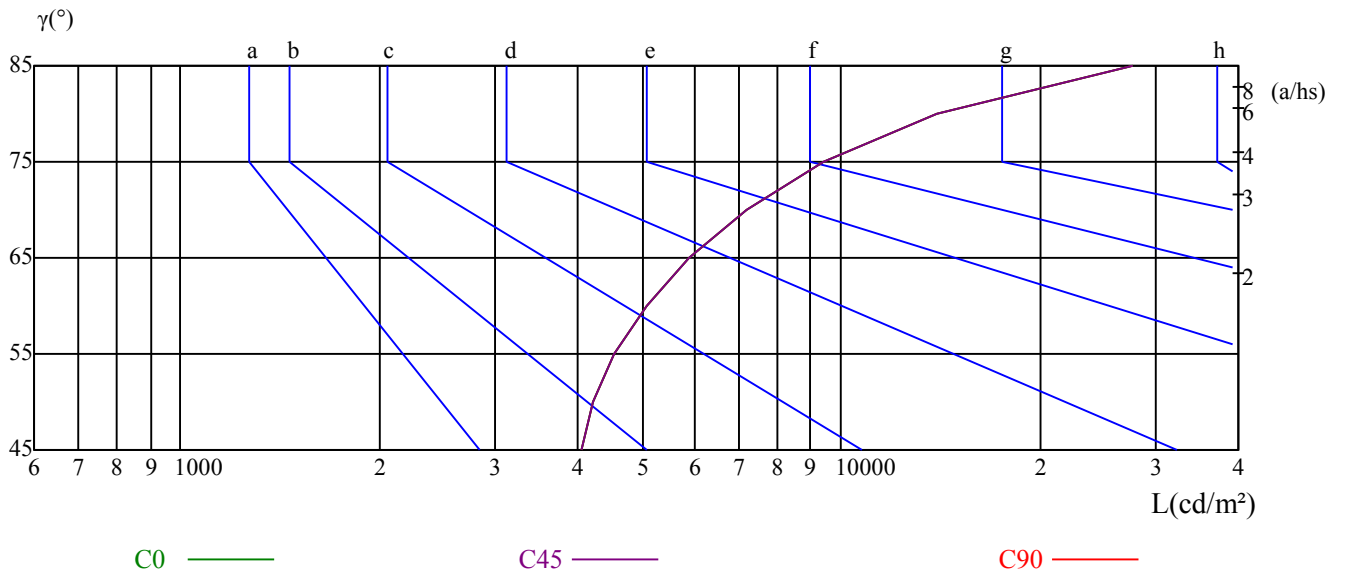
γ	45	50	55	60	65	70	75	80	85
C0	4047	4214	4546	5067	5885	7177	9431	13976	27740
C45	4047	4214	4546	5067	5885	7177	9431	13976	27740
C90	4047	4214	4546	5067	5885	7177	9431	13976	27740

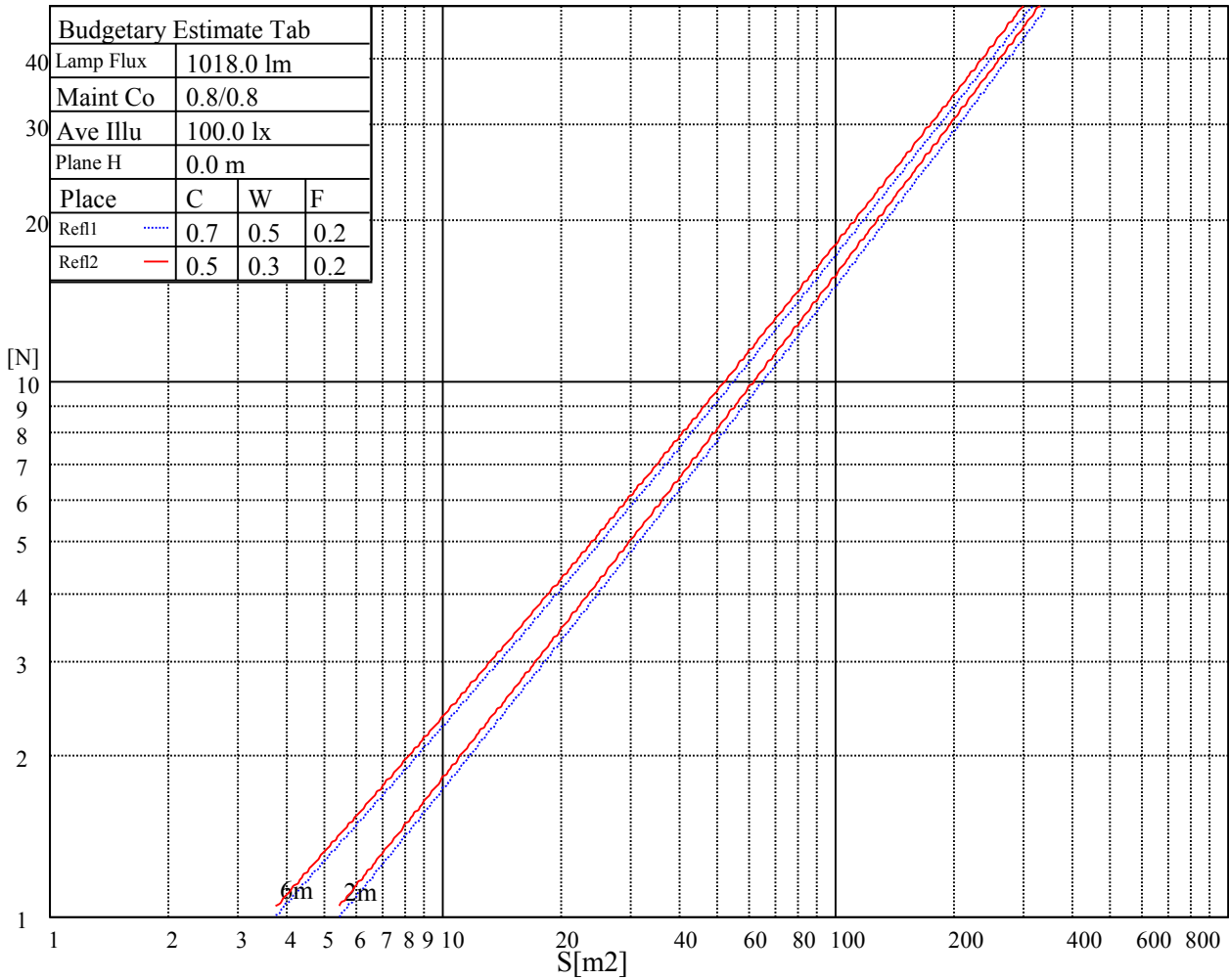
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
5885	5885	5885	9431	9431	9431	27740	27740	27740

Glare Table

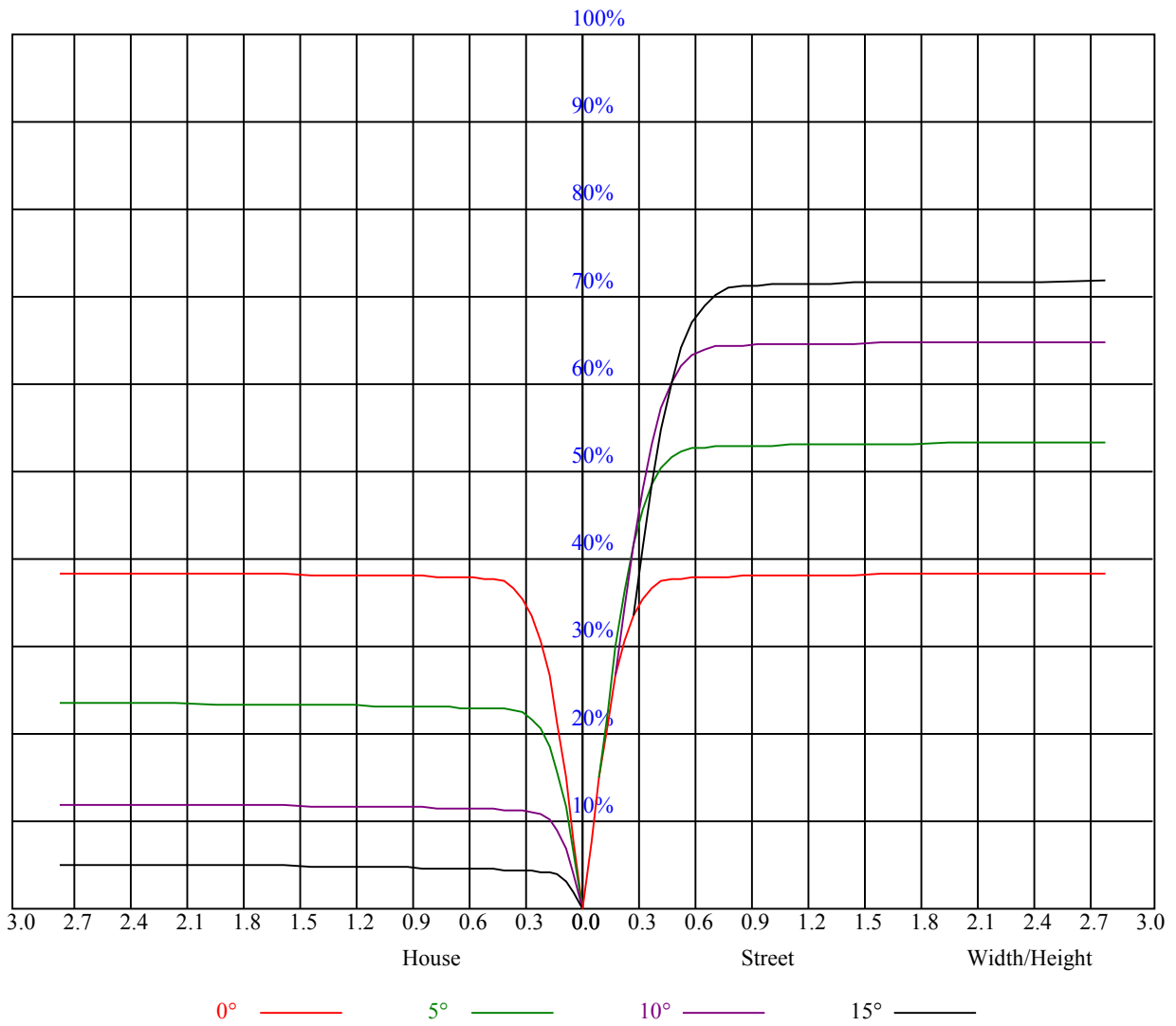
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	0.92	0.92	0.92	0.90	0.90	0.90	0.86	0.86	0.86	0.82	0.82	0.82	0.79	0.79	0.79	0.77
1	0.87	0.86	0.85	0.86	0.84	0.83	0.83	0.82	0.81	0.80	0.79	0.78	0.77	0.77	0.76	0.75
2	0.84	0.81	0.79	0.82	0.80	0.78	0.80	0.78	0.77	0.78	0.76	0.75	0.76	0.75	0.74	0.73
3	0.80	0.78	0.75	0.79	0.77	0.75	0.77	0.75	0.74	0.76	0.74	0.73	0.74	0.73	0.72	0.71
4	0.77	0.75	0.72	0.77	0.74	0.72	0.75	0.73	0.71	0.74	0.72	0.70	0.72	0.71	0.70	0.69
5	0.75	0.72	0.70	0.74	0.72	0.70	0.73	0.71	0.69	0.72	0.70	0.68	0.71	0.69	0.68	0.67
6	0.73	0.70	0.68	0.72	0.69	0.67	0.71	0.69	0.67	0.70	0.68	0.67	0.69	0.68	0.66	0.65
7	0.71	0.68	0.66	0.70	0.68	0.66	0.70	0.67	0.65	0.69	0.67	0.65	0.68	0.66	0.65	0.64
8	0.69	0.66	0.64	0.69	0.66	0.64	0.68	0.65	0.64	0.67	0.65	0.63	0.67	0.65	0.63	0.63
9	0.67	0.64	0.62	0.67	0.64	0.62	0.66	0.64	0.62	0.66	0.64	0.62	0.65	0.63	0.62	0.61
10	0.66	0.63	0.61	0.65	0.63	0.61	0.65	0.63	0.61	0.65	0.62	0.61	0.64	0.62	0.61	0.60



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	4385.81	4315.50	4181.63	4024.69	3846.38	3572.44	3342.94	3102.75	2813.06
45.0	4384.69	4323.94	4218.19	4044.94	3880.13	3677.06	3420.56	3152.25	2900.81
90.0	4380.19	4330.13	4255.88	4123.69	3927.38	3764.81	3553.31	3263.63	3021.19
135.0	4353.19	4389.75	4385.25	4319.44	4234.50	4100.06	3895.88	3706.88	3484.69
180.0	4385.81	4418.44	4416.75	4359.94	4279.50	4132.13	3960.00	3738.94	3488.06
225.0	4384.69	4404.94	4377.38	4309.31	4188.94	4031.44	3857.06	3634.88	3421.69
270.0	4380.19	4368.94	4328.44	4201.88	4080.94	3892.50	3681.56	3467.25	3240.56
315.0	4353.19	4278.94	4140.00	3997.69	3810.94	3577.50	3323.81	3084.75	2801.25
360.0	4385.81	4315.50	4181.63	4024.69	3846.38	3572.44	3342.94	3102.75	2813.06
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	2531.25	2277.00	1996.88	1725.19	1505.81	1279.13	1098.00	916.31	776.81
45.0	2613.38	2322.56	2064.38	1791.00	1564.31	1329.75	1121.63	953.44	813.94
90.0	2765.25	2417.06	2198.25	1947.38	1691.44	1449.00	1119.83	1075.50	899.94
135.0	3192.75	2944.13	2687.06	2395.13	2102.63	1831.50	1604.25	1387.13	1155.94
180.0	3250.69	2966.06	2671.88	2414.81	2154.94	1845.56	1617.75	1406.81	1122.30
225.0	3153.38	2870.44	2611.13	2319.19	2029.50	1795.50	1567.69	1237.50	1119.66
270.0	2936.25	2691.00	2436.19	2150.44	1877.06	1643.63	1405.69	1186.31	1013.06
315.0	2547.00	2258.44	1976.63	1737.56	1486.13	1105.03	1084.39	923.40	752.79
360.0	2531.25	2277.00	1996.88	1725.19	1505.81	1279.13	1098.00	916.31	776.81
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	637.31	527.63	396.56	302.63	291.38	142.14	74.59	38.25	19.41
45.0	648.56	534.94	428.63	302.63	291.94	145.58	87.47	37.91	20.08
90.0	745.59	622.24	494.66	376.37	281.36	187.48	120.94	66.49	32.63
135.0	986.06	839.25	702.56	558.00	454.50	365.63	293.63	163.01	100.74
180.0	996.69	849.49	700.37	569.03	462.15	353.31	261.34	172.35	104.57
225.0	956.19	800.10	654.36	539.94	420.75	310.33	223.93	150.53	87.36
270.0	843.19	712.69	578.81	457.31	355.50	286.88	162.51	100.35	62.33
315.0	628.93	514.86	400.56	293.51	210.83	130.56	71.49	37.01	18.56
360.0	637.31	527.63	396.56	302.63	291.38	142.14	74.59	38.25	19.41
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	11.36	9.34	8.33	7.59	7.03	6.58	6.13	5.79	5.57
45.0	12.43	9.56	8.33	7.65	7.14	6.69	6.30	5.96	5.68
90.0	17.55	11.53	8.94	8.10	7.43	6.92	6.53	6.19	5.85
135.0	51.58	24.13	13.39	9.68	8.21	7.59	6.98	6.58	6.19
180.0	60.24	29.76	13.56	9.73	8.27	7.31	6.86	6.47	6.08
225.0	42.36	21.09	12.99	9.84	8.49	7.65	7.14	6.58	6.24
270.0	25.71	14.68	10.52	8.78	7.88	7.37	6.81	6.41	6.08
315.0	11.98	9.17	8.16	7.54	7.03	6.47	6.13	5.79	5.51
360.0	11.36	9.34	8.33	7.59	7.03	6.58	6.13	5.79	5.57
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	5.29	5.12	4.95	4.78	4.67	4.56	4.44	4.39	4.33
45.0	5.46	5.23	5.06	4.95	4.78	4.67	4.61	4.50	4.44
90.0	5.57	5.34	5.18	5.01	4.84	4.73	4.61	4.56	4.44
135.0	5.85	5.63	5.40	5.18	5.01	4.84	4.73	4.61	4.56
180.0	5.74	5.51	5.29	5.06	4.89	4.73	4.61	4.50	4.44
225.0	5.91	5.63	5.34	5.12	4.95	4.78	4.67	4.56	4.50
270.0	5.74	5.51	5.23	5.06	4.95	4.78	4.67	4.56	4.50
315.0	5.29	5.12	4.95	4.78	4.67	4.56	4.50	4.39	4.33
360.0	5.29	5.12	4.95	4.78	4.67	4.56	4.44	4.39	4.33

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	4.22	4.16	4.16	4.11	4.05	4.05	3.99	3.94	3.94
45.0	4.39	4.33	4.28	4.22	4.16	4.16	4.11	4.05	4.05
90.0	4.39	4.33	4.28	4.22	4.16	4.16	4.11	4.11	4.05
135.0	4.44	4.39	4.33	4.28	4.22	4.16	4.11	4.11	4.05
180.0	4.33	4.28	4.22	4.16	4.11	4.11	4.05	3.99	3.94
225.0	4.39	4.33	4.28	4.22	4.16	4.11	4.11	4.05	3.99
270.0	4.39	4.33	4.28	4.28	4.16	4.16	4.16	4.11	4.05
315.0	4.28	4.22	4.16	4.16	4.11	4.05	4.05	3.99	3.99
360.0	4.22	4.16	4.16	4.11	4.05	4.05	3.99	3.94	3.94
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	3.94	3.94	3.88	3.83	3.83	3.77	3.83	3.77	3.77
45.0	3.99	3.99	3.99	3.94	3.94	3.88	3.88	3.88	3.83
90.0	4.05	3.99	3.99	3.94	3.94	3.88	3.88	3.88	3.88
135.0	4.05	3.99	3.99	3.94	3.94	3.94	3.88	3.88	3.88
180.0	3.94	3.88	3.88	3.88	3.83	3.83	3.77	3.77	3.77
225.0	3.99	3.99	3.94	3.94	3.88	3.88	3.88	3.83	3.83
270.0	4.05	3.99	3.99	3.99	3.94	3.94	3.88	3.88	3.88
315.0	3.94	3.94	3.88	3.88	3.88	3.83	3.83	3.83	3.83
360.0	3.94	3.94	3.88	3.83	3.83	3.77	3.83	3.77	3.77
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	3.71	3.71	3.71	3.71	3.71	3.71	3.66	3.66	3.66
45.0	3.88	3.83	3.83	3.83	3.77	3.77	3.77	3.77	3.77
90.0	3.88	3.83	3.83	3.83	3.83	3.83	3.83	3.77	3.77
135.0	3.88	3.83	3.83	3.77	3.83	3.77	3.77	3.77	3.77
180.0	3.77	3.71	3.71	3.71	3.71	3.66	3.71	3.66	3.71
225.0	3.83	3.83	3.77	3.77	3.77	3.77	3.77	3.77	3.77
270.0	3.88	3.83	3.83	3.83	3.83	3.83	3.83	3.77	3.77
315.0	3.83	3.77	3.77	3.77	3.71	3.77	3.77	3.71	3.71
360.0	3.71	3.71	3.71	3.71	3.71	3.71	3.66	3.66	3.66
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.60	3.60
45.0	3.71	3.71	3.71	3.71	3.71	3.71	3.71	3.71	3.71
90.0	3.77	3.77	3.77	3.77	3.77	3.77	3.77	3.77	3.77
135.0	3.77	3.77	3.77	3.71	3.71	3.71	3.71	3.71	3.71
180.0	3.66	3.66	3.66	3.66	3.66	3.66	3.60	3.60	3.60
225.0	3.77	3.71	3.71	3.71	3.71	3.71	3.71	3.71	3.71
270.0	3.77	3.77	3.77	3.77	3.77	3.77	3.77	3.77	3.77
315.0	3.71	3.71	3.71	3.71	3.71	3.71	3.71	3.66	3.66
360.0	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.60	3.60
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60
45.0	3.71	3.66	3.66	3.71	3.71	3.66	3.71	3.66	3.66
90.0	3.71	3.77	3.71	3.71	3.71	3.71	3.71	3.71	3.71
135.0	3.71	3.71	3.71	3.71	3.71	3.71	3.66	3.66	3.66
180.0	3.60	3.60	3.66	3.60	3.60	3.60	3.60	3.60	3.60
225.0	3.71	3.71	3.71	3.66	3.66	3.71	3.71	3.66	3.71
270.0	3.77	3.77	3.71	3.77	3.71	3.71	3.71	3.71	3.66
315.0	3.66	3.66	3.66	3.71	3.71	3.66	3.66	3.66	3.66
360.0	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60

Intensity data(cd)

C/ γ (°)	90.0
0.0	3.60
45.0	3.66
90.0	3.66
135.0	3.66
180.0	3.66
225.0	3.66
270.0	3.66
315.0	3.66
360.0	3.60