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Nata

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LumCAT: 3-1943-M  
Luminaire: BJB 47.319.2021  
Report No: GC2017062003  
Test No: NT-0010  
LampCAT: CITIZEN CLU036  
Lamp flux(lm): 2279.0  
Number of Lamps: 1  
Length(mm): 86  
Phm Type: C

Voltage(V): 218.3000  
Current(A): 0.1030  
Power (W): 20.5000  
PF: 0.9070  
Ballast type: DC  
Width(mm): 86  
Height(mm): 0

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Photometric Results

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Lumens(lm): 2061.67  
Efficiency(%): 90.46%  
Lumens(lm)/Power(W): 100.57  
Central intensity(cd): 7616.089  
Maximum intensity(cd): 7616.089  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=26.1  
                                  [C90/270]Total=26.1  
Field angle(10%Imax): [C0/180]Total=55.3  
                                  [C90/270]Total=55.3  
Maximum s/h(1/2): C0\_180=0.44 C90\_270=0.44  
Maximum s/h(1/4): C0\_180=0.42 C90\_270=0.42  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 90.46%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 98.751%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	7616.089	0.000	0	.000%	.000%
1.0	7587.942	7.275	7.275	.319%	.353%
2.0	7500.196	21.656	28.931	.950%	1.403%
3.0	7361.110	35.543	64.474	1.560%	3.127%
4.0	7193.187	48.718	113.192	2.138%	5.490%
5.0	7003.174	61.072	174.264	2.680%	8.453%
6.0	6738.835	72.218	246.482	3.169%	11.955%
7.0	6443.526	81.823	328.305	3.590%	15.924%
8.0	6121.996	89.929	418.234	3.946%	20.286%
9.0	5729.238	96.048	514.281	4.214%	24.945%
10.0	5276.605	99.599	613.88	4.370%	29.776%
11.0	4854.667	101.232	715.113	4.442%	34.686%
12.0	4376.227	100.907	816.019	4.428%	39.581%
13.0	3829.173	97.377	913.397	4.273%	44.304%
14.0	3350.044	91.893	1005.29	4.032%	48.761%
15.0	2864.584	85.317	1090.607	3.744%	52.899%
16.0	2382.290	76.881	1167.489	3.373%	56.628%
17.0	1983.338	67.985	1235.473	2.983%	59.926%
18.0	1668.691	60.214	1295.687	2.642%	62.847%
19.0	1428.899	53.892	1349.579	2.365%	65.461%
20.0	1256.449	49.149	1398.728	2.157%	67.844%
21.0	1111.121	45.462	1444.191	1.995%	70.050%
22.0	1020.519	42.836	1487.027	1.880%	72.127%
23.0	950.156	41.350	1528.377	1.814%	74.133%
24.0	886.126	40.148	1568.525	1.762%	76.080%
25.0	837.869	39.200	1607.724	1.720%	77.982%
26.0	804.856	38.777	1646.501	1.701%	79.863%
27.0	777.555	38.714	1685.215	1.699%	81.740%
28.0	752.304	38.733	1723.948	1.700%	83.619%
29.0	733.042	38.861	1762.809	1.705%	85.504%
30.0	709.787	38.956	1801.765	1.709%	87.394%
31.0	667.518	38.328	1840.093	1.682%	89.253%
32.0	607.389	36.525	1876.618	1.603%	91.024%
33.0	535.774	33.678	1910.296	1.478%	92.658%
34.0	442.089	29.593	1939.889	1.299%	94.093%
35.0	347.089	24.509	1964.398	1.075%	95.282%
36.0	273.451	19.758	1984.156	.867%	96.240%
37.0	174.068	14.596	1998.752	.640%	96.948%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	108.048	9.417	2008.168	.413%	97.405%
39.0	56.137	5.604	2013.772	.246%	97.677%
40.0	32.552	3.093	2016.866	.136%	97.827%
41.0	20.619	1.893	2018.759	.083%	97.919%
42.0	16.785	1.359	2020.118	.060%	97.985%
43.0	14.514	1.159	2021.277	.051%	98.041%
44.0	13.138	1.044	2022.321	.046%	98.091%
45.0	12.030	0.967	2023.288	.042%	98.138%
46.0	11.197	0.908	2024.197	.040%	98.182%
47.0	10.688	0.870	2025.067	.038%	98.225%
48.0	10.371	0.851	2025.918	.037%	98.266%
49.0	10.123	0.842	2026.76	.037%	98.307%
50.0	9.931	0.836	2027.596	.037%	98.347%
51.0	9.773	0.834	2028.43	.037%	98.388%
52.0	9.621	0.832	2029.262	.037%	98.428%
53.0	9.477	0.831	2030.093	.036%	98.468%
54.0	9.360	0.830	2030.923	.036%	98.509%
55.0	9.229	0.830	2031.753	.036%	98.549%
56.0	9.126	0.829	2032.582	.036%	98.589%
57.0	9.022	0.830	2033.412	.036%	98.629%
58.0	8.926	0.830	2034.242	.036%	98.670%
59.0	8.871	0.832	2035.074	.037%	98.710%
60.0	8.802	0.835	2035.909	.037%	98.751%
61.0	8.720	0.836	2036.745	.037%	98.791%
62.0	8.658	0.837	2037.582	.037%	98.832%
63.0	8.603	0.839	2038.422	.037%	98.872%
64.0	8.561	0.842	2039.264	.037%	98.913%
65.0	8.506	0.845	2040.108	.037%	98.954%
66.0	8.472	0.847	2040.956	.037%	98.995%
67.0	8.417	0.849	2041.805	.037%	99.037%
68.0	8.382	0.851	2042.656	.037%	99.078%
69.0	8.334	0.853	2043.509	.037%	99.119%
70.0	8.307	0.855	2044.363	.038%	99.161%
71.0	8.272	0.857	2045.22	.038%	99.202%
72.0	8.231	0.858	2046.078	.038%	99.244%
73.0	8.203	0.859	2046.938	.038%	99.285%
74.0	8.148	0.860	2047.797	.038%	99.327%
75.0	8.135	0.860	2048.658	.038%	99.369%

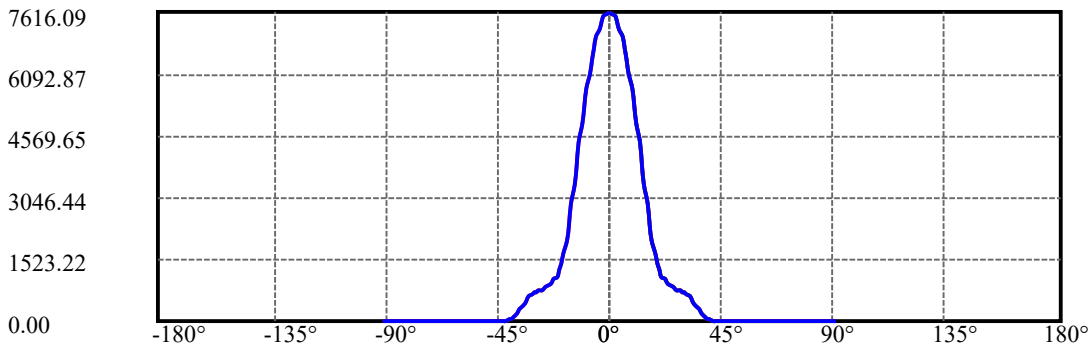
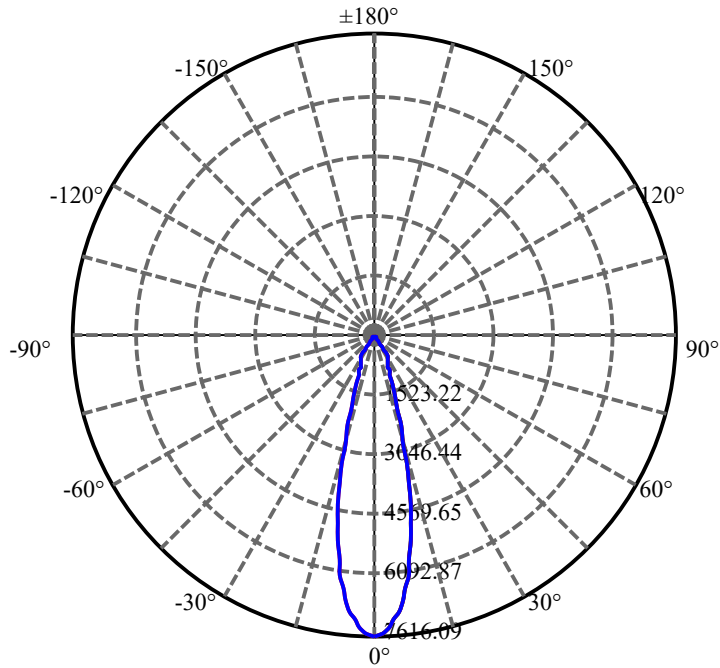
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	8.107	0.862	2049.52	.038%	99.411%
77.0	8.100	0.864	2050.384	.038%	99.453%
78.0	8.080	0.866	2051.25	.038%	99.495%
79.0	8.066	0.867	2052.117	.038%	99.537%
80.0	8.018	0.867	2052.985	.038%	99.579%
81.0	7.997	0.866	2053.851	.038%	99.621%
82.0	8.004	0.868	2054.718	.038%	99.663%
83.0	7.976	0.869	2055.587	.038%	99.705%
84.0	7.997	0.870	2056.457	.038%	99.747%
85.0	7.976	0.872	2057.329	.038%	99.790%
86.0	7.942	0.870	2058.199	.038%	99.832%
87.0	7.928	0.869	2059.068	.038%	99.874%
88.0	7.907	0.867	2059.935	.038%	99.916%
89.0	7.907	0.867	2060.802	.038%	99.958%
90.0	7.901	0.867	2061.669	.038%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1801.76	79.06%	87.39%
0-40	2016.87	88.50%	97.83%
0-60	2035.91	89.33%	98.75%
0-90	2060.80	90.43%	99.96%
0-120	2060.80	90.43%	99.96%
0-180	2061.67	90.46%	100.00%
60-90	25.73	1.13%	1.25%
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%
0-26.07	1649.34	72.37%	80.00%

ZONAL LUMEN SUMMARY

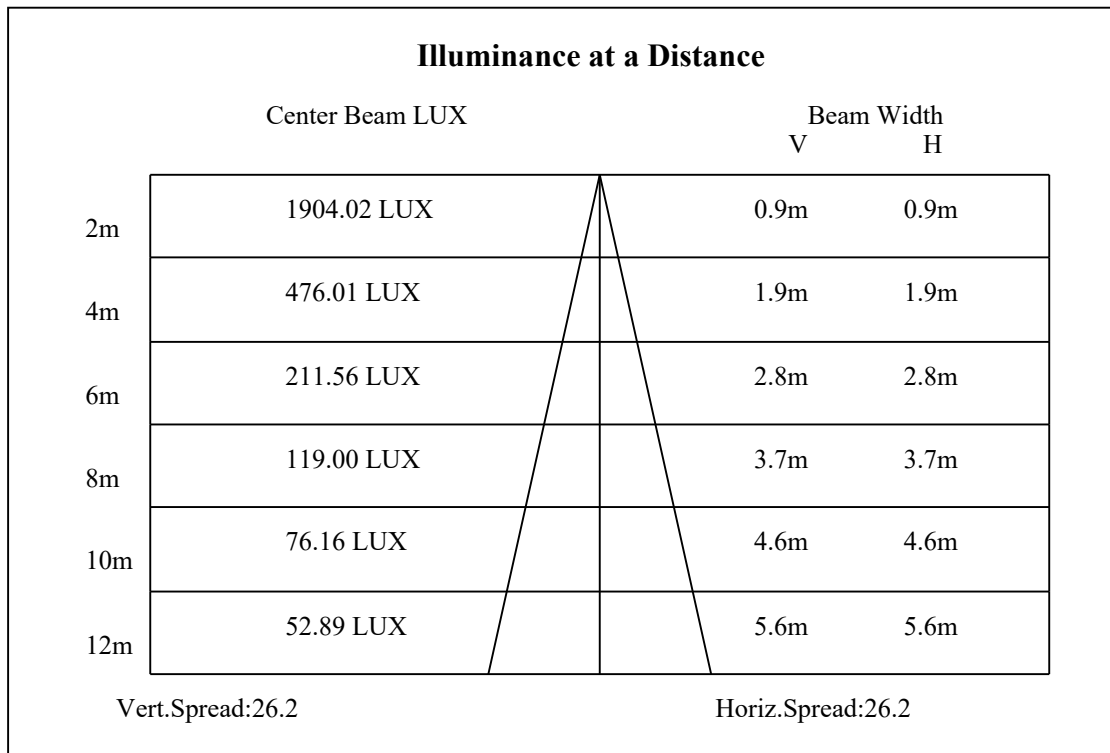
0-10	613.88
10-20	784.85
20-30	403.04
30-40	215.10
40-50	10.73
50-60	8.31
60-70	8.45
70-80	8.62
80-90	7.82
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

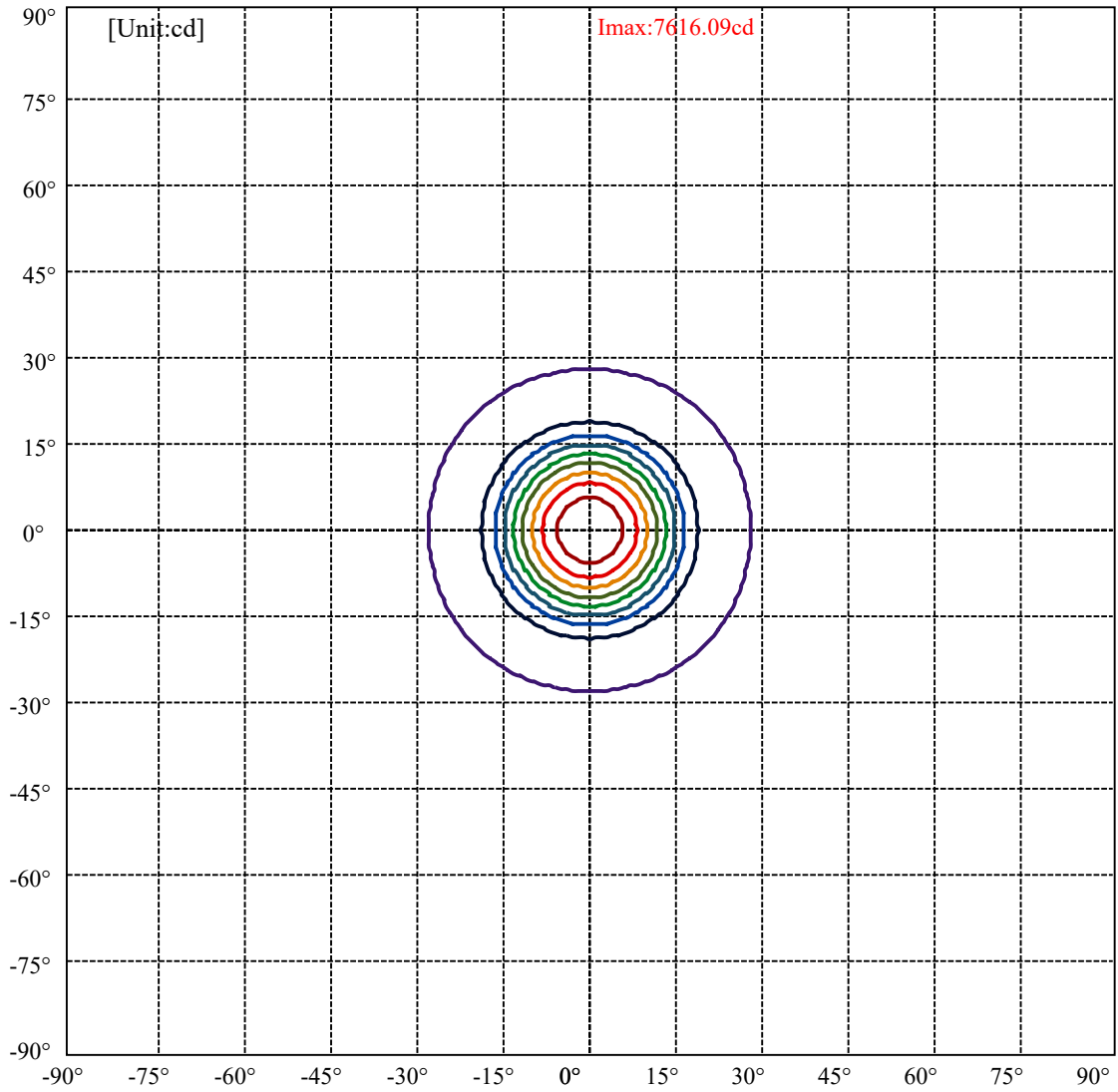


C0(Max): —————  
C0/C180: —————  
C90/C270: —————

Field angle(10%Imax):C0/180Left:27.6 Right:27.6  
:C90/270Left:27.6 Right:27.6

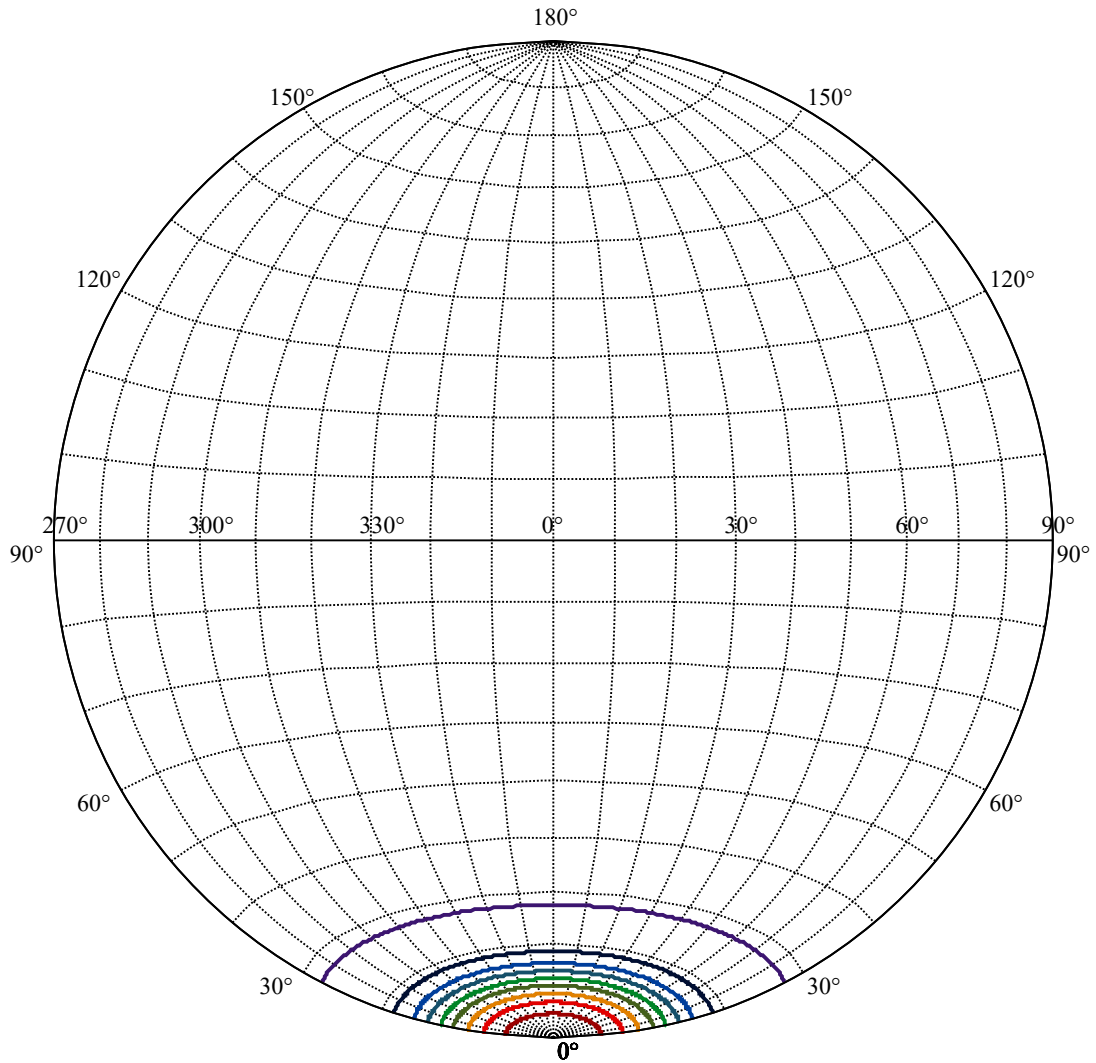
Beam Angle(50%Imax):C0/180Left:13.0 Right:13.0  
:C90/270Left:13.0 Right:13.0





(10%Imax)	761.609	—
(20%Imax)	1523.22	—
(30%Imax)	2284.83	—
(40%Imax)	3046.44	—
(50%Imax)	3808.04	—
(60%Imax)	4569.65	—
(70%Imax)	5331.26	—
(80%Imax)	6092.87	—
(90%Imax)	6854.48	—





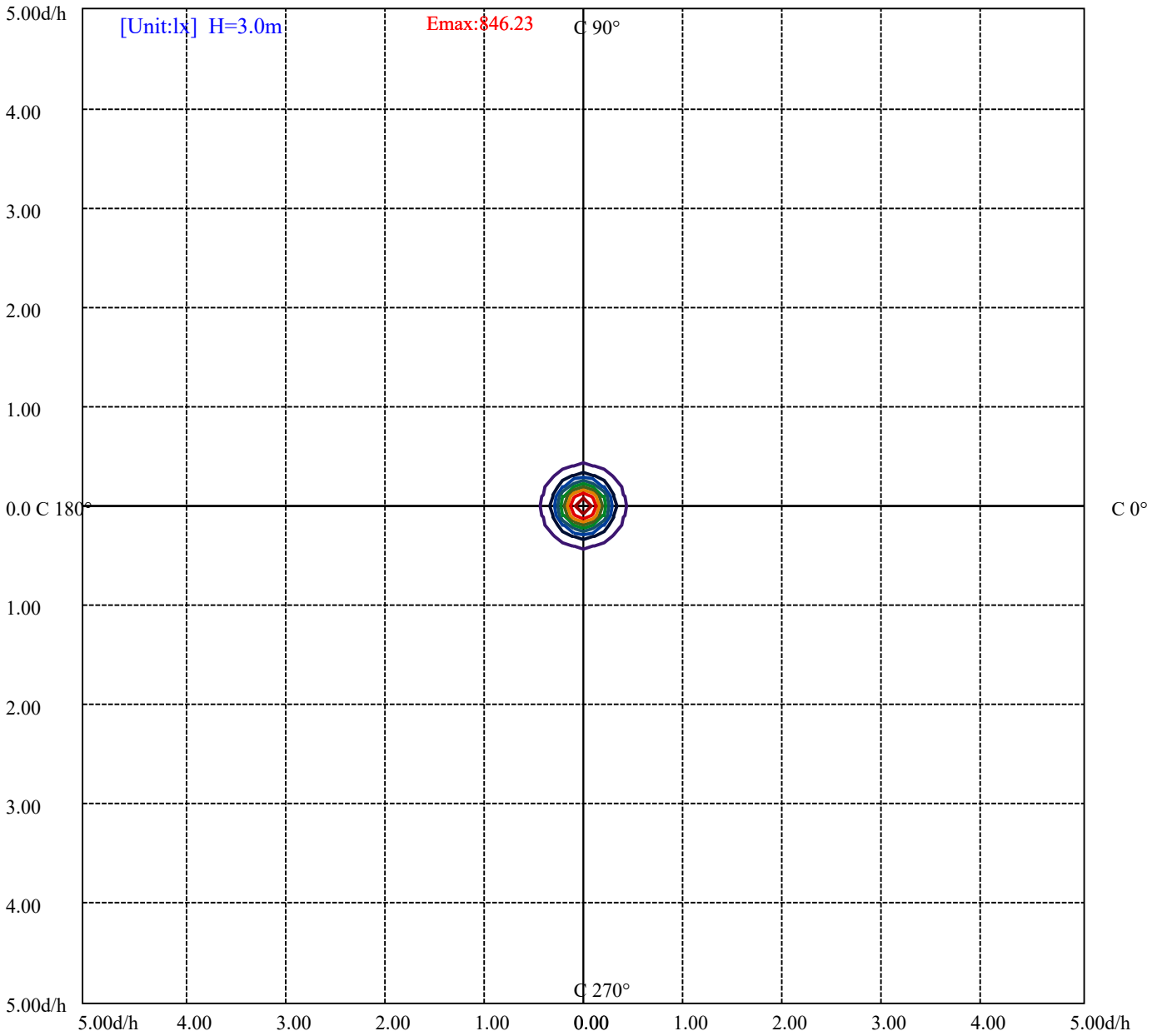
House

[Unit:cd]

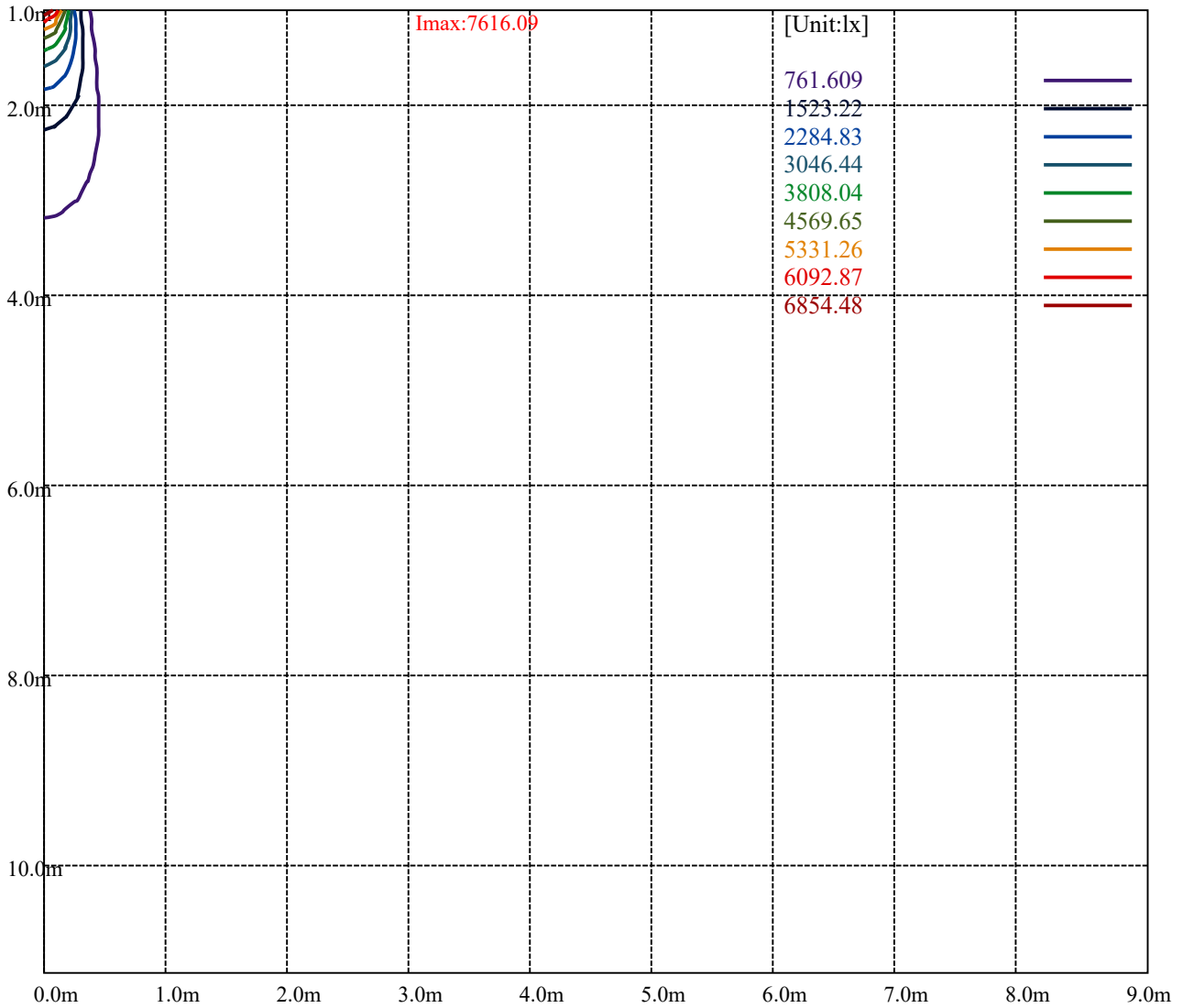
Road

I<sub>max</sub>:7616.09

(10%I <sub>max</sub> )	761.609	—
(20%I <sub>max</sub> )	1523.22	—
(30%I <sub>max</sub> )	2284.83	—
(40%I <sub>max</sub> )	3046.44	—
(50%I <sub>max</sub> )	3808.04	—
(60%I <sub>max</sub> )	4569.65	—
(70%I <sub>max</sub> )	5331.26	—
(80%I <sub>max</sub> )	6092.87	—
(90%I <sub>max</sub> )	6854.48	—



(10%Emax) 84.62311	—
(20%Emax) 169.2467	—
(30%Emax) 253.87	—
(40%Emax) 338.4922	—
(50%Emax) 423.1156	—
(60%Emax) 507.7389	—
(70%Emax) 592.3622	—
(80%Emax) 676.9856	—
(90%Emax) 761.6089	—



Luminance Table

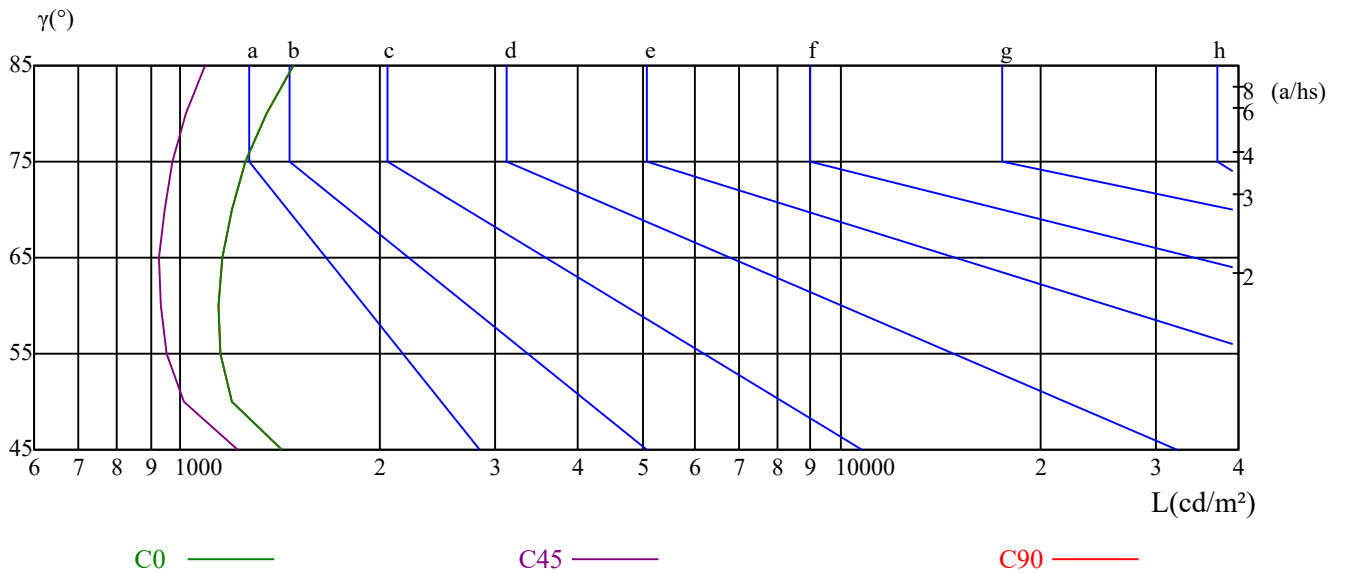
$\gamma$	45	50	55	60	65	70	75	80	85
C0	1420	1198	1147	1138	1155	1196	1258	1349	1485
C45	1219	1013	956	932	929	944	972	1017	1087
C90	1420	1198	1147	1138	1155	1196	1258	1349	1485

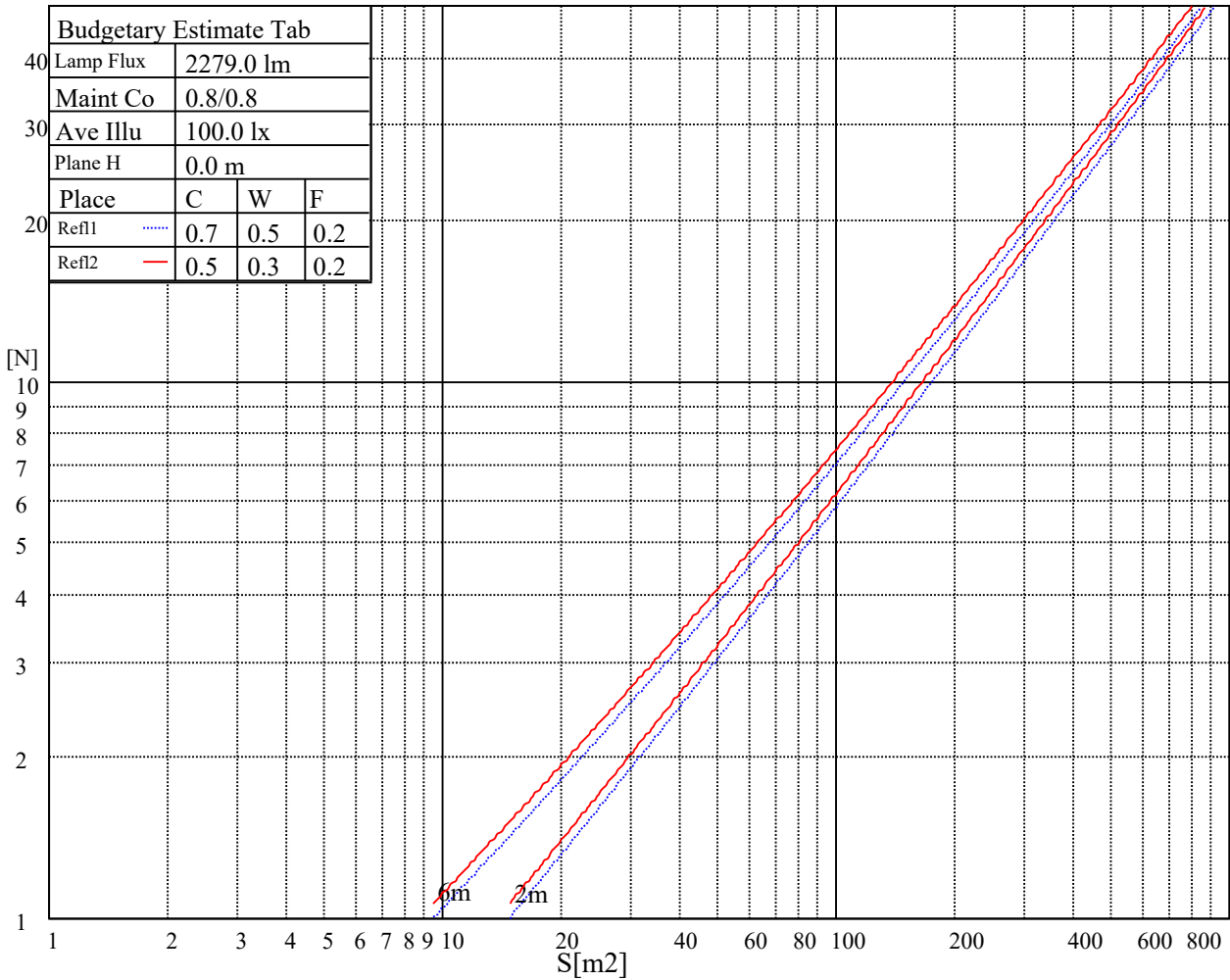
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
2786	2786	2786	4350	4350	4350	12667	12667	12667

Glare Table

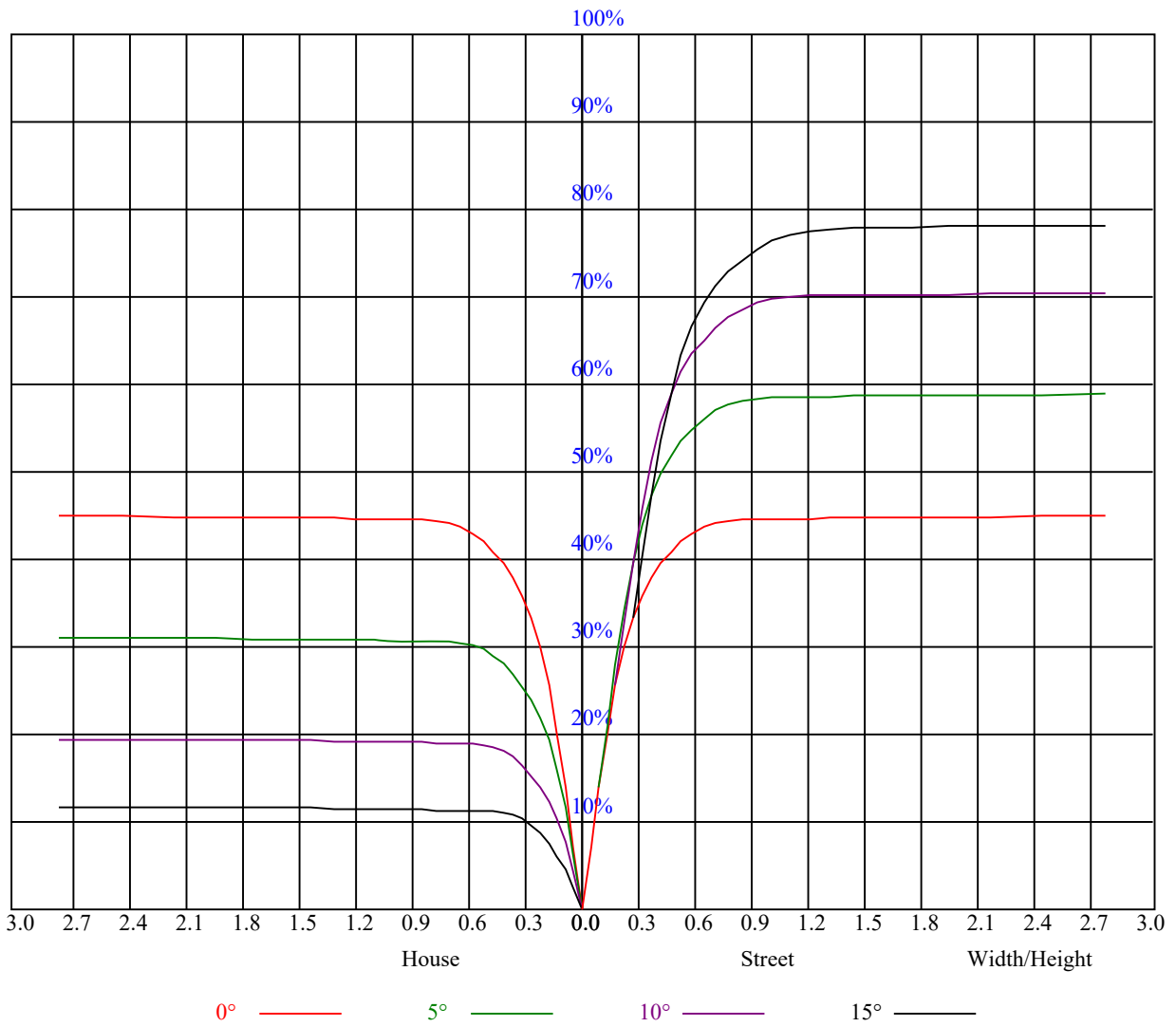
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	1.08	1.08	1.08	1.05	1.05	1.05	1.01	1.01	1.01	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	0.89	0.88	0.86
2	0.96	0.93	0.90	0.94	0.92	0.89	0.92	0.89	0.87	0.89	0.87	0.86	0.86	0.85	0.84	0.82
3	0.91	0.88	0.85	0.90	0.87	0.84	0.88	0.85	0.83	0.86	0.83	0.81	0.84	0.82	0.80	0.79
4	0.87	0.83	0.80	0.86	0.82	0.80	0.84	0.81	0.79	0.83	0.80	0.78	0.81	0.79	0.77	0.76
5	0.83	0.79	0.76	0.83	0.79	0.76	0.81	0.78	0.75	0.80	0.77	0.74	0.78	0.76	0.74	0.73
6	0.80	0.76	0.73	0.79	0.75	0.72	0.78	0.75	0.72	0.77	0.74	0.71	0.76	0.73	0.71	0.70
7	0.77	0.73	0.70	0.76	0.72	0.69	0.75	0.72	0.69	0.74	0.71	0.69	0.73	0.71	0.68	0.67
8	0.74	0.70	0.67	0.74	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.65
9	0.71	0.67	0.65	0.71	0.67	0.64	0.70	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.63
10	0.69	0.65	0.62	0.69	0.65	0.62	0.68	0.65	0.62	0.67	0.64	0.62	0.67	0.64	0.62	0.61



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	7644.58	7636.87	7563.10	7458.49	7328.56	7207.43	7048.87	6791.21	6535.19
45.0	7553.74	7629.17	7619.81	7562.55	7460.69	7331.31	7206.33	7014.74	6789.56
90.0	7633.57	7639.63	7591.73	7471.15	7343.42	7189.82	6905.17	6681.64	6372.23
135.0	7632.47	7639.63	7569.70	7481.06	7308.74	7114.39	6871.59	6505.46	6155.31
180.0	7644.58	7593.38	7478.86	7314.24	7103.93	6856.17	6476.83	6115.66	5714.85
225.0	7553.74	7435.37	7282.31	7028.50	6770.84	6478.49	6110.71	5691.73	5292.02
270.0	7633.57	7554.29	7421.60	7268.00	7051.62	6834.70	6567.68	6251.65	5921.32
315.0	7632.47	7575.21	7474.46	7304.88	7177.70	7013.08	6723.49	6496.10	6195.50
360.0	7644.58	7636.87	7563.10	7458.49	7328.56	7207.43	7048.87	6791.21	6535.19
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	6224.68	5795.24	5425.81	5027.20	4495.36	4036.74	3541.23	2967.54	2434.59
45.0	6475.18	6108.51	5737.43	5337.72	4806.97	4351.11	3867.71	3236.22	2736.85
90.0	5976.92	5535.37	5120.80	4624.74	4100.60	3608.40	3046.82	2568.93	2095.45
135.0	5770.46	5257.34	4799.27	4320.28	3699.79	3207.59	2733.00	2252.36	1860.91
180.0	5232.01	4720.54	4249.25	3694.84	3139.32	2669.68	2250.16	1857.60	1559.75
225.0	4817.99	4307.06	3823.12	3262.64	2782.55	2299.71	1897.24	1612.05	1397.88
270.0	5514.45	5072.35	4651.16	4195.30	3588.58	3098.57	2621.79	2088.84	1752.45
315.0	5822.21	5416.45	5030.50	4547.11	4020.22	3528.56	2958.73	2474.79	2028.83
360.0	6224.68	5795.24	5425.81	5027.20	4495.36	4036.74	3541.23	2967.54	2434.59
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	2039.29	1687.48	1430.92	1265.75	1125.35	1027.90	940.91	876.50	834.66
45.0	2282.09	1860.36	1552.04	1349.43	1173.80	1075.80	977.80	910.63	863.83
90.0	1723.27	1480.47	1304.29	1093.81	1049.43	972.02	903.97	853.87	820.62
135.0	1594.43	1370.35	1216.20	1117.09	1026.25	969.54	910.08	863.83	826.95
180.0	1343.38	1169.95	1095.02	1001.26	928.14	877.54	832.62	794.74	767.98
225.0	1169.95	1095.46	1008.08	919.99	866.86	826.45	793.58	762.15	742.49
270.0	1504.14	1300.98	1151.23	1049.37	959.63	896.87	844.57	804.37	777.95
315.0	1692.98	1466.15	1293.83	1092.26	1034.67	955.12	885.47	836.86	804.37
360.0	2039.29	1687.48	1430.92	1265.75	1125.35	1027.90	940.91	876.50	834.66
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	802.72	771.89	752.62	736.65	719.59	699.22	646.36	562.68	466.88
45.0	824.19	796.67	771.34	751.52	733.90	721.24	700.87	629.29	547.81
90.0	791.55	763.19	744.31	727.90	707.97	657.92	586.46	488.52	389.03
135.0	795.56	763.63	741.61	722.34	679.40	610.58	527.44	429.44	325.38
180.0	746.95	726.03	711.11	681.98	610.14	515.27	426.69	327.70	234.54
225.0	723.99	710.06	687.60	633.09	545.88	449.70	359.85	258.05	175.74
270.0	757.03	735.55	721.24	704.72	649.11	578.64	493.86	394.75	294.00
315.0	778.44	751.41	734.51	720.08	694.15	626.54	544.67	446.29	343.33
360.0	802.72	771.89	752.62	736.65	719.59	699.22	646.36	562.68	466.88
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	378.24	286.29	185.82	99.87	41.18	23.45	19.71	16.68	14.76
45.0	458.07	365.57	285.19	162.09	95.80	34.80	21.64	18.66	16.41
90.0	288.39	202.11	121.56	54.07	24.17	19.99	17.62	15.25	13.82
135.0	280.24	140.56	71.46	31.16	22.30	19.05	16.02	13.65	12.33
180.0	154.82	76.91	34.80	22.08	18.83	16.30	14.42	12.72	11.89
225.0	92.66	38.15	22.19	19.21	16.74	14.76	13.10	11.73	11.07
270.0	280.79	119.69	52.74	23.56	18.94	16.74	14.53	12.88	11.89
315.0	254.42	163.24	90.62	37.05	22.46	19.88	17.23	14.53	12.94
360.0	378.24	286.29	185.82	99.87	41.18	23.45	19.71	16.68	14.76



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	13.21	11.78	11.18	10.85	10.46	10.30	10.13	9.91	9.80
45.0	14.20	12.66	11.34	10.85	10.52	10.30	10.13	9.97	9.69
90.0	12.77	11.51	11.07	10.35	10.13	9.91	9.74	9.58	9.47
135.0	11.40	11.01	10.74	10.52	10.24	10.08	9.91	9.80	9.63
180.0	11.34	10.63	10.41	10.24	10.02	9.86	9.69	9.58	9.41
225.0	10.46	10.19	10.02	9.86	9.69	9.47	9.36	9.25	9.14
270.0	10.96	10.52	10.24	10.08	9.91	9.69	9.52	9.41	9.30
315.0	11.89	11.29	10.52	10.24	10.02	9.86	9.69	9.47	9.36
360.0	13.21	11.78	11.18	10.85	10.46	10.30	10.13	9.91	9.80
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	9.63	9.52	9.41	9.30	9.14	9.03	8.97	8.92	8.86
45.0	9.58	9.52	9.36	9.25	9.08	9.03	8.97	8.92	8.75
90.0	9.30	9.14	9.03	8.92	8.86	8.81	8.75	8.64	8.64
135.0	9.52	9.25	9.14	9.03	8.97	8.92	8.81	8.70	8.64
180.0	9.36	9.19	9.14	9.03	8.97	8.92	8.81	8.75	8.70
225.0	9.03	8.97	8.92	8.81	8.70	8.70	8.64	8.53	8.48
270.0	9.19	9.08	8.97	8.86	8.81	8.75	8.70	8.64	8.59
315.0	9.25	9.14	9.03	8.97	8.86	8.81	8.75	8.64	8.59
360.0	9.63	9.52	9.41	9.30	9.14	9.03	8.97	8.92	8.86
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	8.81	8.75	8.70	8.64	8.59	8.53	8.48	8.48	8.48
45.0	8.75	8.70	8.59	8.53	8.48	8.48	8.42	8.42	8.31
90.0	8.53	8.48	8.42	8.37	8.37	8.37	8.31	8.26	8.20
135.0	8.59	8.59	8.53	8.53	8.48	8.37	8.37	8.31	8.31
180.0	8.64	8.59	8.59	8.53	8.42	8.42	8.37	8.37	8.37
225.0	8.42	8.42	8.37	8.37	8.31	8.26	8.20	8.15	8.15
270.0	8.53	8.42	8.37	8.31	8.31	8.31	8.26	8.20	8.15
315.0	8.53	8.53	8.48	8.48	8.37	8.31	8.26	8.26	8.20
360.0	8.81	8.75	8.70	8.64	8.59	8.53	8.48	8.48	8.48
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	8.42	8.37	8.31	8.26	8.26	8.20	8.20	8.20	8.15
45.0	8.26	8.26	8.15	8.20	8.15	8.15	8.09	8.09	8.04
90.0	8.15	8.15	8.09	8.09	8.09	8.04	8.04	7.98	7.93
135.0	8.26	8.20	8.15	8.15	8.09	8.15	8.09	8.09	8.04
180.0	8.31	8.20	8.20	8.20	8.15	8.15	8.15	8.15	8.09
225.0	8.09	8.09	8.09	8.04	8.04	8.04	7.98	7.98	7.93
270.0	8.15	8.15	8.04	8.04	8.04	8.04	8.04	7.98	7.93
315.0	8.20	8.20	8.15	8.09	8.04	8.04	8.04	8.04	8.04
360.0	8.42	8.37	8.31	8.26	8.26	8.20	8.20	8.20	8.15
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	8.15	8.15	8.09	8.09	8.04	8.04	8.09	8.04	7.98
45.0	7.98	7.98	7.98	7.98	7.98	7.98	7.93	7.93	7.87
90.0	7.93	7.93	7.87	7.93	7.87	7.87	7.87	7.87	7.82
135.0	7.98	7.98	7.98	7.98	7.98	7.93	7.87	7.87	7.93
180.0	8.09	8.09	8.04	8.09	8.09	7.98	7.98	7.98	7.98
225.0	7.93	7.98	7.93	7.98	7.93	7.87	7.87	7.87	7.87
270.0	7.93	7.93	7.93	7.93	7.93	7.93	7.87	7.82	7.87
315.0	7.98	7.98	7.98	7.98	7.98	7.93	7.93	7.87	7.93
360.0	8.15	8.15	8.09	8.09	8.04	8.04	8.09	8.04	7.98

Intensity data(cd)

<b>C/γ(°)</b>	<b>90.0</b>
<b>0.0</b>	<b>8.04</b>
<b>45.0</b>	<b>7.87</b>
<b>90.0</b>	<b>7.87</b>
<b>135.0</b>	<b>7.87</b>
<b>180.0</b>	<b>7.98</b>
<b>225.0</b>	<b>7.87</b>
<b>270.0</b>	<b>7.82</b>
<b>315.0</b>	<b>7.87</b>
<b>360.0</b>	<b>8.04</b>