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Nata

LumCAT: 1-0005-M
Luminaire: BJB 47.360.1020
Report No: NATA0100
Test No: GC2019101801
LampCAT: CITIZEN CLU028
Lamp flux(lm): 1562.0
Number of Lamps: 1
Length(mm): 0
Phm Type: C

Voltage(V): 34.6600
Current(A): 0.2970
Power (W): 10.3000
PF: 0.0000
Ballast type: DC
Width(mm): 0
Height(mm): 0

Photometric Results

Lumens(lm): 1125.56
Efficiency(%): 72.06%
Lumens(lm)/Power(W): 109.28
Central intensity(cd): 7650.984
Maximum intensity(cd): 7650.984
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=18.9
 [C90/270]Total=18.9
Field angle(10%Imax): [C0/180]Total=39.8
 [C90/270]Total=39.8
Maximum s/h(1/2): C0_180=0.32 C90_270=0.32
Maximum s/h(1/4): C0_180=0.35 C90_270=0.35
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 72.06%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.570%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	7650.984	0.000	0	.000%	.000%
1.0	7611.117	7.303	7.303	.468%	.649%
2.0	7437.445	21.599	28.902	1.383%	2.568%
3.0	7152.258	34.894	63.796	2.234%	5.668%
4.0	6786.141	46.656	110.452	2.987%	9.813%
5.0	6290.578	56.255	166.707	3.601%	14.811%
6.0	5714.227	63.088	229.796	4.039%	20.416%
7.0	5175.914	67.595	297.391	4.327%	26.422%
8.0	4597.523	69.947	367.337	4.478%	32.636%
9.0	4056.398	70.135	437.472	4.490%	38.867%
10.0	3556.336	68.892	506.365	4.411%	44.988%
11.0	3098.883	66.499	572.864	4.257%	50.896%
12.0	2715.539	63.560	636.424	4.069%	56.543%
13.0	2330.086	59.879	696.303	3.833%	61.863%
14.0	2009.250	55.543	751.846	3.556%	66.798%
15.0	1748.180	51.584	803.43	3.302%	71.381%
16.0	1506.305	47.687	851.117	3.053%	75.617%
17.0	1253.707	42.981	894.098	2.752%	79.436%
18.0	1060.045	38.149	932.247	2.442%	82.825%
19.0	916.348	34.385	966.632	2.201%	85.880%
20.0	743.899	30.387	997.019	1.945%	88.580%
21.0	585.288	25.523	1022.542	1.634%	90.848%
22.0	458.698	20.979	1043.521	1.343%	92.712%
23.0	347.794	16.922	1060.444	1.083%	94.215%
24.0	231.652	12.669	1073.113	.811%	95.341%
25.0	161.044	8.929	1082.042	.572%	96.134%
26.0	87.251	5.861	1087.903	.375%	96.655%
27.0	49.767	3.352	1091.255	.215%	96.952%
28.0	26.873	1.940	1093.195	.124%	97.125%
29.0	16.495	1.135	1094.33	.073%	97.226%
30.0	11.749	0.763	1095.092	.049%	97.293%
31.0	10.055	0.607	1095.699	.039%	97.347%
32.0	9.162	0.551	1096.25	.035%	97.396%
33.0	8.529	0.521	1096.771	.033%	97.443%
34.0	8.058	0.502	1097.273	.032%	97.487%
35.0	7.580	0.486	1097.759	.031%	97.530%
36.0	7.249	0.472	1098.231	.030%	97.572%
37.0	6.989	0.464	1098.695	.030%	97.614%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	6.750	0.459	1099.154	.029%	97.654%
39.0	6.532	0.453	1099.607	.029%	97.695%
40.0	6.370	0.450	1100.057	.029%	97.735%
41.0	6.230	0.449	1100.506	.029%	97.774%
42.0	6.110	0.448	1100.954	.029%	97.814%
43.0	6.012	0.449	1101.403	.029%	97.854%
44.0	5.920	0.450	1101.853	.029%	97.894%
45.0	5.843	0.452	1102.305	.029%	97.934%
46.0	5.773	0.454	1102.76	.029%	97.975%
47.0	5.709	0.457	1103.216	.029%	98.015%
48.0	5.674	0.460	1103.677	.029%	98.056%
49.0	5.611	0.463	1104.14	.030%	98.097%
50.0	5.576	0.466	1104.606	.030%	98.139%
51.0	5.527	0.470	1105.076	.030%	98.180%
52.0	5.498	0.473	1105.549	.030%	98.222%
53.0	5.456	0.477	1106.026	.031%	98.265%
54.0	5.442	0.480	1106.506	.031%	98.307%
55.0	5.407	0.484	1106.99	.031%	98.351%
56.0	5.379	0.487	1107.478	.031%	98.394%
57.0	5.344	0.490	1107.968	.031%	98.437%
58.0	5.330	0.494	1108.462	.032%	98.481%
59.0	5.309	0.497	1108.959	.032%	98.525%
60.0	5.280	0.500	1109.459	.032%	98.570%
61.0	5.273	0.504	1109.963	.032%	98.615%
62.0	5.252	0.507	1110.47	.032%	98.660%
63.0	5.245	0.511	1110.981	.033%	98.705%
64.0	5.231	0.514	1111.495	.033%	98.751%
65.0	5.196	0.516	1112.011	.033%	98.797%
66.0	5.196	0.519	1112.529	.033%	98.843%
67.0	5.182	0.522	1113.051	.033%	98.889%
68.0	5.182	0.525	1113.576	.034%	98.936%
69.0	5.161	0.528	1114.104	.034%	98.983%
70.0	5.161	0.530	1114.634	.034%	99.030%
71.0	5.147	0.533	1115.167	.034%	99.077%
72.0	5.126	0.534	1115.701	.034%	99.124%
73.0	5.126	0.536	1116.237	.034%	99.172%
74.0	5.119	0.539	1116.775	.034%	99.220%
75.0	5.119	0.541	1117.316	.035%	99.268%

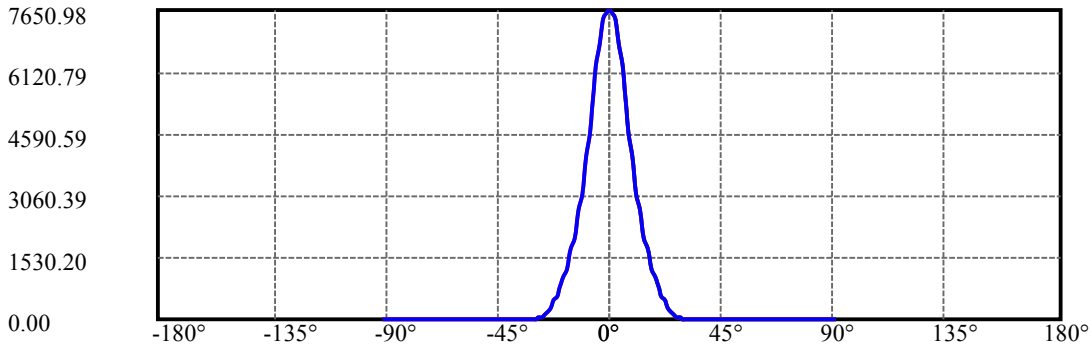
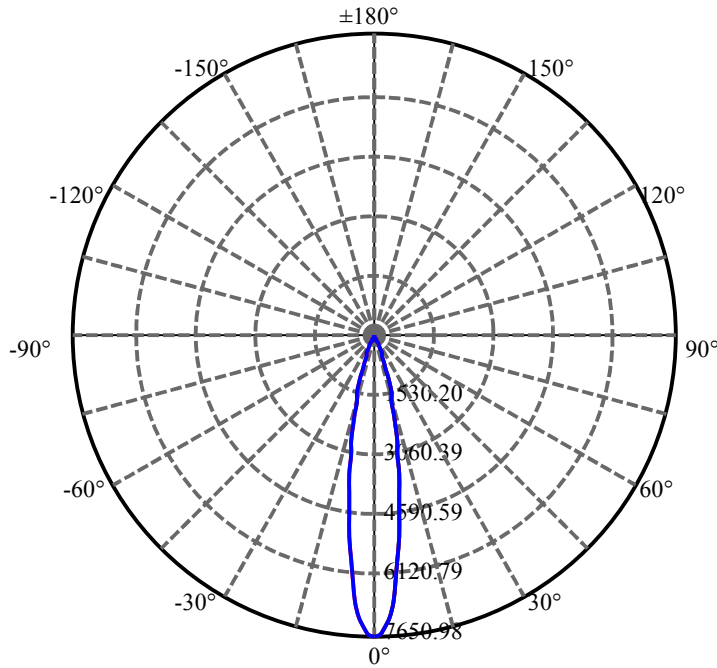
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	5.112	0.543	1117.859	.035%	99.316%
77.0	5.105	0.545	1118.404	.035%	99.365%
78.0	5.098	0.546	1118.95	.035%	99.413%
79.0	5.091	0.547	1119.498	.035%	99.462%
80.0	5.084	0.549	1120.046	.035%	99.510%
81.0	5.063	0.549	1120.595	.035%	99.559%
82.0	5.070	0.549	1121.144	.035%	99.608%
83.0	5.063	0.551	1121.695	.035%	99.657%
84.0	5.041	0.550	1122.246	.035%	99.706%
85.0	5.063	0.551	1122.797	.035%	99.755%
86.0	5.048	0.553	1123.35	.035%	99.804%
87.0	5.034	0.552	1123.902	.035%	99.853%
88.0	5.034	0.552	1124.453	.035%	99.902%
89.0	5.034	0.552	1125.005	.035%	99.951%
90.0	5.020	0.551	1125.556	.035%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1095.09	70.11%	97.29%
0-40	1100.06	70.43%	97.73%
0-60	1109.46	71.03%	98.57%
0-90	1125.00	72.02%	99.95%
0-120	1125.00	72.02%	99.95%
0-180	1125.56	72.06%	100.00%
60-90	16.05	1.03%	1.43%
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%
0-17.17	900.44	57.65%	80.00%

ZONAL LUMEN SUMMARY

0-10	506.36
10-20	490.65
20-30	98.07
30-40	4.96
40-50	4.55
50-60	4.85
60-70	5.17
70-80	5.41
80-90	4.96
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



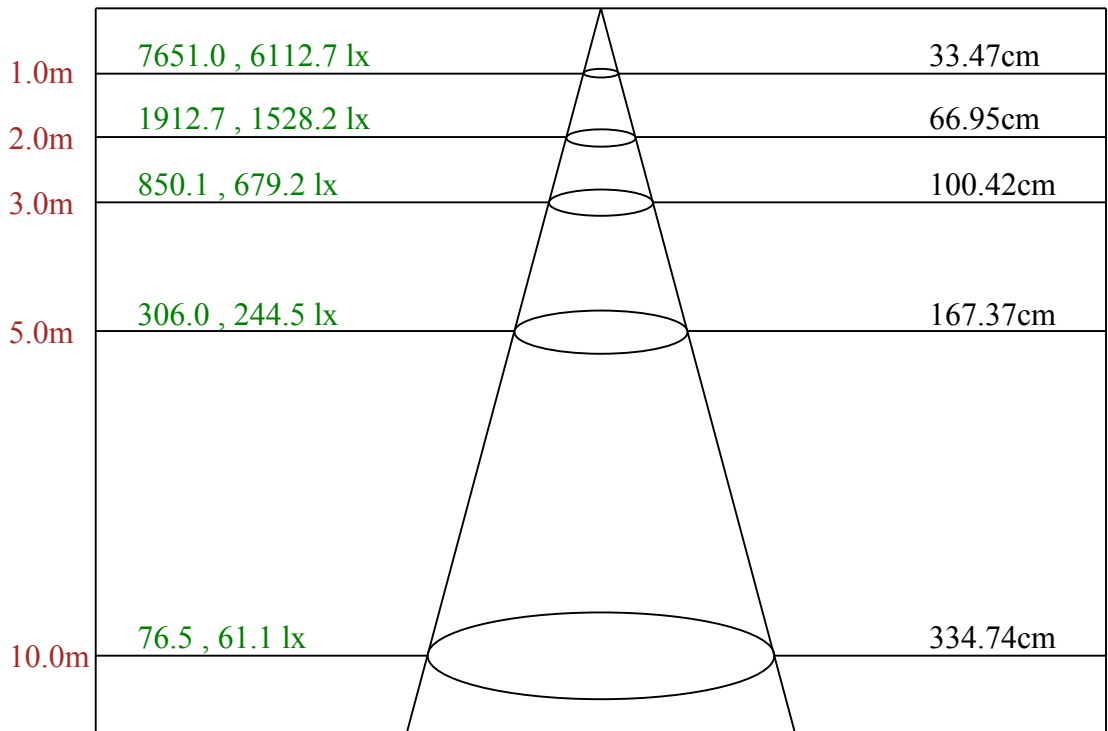
C0(Max): —————

C0/C180: —————

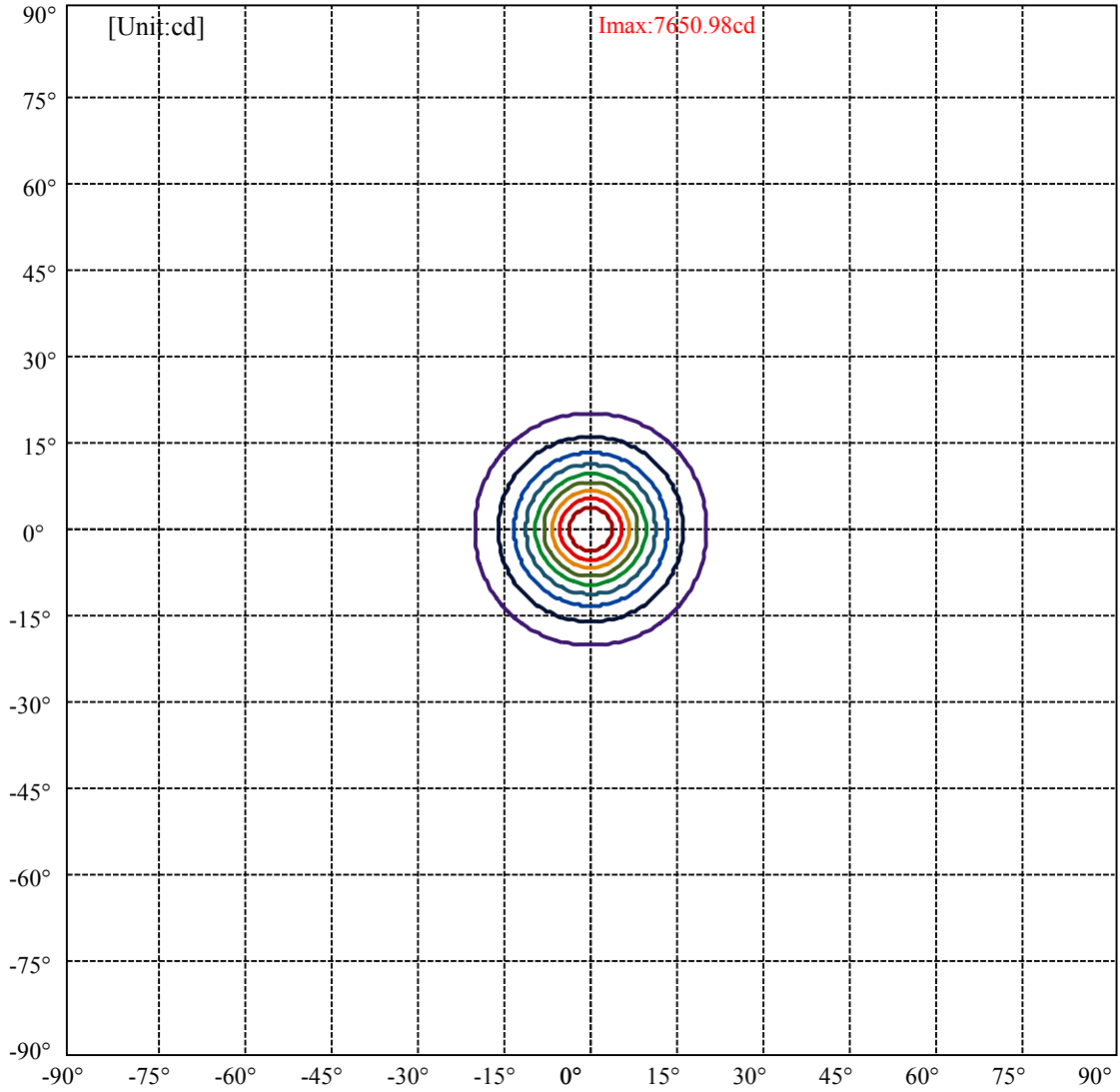
C90/C270: —————

Field angle(10%Imax):C0/180Left:19.9 Right:19.9
:C90/270Left:19.9 Right:19.9

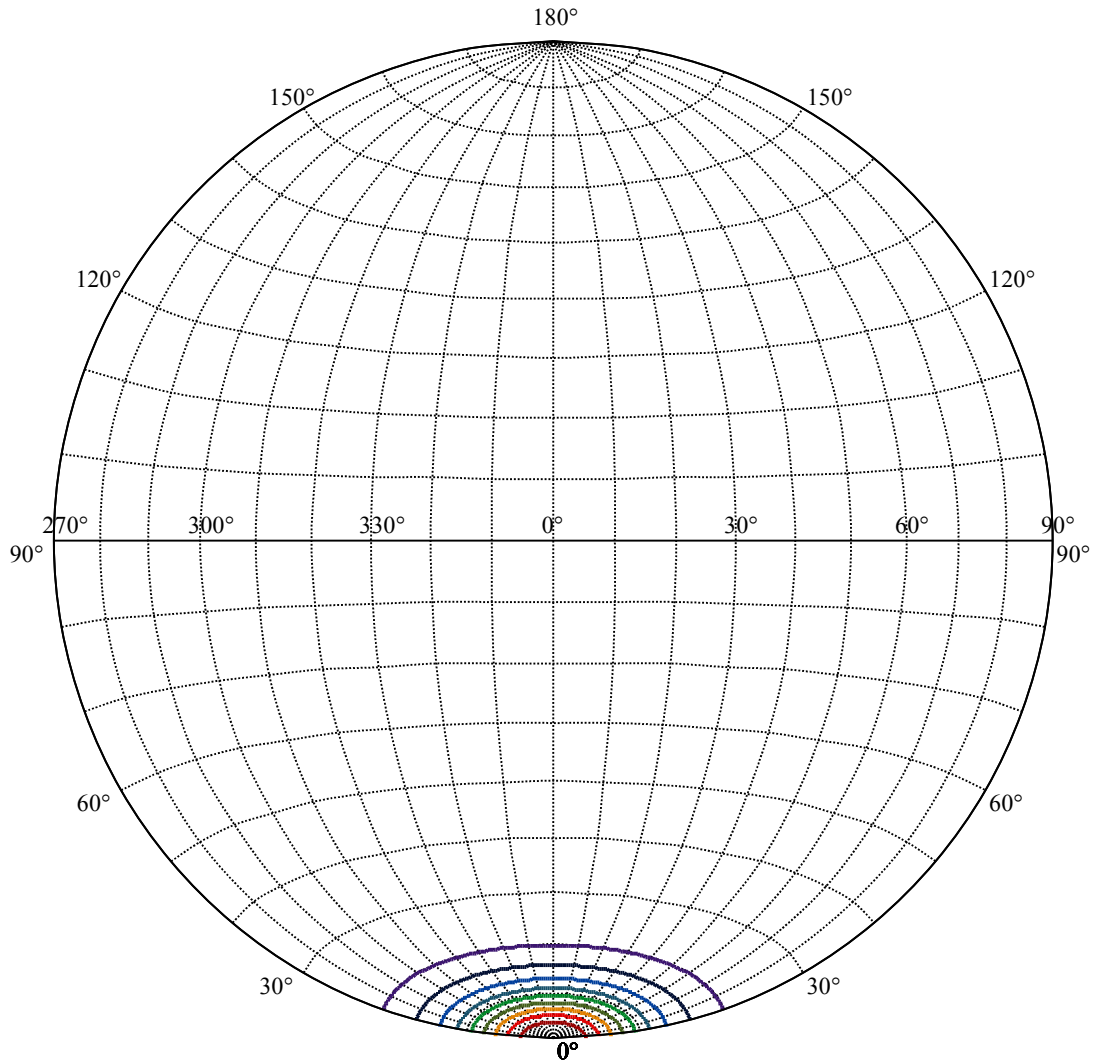
Beam Angle(50%Imax):C0/180Left:9.5 Right:9.5
:C90/270Left:9.5 Right:9.5



Max , Ave Beam angle of C0 plane 19.00



(10%Imax) 765.098	—
(20%Imax) 1530.2	—
(30%Imax) 2295.3	—
(40%Imax) 3060.39	—
(50%Imax) 3825.49	—
(60%Imax) 4590.59	—
(70%Imax) 5355.69	—
(80%Imax) 6120.79	—
(90%Imax) 6885.89	—



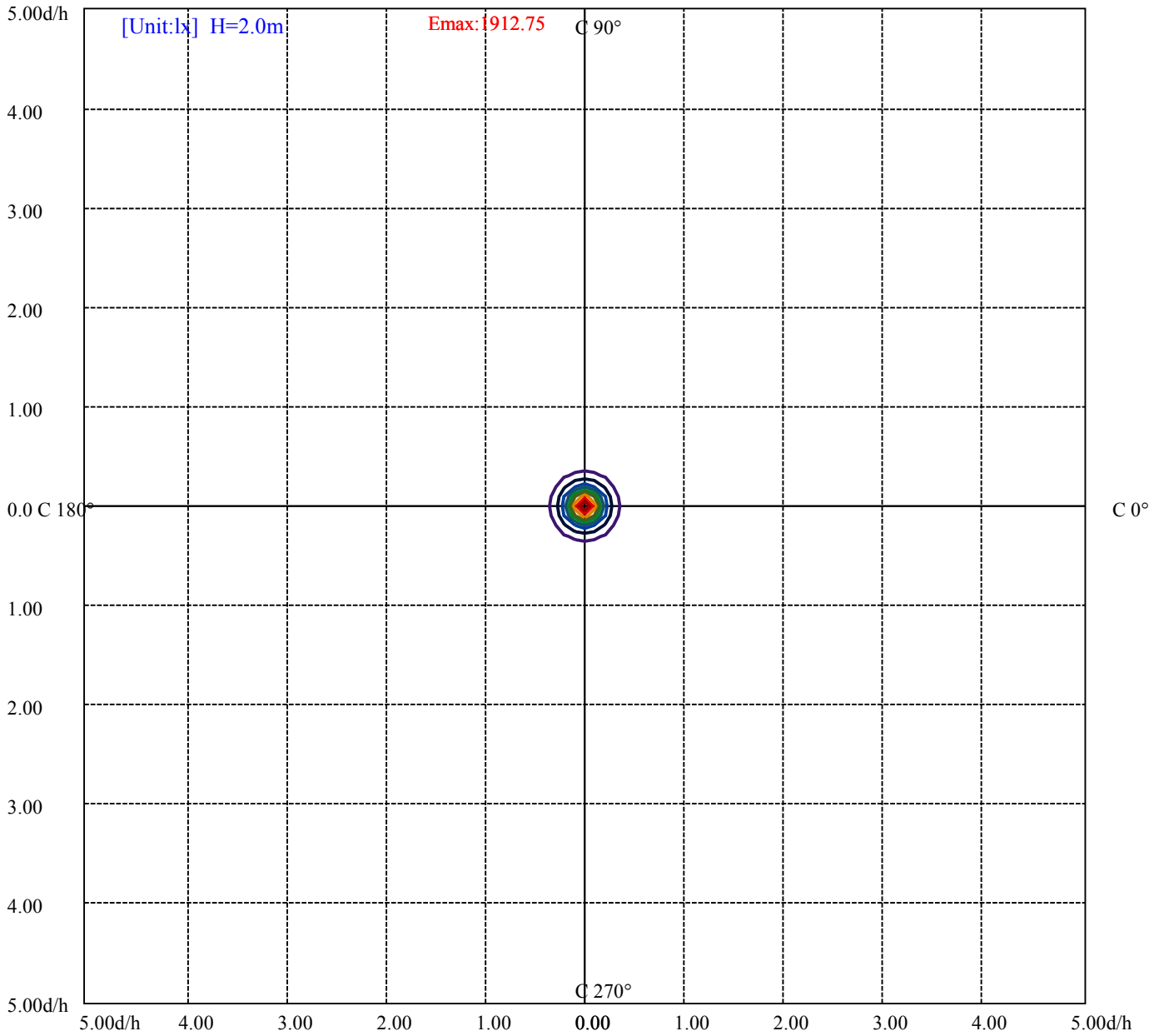
House

[Unit:cd]

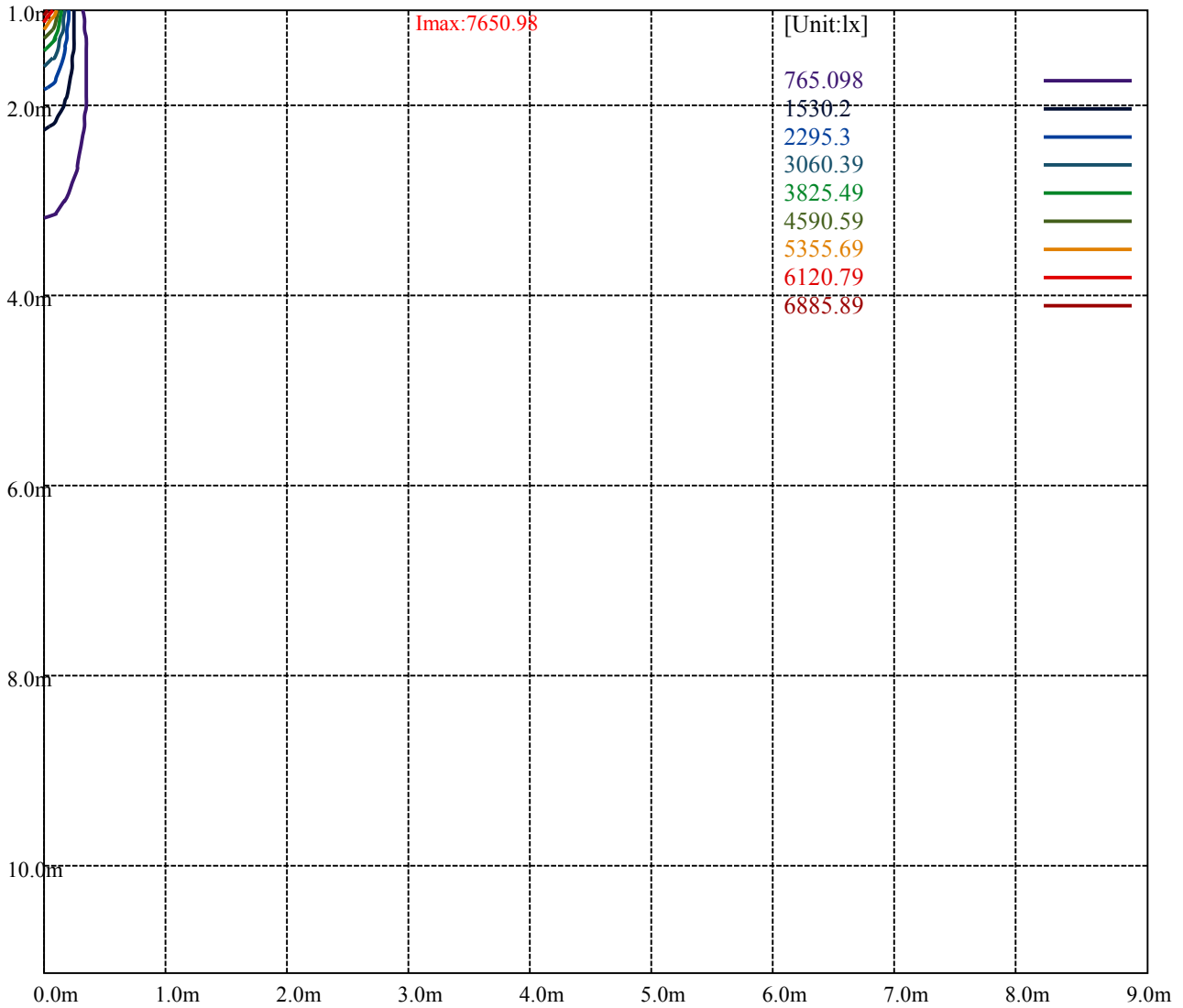
Road

Imax:7650.98

(10%Imax) 765.098	—
(20%Imax) 1530.2	—
(30%Imax) 2295.3	—
(40%Imax) 3060.39	—
(50%Imax) 3825.49	—
(60%Imax) 4590.59	—
(70%Imax) 5355.69	—
(80%Imax) 6120.79	—
(90%Imax) 6885.89	—



(10%Emax) 191.2745	—
(20%Emax) 382.55	—
(30%Emax) 573.8225	—
(40%Emax) 765.0975	—
(50%Emax) 956.3725	—
(60%Emax) 1147.647	—
(70%Emax) 1338.922	—
(80%Emax) 1530.195	—
(90%Emax) 1721.47	—



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

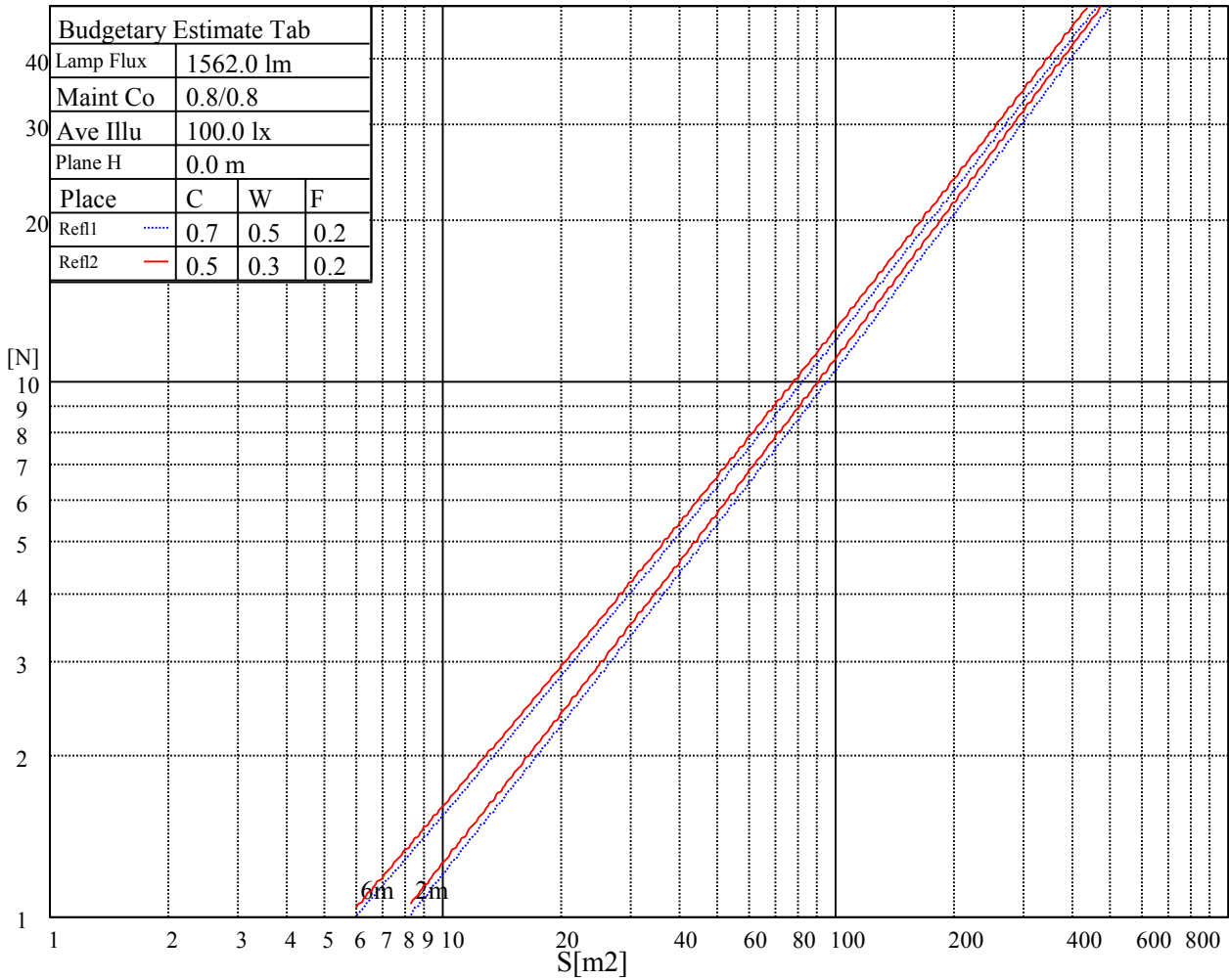
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

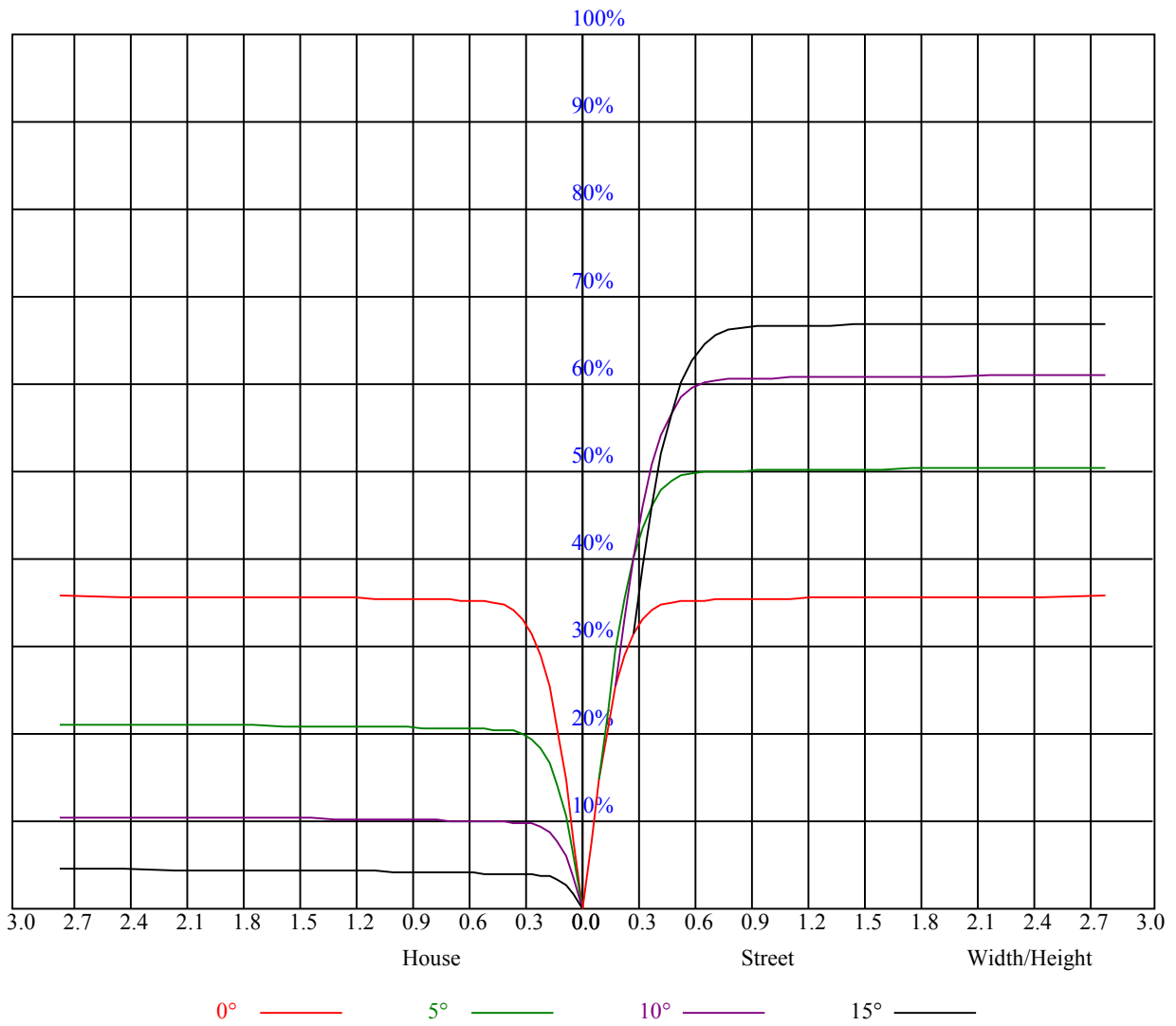
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	0.86	0.86	0.86	0.84	0.84	0.84	0.80	0.80	0.80	0.77	0.77	0.77	0.74	0.74	0.74	0.72
1	0.81	0.80	0.79	0.80	0.79	0.78	0.77	0.76	0.75	0.74	0.74	0.73	0.72	0.71	0.71	0.70
2	0.78	0.76	0.74	0.77	0.75	0.73	0.74	0.73	0.72	0.72	0.71	0.70	0.71	0.70	0.69	0.68
3	0.75	0.73	0.71	0.74	0.72	0.70	0.72	0.70	0.69	0.71	0.69	0.68	0.69	0.68	0.67	0.66
4	0.72	0.70	0.68	0.72	0.69	0.67	0.70	0.68	0.67	0.69	0.67	0.66	0.68	0.66	0.65	0.64
5	0.70	0.67	0.65	0.70	0.67	0.65	0.68	0.66	0.65	0.67	0.66	0.64	0.66	0.65	0.64	0.63
6	0.68	0.66	0.64	0.68	0.65	0.63	0.67	0.65	0.63	0.66	0.64	0.63	0.65	0.63	0.62	0.61
7	0.66	0.64	0.62	0.66	0.64	0.62	0.65	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	7645.50	7659.00	7554.38	7351.88	6973.88	6536.81	5988.94	5395.50	4836.38
45.0	7632.56	7705.69	7680.94	7563.38	7348.50	6960.38	6467.63	5967.56	5353.88
90.0	7685.44	7722.56	7673.63	7522.88	7279.88	6861.94	6338.25	5819.06	5194.13
135.0	7640.44	7678.13	7615.13	7471.13	7185.38	6809.06	6291.00	5707.69	5164.88
180.0	7645.50	7558.88	7360.31	6972.19	6541.88	6054.75	5384.81	4844.25	4323.38
225.0	7632.56	7468.88	7102.13	6687.00	6200.44	5522.06	4980.94	4449.94	3843.00
270.0	7685.44	7585.31	7250.06	6858.00	6436.13	5776.31	5146.31	4661.44	4020.19
315.0	7640.44	7510.50	7263.00	6791.63	6323.06	5803.31	5115.94	4561.88	4044.38
360.0	7645.50	7659.00	7554.38	7351.88	6973.88	6536.81	5988.94	5395.50	4836.38
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	4244.06	3700.13	3248.44	2833.31	2372.63	2050.88	1771.31	1522.69	1257.19
45.0	4730.06	4197.94	3648.38	3199.50	2738.81	2332.13	2018.81	1748.25	1451.81
90.0	4636.13	4052.25	3532.50	3112.88	2684.25	2305.69	2015.44	1756.69	1469.25
135.0	4570.31	4012.88	3557.81	3146.06	2685.94	2359.69	2075.06	1824.19	1543.50
180.0	3785.63	3299.06	2921.63	2542.50	2208.94	1949.06	1693.69	1485.56	1118.42
225.0	3458.25	3011.06	2566.13	2293.88	1983.38	1688.06	1501.88	1303.88	1108.18
270.0	3511.13	3143.81	2674.13	2341.69	2046.38	1724.06	1499.06	1294.31	1071.56
315.0	3515.63	3033.56	2642.06	2254.50	1920.38	1664.44	1410.19	1114.88	1009.74
360.0	4244.06	3700.13	3248.44	2833.31	2372.63	2050.88	1771.31	1522.69	1257.19
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1073.81	908.44	721.69	583.88	444.38	331.88	294.19	142.03	79.03
45.0	1242.56	1059.19	848.81	703.69	569.81	434.81	312.19	287.44	131.06
90.0	1101.88	1081.01	917.55	726.81	589.11	462.83	322.09	226.01	147.54
135.0	1337.06	1149.19	943.31	790.31	648.56	493.88	355.50	288.00	151.76
180.0	1058.01	918.51	761.79	565.65	450.45	332.27	197.21	130.39	73.97
225.0	926.21	772.93	629.04	464.68	343.86	236.64	135.39	78.86	41.06
270.0	908.44	755.44	579.38	451.69	336.94	296.44	129.88	73.24	37.13
315.0	832.39	686.08	549.62	395.61	286.48	193.61	106.76	62.38	36.45
360.0	1073.81	908.44	721.69	583.88	444.38	331.88	294.19	142.03	79.03
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	46.69	27.96	16.09	11.98	10.46	9.51	8.89	8.38	7.76
45.0	80.21	42.30	25.31	14.85	11.36	10.18	9.45	8.83	8.27
90.0	82.18	42.98	24.24	13.84	11.14	9.90	9.06	8.55	8.04
135.0	91.41	46.29	21.88	13.39	10.69	9.62	8.89	8.38	7.82
180.0	35.10	16.54	11.70	10.18	9.39	8.66	8.10	7.71	7.31
225.0	19.74	12.66	11.08	10.07	9.28	8.61	8.10	7.65	7.26
270.0	21.15	13.05	10.80	9.90	9.06	8.44	7.93	7.54	7.14
315.0	21.66	13.22	10.86	9.79	9.06	8.38	7.82	7.43	7.03
360.0	46.69	27.96	16.09	11.98	10.46	9.51	8.89	8.38	7.76
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	7.43	7.14	6.86	6.58	6.41	6.19	6.08	6.02	5.91
45.0	7.88	7.59	7.26	7.03	6.86	6.69	6.53	6.41	6.30
90.0	7.59	7.31	7.03	6.81	6.64	6.47	6.36	6.19	6.13
135.0	7.48	7.14	6.86	6.69	6.47	6.36	6.19	6.08	5.96
180.0	6.98	6.75	6.58	6.36	6.19	6.08	5.96	5.85	5.79
225.0	6.98	6.75	6.58	6.36	6.24	6.13	6.02	5.96	5.85
270.0	6.92	6.69	6.47	6.24	6.13	6.02	5.91	5.85	5.74
315.0	6.75	6.53	6.36	6.19	6.02	5.91	5.85	5.74	5.68
360.0	7.43	7.14	6.86	6.58	6.41	6.19	6.08	6.02	5.91

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	5.85	5.74	5.68	5.63	5.57	5.51	5.46	5.40	5.40
45.0	6.19	6.13	6.02	5.96	5.91	5.85	5.79	5.79	5.74
90.0	6.02	5.91	5.85	5.85	5.79	5.74	5.68	5.63	5.57
135.0	5.91	5.79	5.74	5.68	5.63	5.63	5.57	5.51	5.46
180.0	5.74	5.63	5.57	5.57	5.46	5.46	5.40	5.40	5.34
225.0	5.79	5.74	5.68	5.68	5.63	5.57	5.51	5.51	5.46
270.0	5.68	5.68	5.63	5.57	5.51	5.46	5.46	5.40	5.40
315.0	5.57	5.57	5.51	5.46	5.40	5.40	5.34	5.34	5.29
360.0	5.85	5.74	5.68	5.63	5.57	5.51	5.46	5.40	5.40
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	5.40	5.34	5.29	5.29	5.23	5.23	5.23	5.18	5.12
45.0	5.68	5.63	5.63	5.57	5.57	5.57	5.46	5.51	5.46
90.0	5.57	5.57	5.51	5.46	5.46	5.40	5.40	5.40	5.40
135.0	5.46	5.40	5.40	5.34	5.34	5.29	5.29	5.29	5.23
180.0	5.29	5.29	5.23	5.23	5.23	5.18	5.18	5.18	5.18
225.0	5.46	5.46	5.40	5.40	5.34	5.34	5.34	5.29	5.29
270.0	5.40	5.34	5.34	5.29	5.29	5.29	5.23	5.23	5.23
315.0	5.29	5.23	5.23	5.18	5.18	5.18	5.12	5.12	5.12
360.0	5.40	5.34	5.29	5.29	5.23	5.23	5.23	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	5.18	5.18	5.12	5.12	5.06	5.12	5.06	5.06	5.06
45.0	5.46	5.46	5.40	5.40	5.40	5.40	5.34	5.34	5.34
90.0	5.34	5.34	5.29	5.29	5.29	5.29	5.29	5.29	5.23
135.0	5.23	5.18	5.18	5.18	5.18	5.12	5.12	5.12	5.12
180.0	5.12	5.12	5.06	5.06	5.06	5.06	5.06	5.06	5.06
225.0	5.29	5.29	5.29	5.29	5.23	5.23	5.23	5.23	5.23
270.0	5.23	5.18	5.18	5.18	5.18	5.18	5.12	5.12	5.12
315.0	5.12	5.12	5.06	5.06	5.06	5.06	5.06	5.06	5.01
360.0	5.18	5.18	5.12	5.12	5.06	5.12	5.06	5.06	5.06
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	5.01	5.01	5.01	5.01	5.01	5.01	5.01	5.01	5.01
45.0	5.34	5.34	5.34	5.29	5.29	5.29	5.29	5.29	5.29
90.0	5.23	5.23	5.23	5.23	5.18	5.18	5.18	5.18	5.12
135.0	5.12	5.06	5.06	5.06	5.06	5.06	5.06	5.06	5.06
180.0	5.01	5.01	5.01	5.01	5.01	5.01	5.01	4.95	4.95
225.0	5.18	5.23	5.18	5.23	5.23	5.18	5.18	5.18	5.18
270.0	5.12	5.12	5.12	5.12	5.12	5.12	5.06	5.06	5.06
315.0	5.01	5.01	5.01	5.01	5.01	5.01	5.01	5.01	5.01
360.0	5.01	5.01	5.01	5.01	5.01	5.01	5.01	5.01	5.01
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	4.95	5.01	5.01	4.95	4.95	4.95	4.95	4.95	4.95
45.0	5.23	5.23	5.18	5.23	5.23	5.18	5.12	5.18	5.18
90.0	5.12	5.12	5.12	5.06	5.12	5.12	5.06	5.06	5.06
135.0	5.01	5.06	5.01	5.01	5.01	5.01	5.01	5.01	4.95
180.0	5.01	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95
225.0	5.12	5.18	5.18	5.12	5.18	5.12	5.12	5.12	5.12
270.0	5.06	5.06	5.06	5.06	5.06	5.06	5.06	5.06	5.06
315.0	5.01	4.95	5.01	4.95	5.01	5.01	5.01	4.95	5.01
360.0	4.95	5.01	5.01	4.95	4.95	4.95	4.95	4.95	4.95

Intensity data(cd)

C/γ(°)	90.0
0.0	4.89
45.0	5.12
90.0	5.06
135.0	4.95
180.0	4.95
225.0	5.12
270.0	5.06
315.0	5.01
360.0	4.89