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## Nata

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LumCAT: 2-1746-N	
Luminaire: 92.70.124.00	
Report No: 200406-B041	Voltage(V): 220.4000
Test No: 200406-C041	Current(A): 0.0410
LampCAT: CITIZEN CLU028	Power (W): 8.2400
Lamp flux(lm): 955.5	PF: 0.8960
Number of Lamps: 1	Ballast type: AC
Length(mm): 0	Width(mm): 0
Phm Type: C	Height(mm): 0

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## Photometric Results

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Lumens(lm): 781.92  
Efficiency(%): 81.83%  
Lumens(lm)/Power(W): 94.89  
Central intensity(cd): 2758.377  
Maximum intensity(cd): 2758.377  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=23.9  
                                  [C90/270]Total=23.9  
Field angle(10%Imax): [C0/180]Total=60.5  
                                  [C90/270]Total=60.5  
Maximum s/h(1/2): C0\_180=0.41 C90\_270=0.41  
Maximum s/h(1/4): C0\_180=0.43 C90\_270=0.43  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 81.83%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 98.342%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	2758.377	0.000	0	.000%	.000%
1.0	2746.370	2.634	2.634	.276%	.337%
2.0	2714.816	7.838	10.472	.820%	1.339%
3.0	2653.680	12.840	23.312	1.344%	2.981%
4.0	2562.149	17.459	40.771	1.827%	5.214%
5.0	2465.166	21.627	62.398	2.263%	7.980%
6.0	2327.928	25.189	87.587	2.636%	11.202%
7.0	2194.229	28.069	115.656	2.938%	14.791%
8.0	2037.501	30.286	145.942	3.170%	18.665%
9.0	1881.238	31.759	177.701	3.324%	22.726%
10.0	1705.717	32.461	210.162	3.397%	26.878%
11.0	1555.196	32.583	242.745	3.410%	31.045%
12.0	1370.911	31.987	274.732	3.348%	35.135%
13.0	1239.764	30.982	305.714	3.243%	39.098%
14.0	1061.772	29.459	335.173	3.083%	42.865%
15.0	947.568	27.585	362.758	2.887%	46.393%
16.0	858.526	26.464	389.223	2.770%	49.778%
17.0	779.849	25.514	414.737	2.670%	53.041%
18.0	701.764	24.429	439.165	2.557%	56.165%
19.0	635.894	23.273	462.438	2.436%	59.141%
20.0	578.766	22.232	484.669	2.327%	61.984%
21.0	529.213	21.275	505.945	2.227%	64.705%
22.0	486.005	20.401	526.346	2.135%	67.314%
23.0	452.781	19.698	546.044	2.062%	69.834%
24.0	418.570	19.051	565.095	1.994%	72.270%
25.0	390.525	18.397	583.492	1.925%	74.623%
26.0	371.279	17.982	601.475	1.882%	76.923%
27.0	346.691	17.565	619.04	1.838%	79.169%
28.0	326.680	17.048	636.088	1.784%	81.349%
29.0	306.192	16.558	652.646	1.733%	83.467%
30.0	281.871	15.878	668.523	1.662%	85.498%
31.0	256.732	14.989	683.512	1.569%	87.414%
32.0	232.597	14.019	697.531	1.467%	89.207%
33.0	187.510	12.377	709.907	1.295%	90.790%
34.0	141.756	9.965	719.872	1.043%	92.064%
35.0	114.233	7.950	727.822	.832%	93.081%
36.0	84.089	6.315	734.137	.661%	93.889%
37.0	58.573	4.653	738.789	.487%	94.484%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	44.437	3.438	742.228	.360%	94.924%
39.0	33.938	2.675	744.903	.280%	95.266%
40.0	27.952	2.159	747.061	.226%	95.542%
41.0	24.118	1.854	748.916	.194%	95.779%
42.0	21.334	1.651	750.567	.173%	95.990%
43.0	19.350	1.507	752.074	.158%	96.183%
44.0	17.482	1.390	753.464	.145%	96.361%
45.0	16.195	1.294	754.758	.135%	96.526%
46.0	15.029	1.221	755.979	.128%	96.682%
47.0	14.089	1.158	757.138	.121%	96.830%
48.0	13.173	1.102	758.24	.115%	96.971%
49.0	12.419	1.051	759.291	.110%	97.106%
50.0	11.839	1.011	760.302	.106%	97.235%
51.0	11.224	0.976	761.278	.102%	97.360%
52.0	10.766	0.944	762.221	.099%	97.481%
53.0	10.336	0.918	763.139	.096%	97.598%
54.0	10.006	0.897	764.036	.094%	97.713%
55.0	9.658	0.878	764.914	.092%	97.825%
56.0	9.333	0.858	765.772	.090%	97.935%
57.0	8.927	0.835	766.607	.087%	98.041%
58.0	8.544	0.808	767.414	.085%	98.145%
59.0	8.202	0.783	768.197	.082%	98.245%
60.0	7.918	0.762	768.959	.080%	98.342%
61.0	7.604	0.741	769.7	.078%	98.437%
62.0	7.338	0.720	770.42	.075%	98.529%
63.0	7.036	0.699	771.119	.073%	98.618%
64.0	6.786	0.678	771.797	.071%	98.705%
65.0	6.508	0.658	772.455	.069%	98.789%
66.0	6.247	0.636	773.091	.067%	98.871%
67.0	5.974	0.615	773.706	.064%	98.949%
68.0	5.679	0.590	774.296	.062%	99.025%
69.0	5.406	0.565	774.862	.059%	99.097%
70.0	5.139	0.542	775.403	.057%	99.166%
71.0	4.890	0.518	775.921	.054%	99.233%
72.0	4.640	0.496	776.417	.052%	99.296%
73.0	4.414	0.473	776.89	.050%	99.357%
74.0	4.165	0.451	777.341	.047%	99.414%
75.0	3.950	0.429	777.77	.045%	99.469%

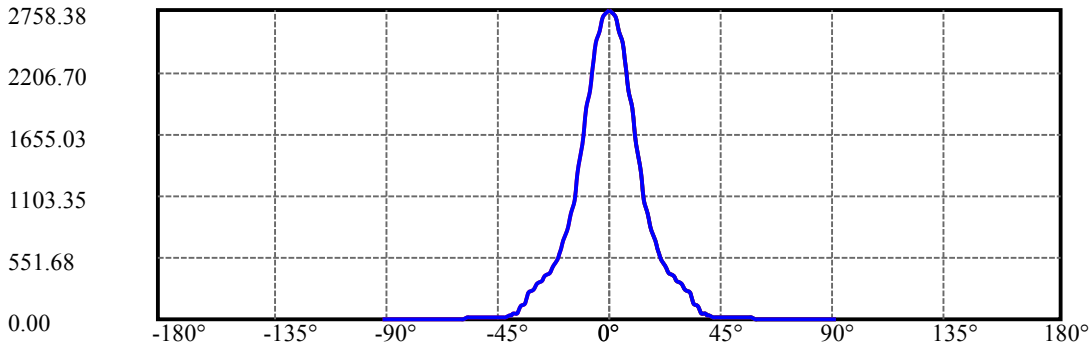
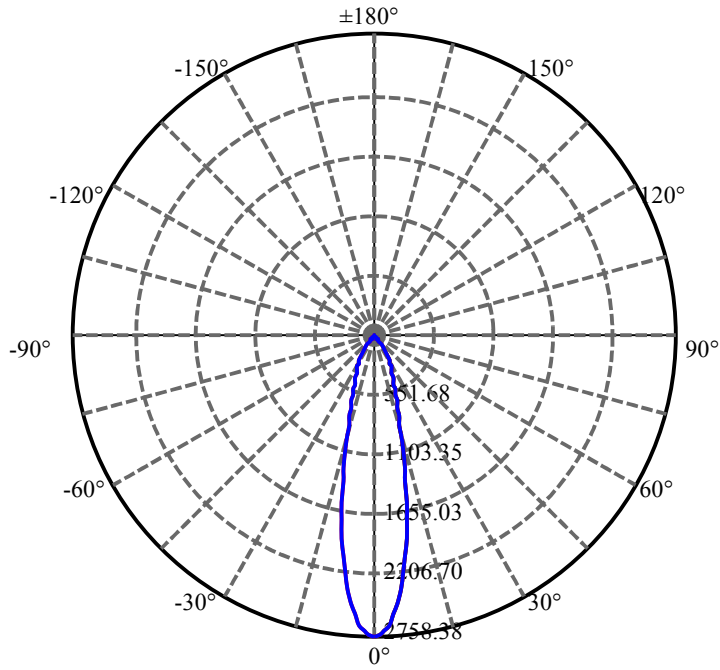
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	3.730	0.408	778.178	.043%	99.521%
77.0	3.521	0.387	778.564	.040%	99.571%
78.0	3.318	0.366	778.931	.038%	99.617%
79.0	3.121	0.346	779.277	.036%	99.662%
80.0	2.958	0.328	779.604	.034%	99.704%
81.0	2.749	0.309	779.913	.032%	99.743%
82.0	2.587	0.289	780.202	.030%	99.780%
83.0	2.430	0.273	780.475	.029%	99.815%
84.0	2.245	0.255	780.73	.027%	99.848%
85.0	2.065	0.235	780.965	.025%	99.878%
86.0	1.932	0.218	781.183	.023%	99.906%
87.0	1.816	0.205	781.388	.021%	99.932%
88.0	1.665	0.191	781.579	.020%	99.956%
89.0	1.543	0.176	781.755	.018%	99.979%
90.0	1.497	0.167	781.922	.017%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	668.52	69.97%	85.50%
0-40	747.06	78.19%	95.54%
0-60	768.96	80.48%	98.34%
0-90	781.75	81.82%	99.98%
0-120	781.75	81.82%	99.98%
0-180	781.92	81.83%	100.00%
60-90	13.56	1.42%	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%
0-27.38	625.54	65.47%	80.00%

ZONAL LUMEN SUMMARY

0-10	210.16
10-20	274.51
20-30	183.85
30-40	78.54
40-50	13.24
50-60	8.66
60-70	6.44
70-80	4.20
80-90	2.15
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: —————

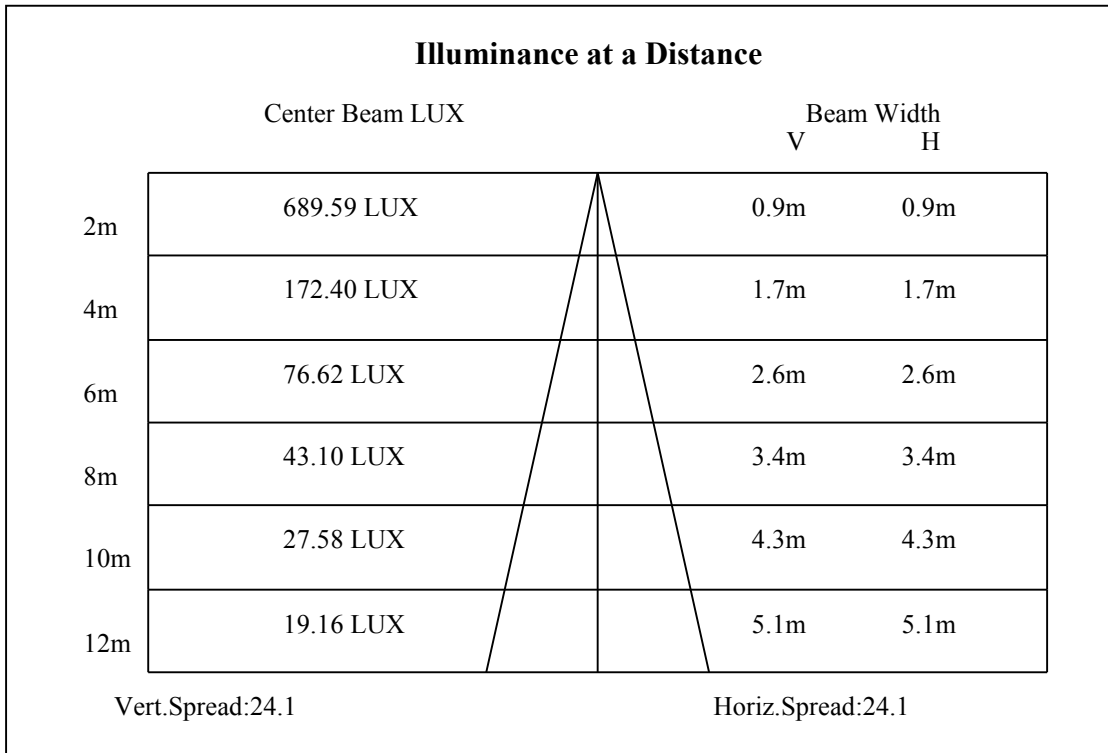
C90/C270: —————

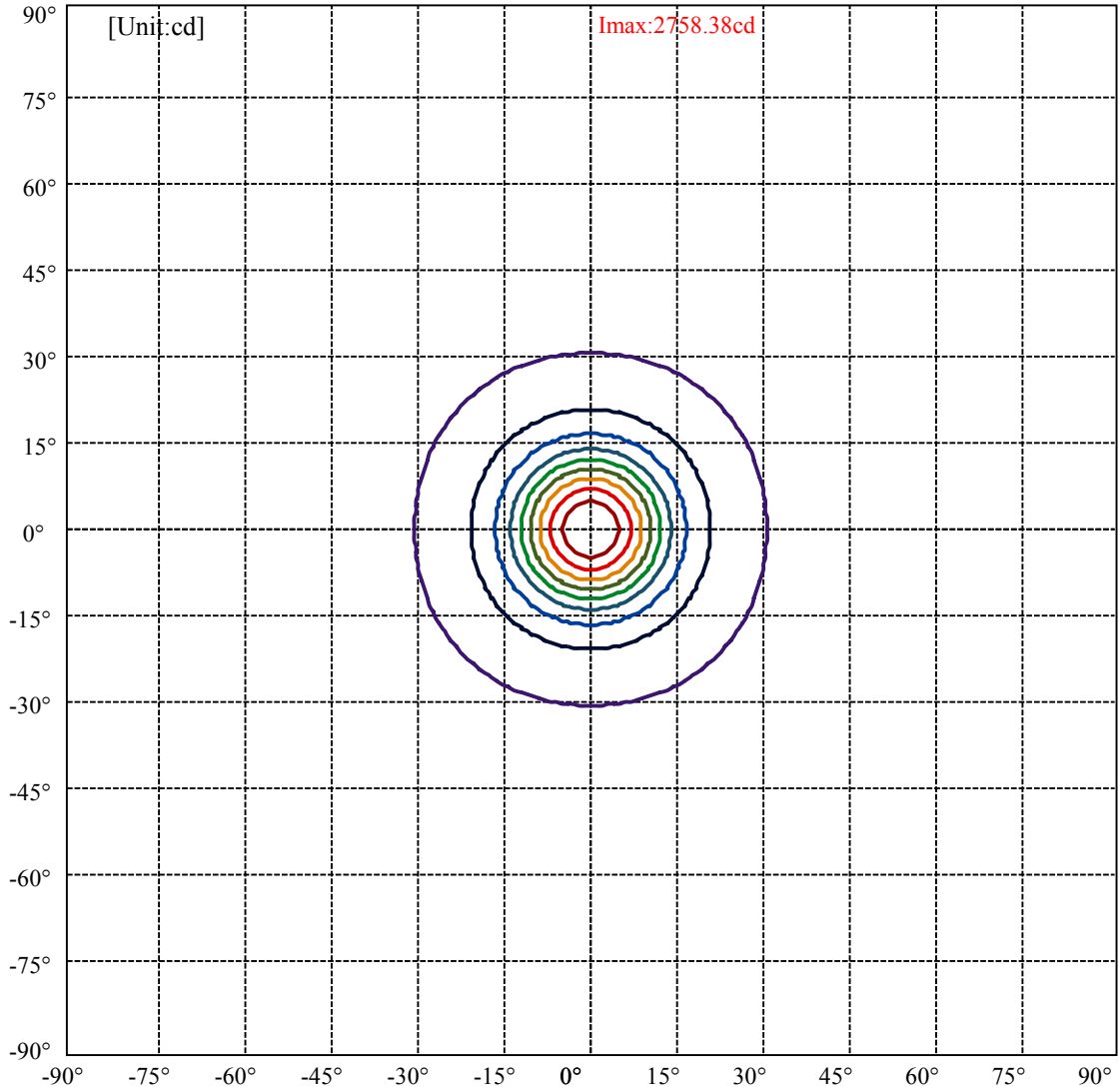
Field angle(10%Imax):C0/180Left:30.2 Right:30.2

:C90/270Left:30.2 Right:30.2

Beam Angle(50%Imax):C0/180Left:12.0 Right:12.0

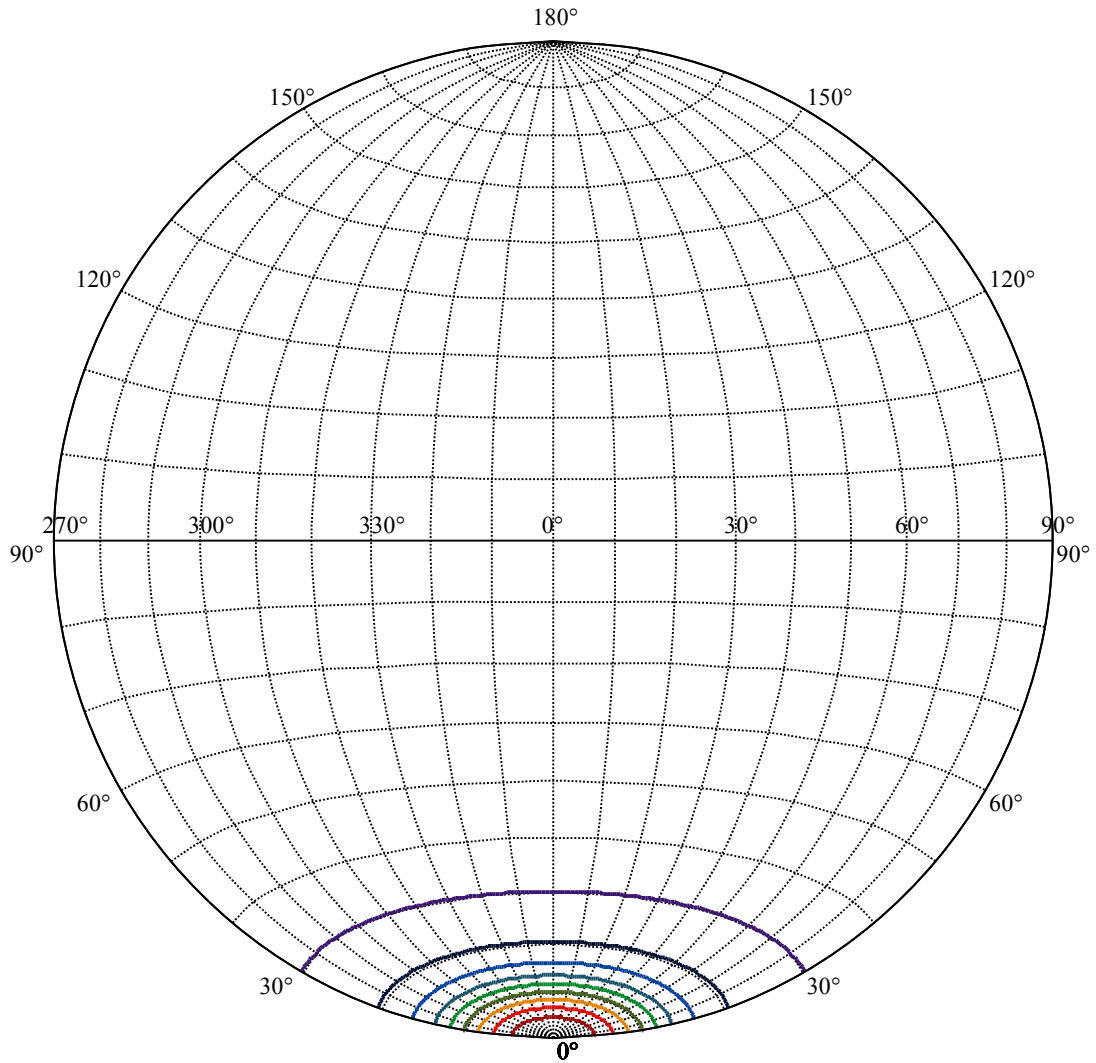
:C90/270Left:12.0 Right:12.0





(10%Imax) 275.838	—
(20%Imax) 551.675	—
(30%Imax) 827.513	—
(40%Imax) 1103.35	—
(50%Imax) 1379.19	—
(60%Imax) 1655.03	—
(70%Imax) 1930.86	—
(80%Imax) 2206.7	—
(90%Imax) 2482.54	—





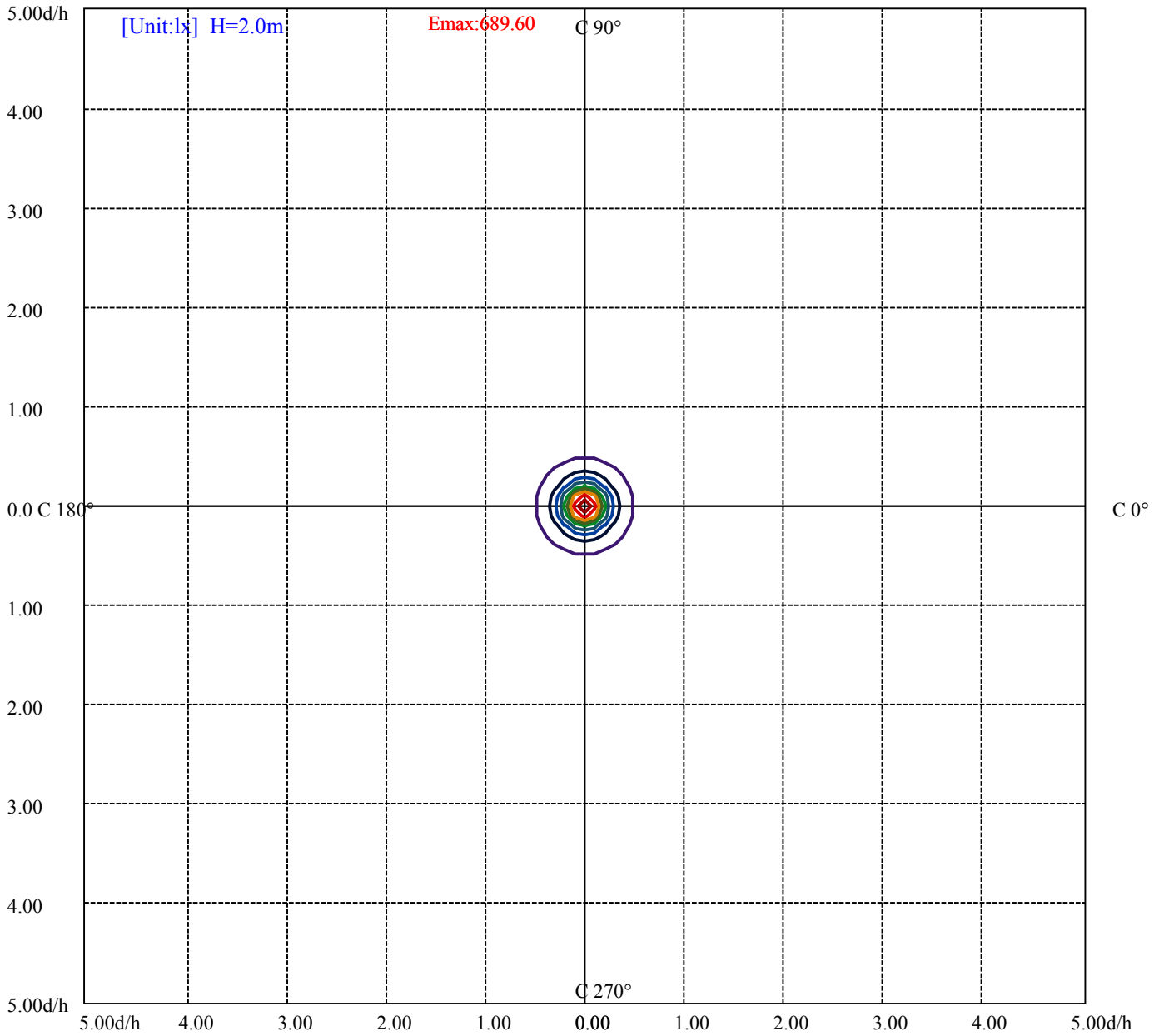
House

[Unit:cd]

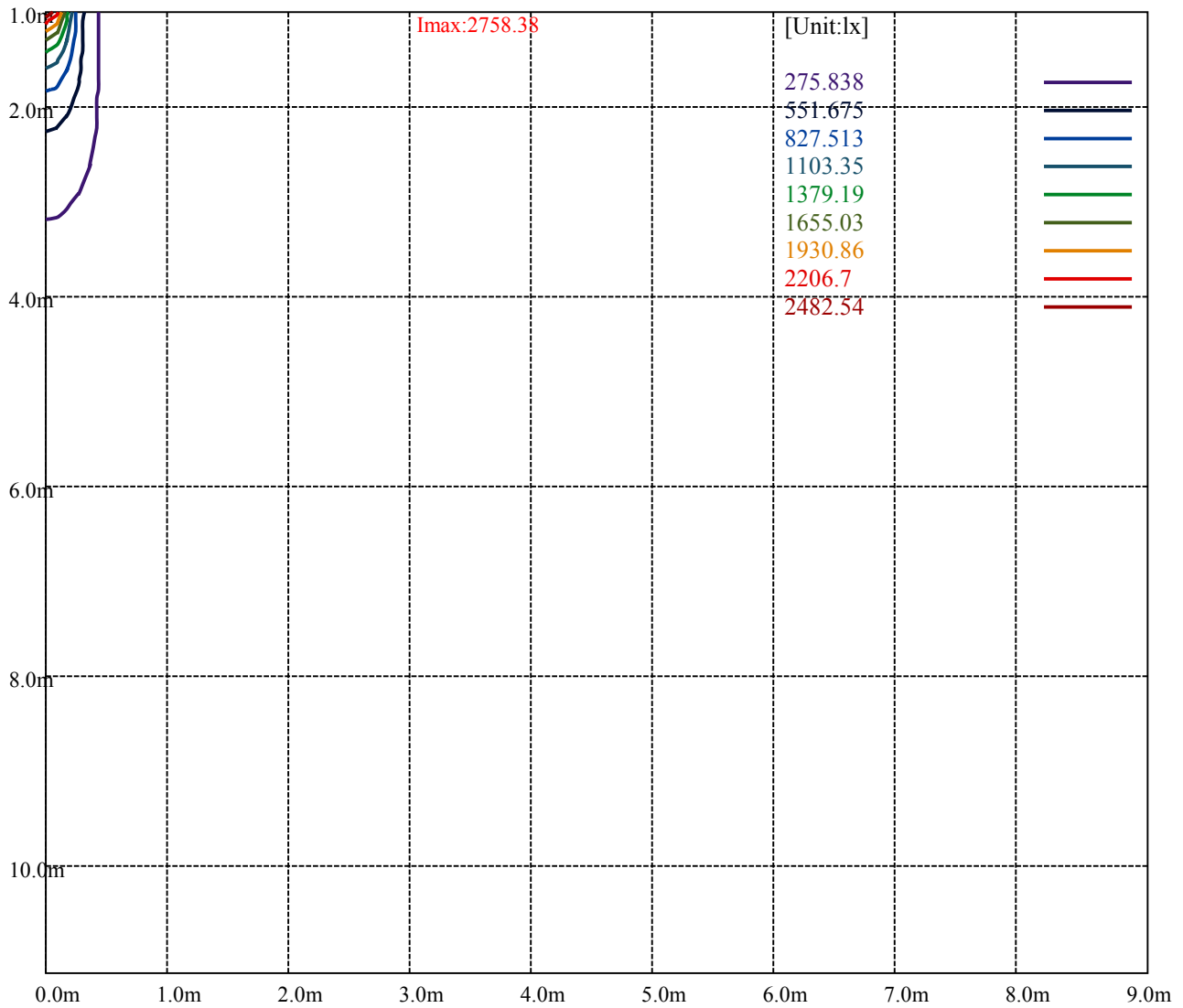
Road

**Imax:2758.38**

(10%Imax) 275.838	—
(20%Imax) 551.675	—
(30%Imax) 827.513	—
(40%Imax) 1103.35	—
(50%Imax) 1379.19	—
(60%Imax) 1655.03	—
(70%Imax) 1930.86	—
(80%Imax) 2206.7	—
(90%Imax) 2482.54	—



- (10%Emax) 68.9595
- (20%Emax) 137.9187
- (30%Emax) 206.8783
- (40%Emax) 275.8375
- (50%Emax) 344.7975
- (60%Emax) 413.7575
- (70%Emax) 482.715
- (80%Emax) 551.675
- (90%Emax) 620.635



Luminance Table

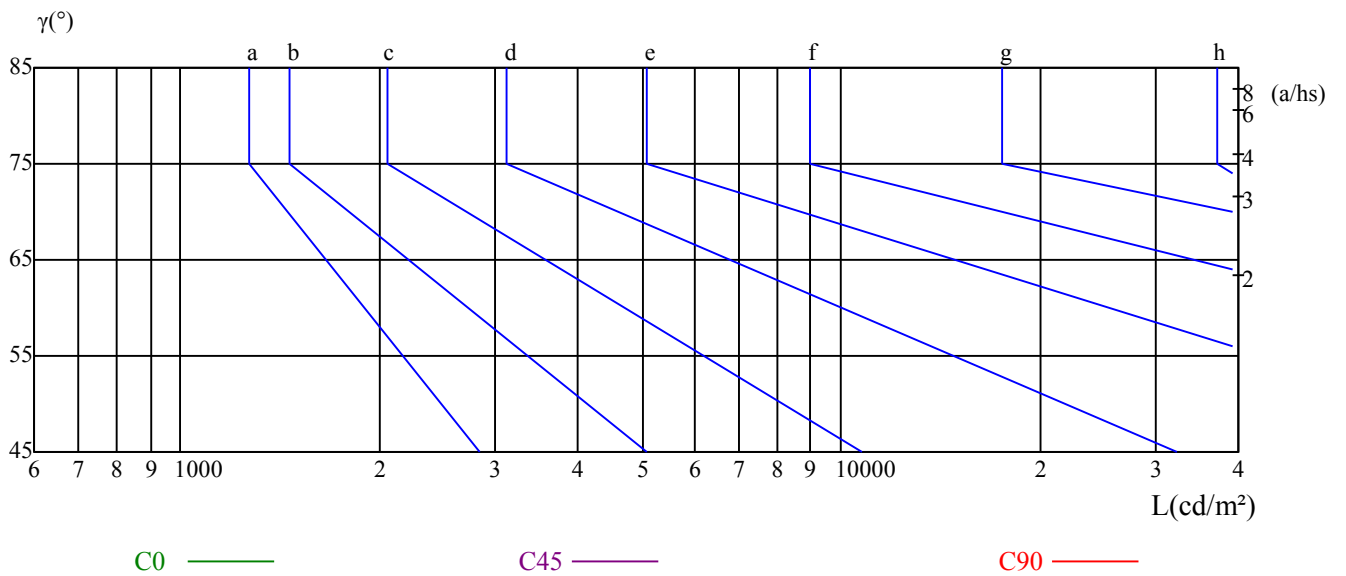
$\gamma$	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

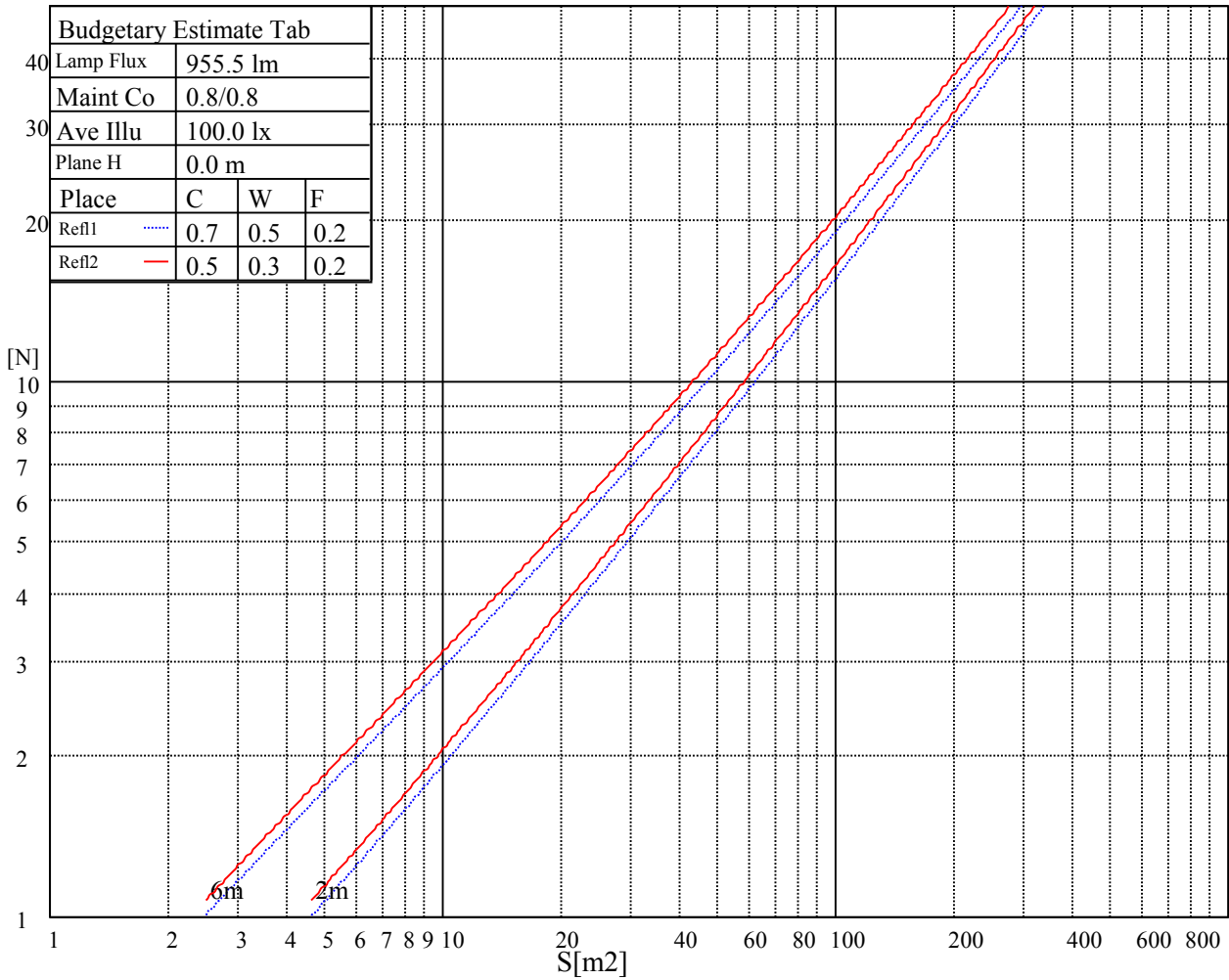
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

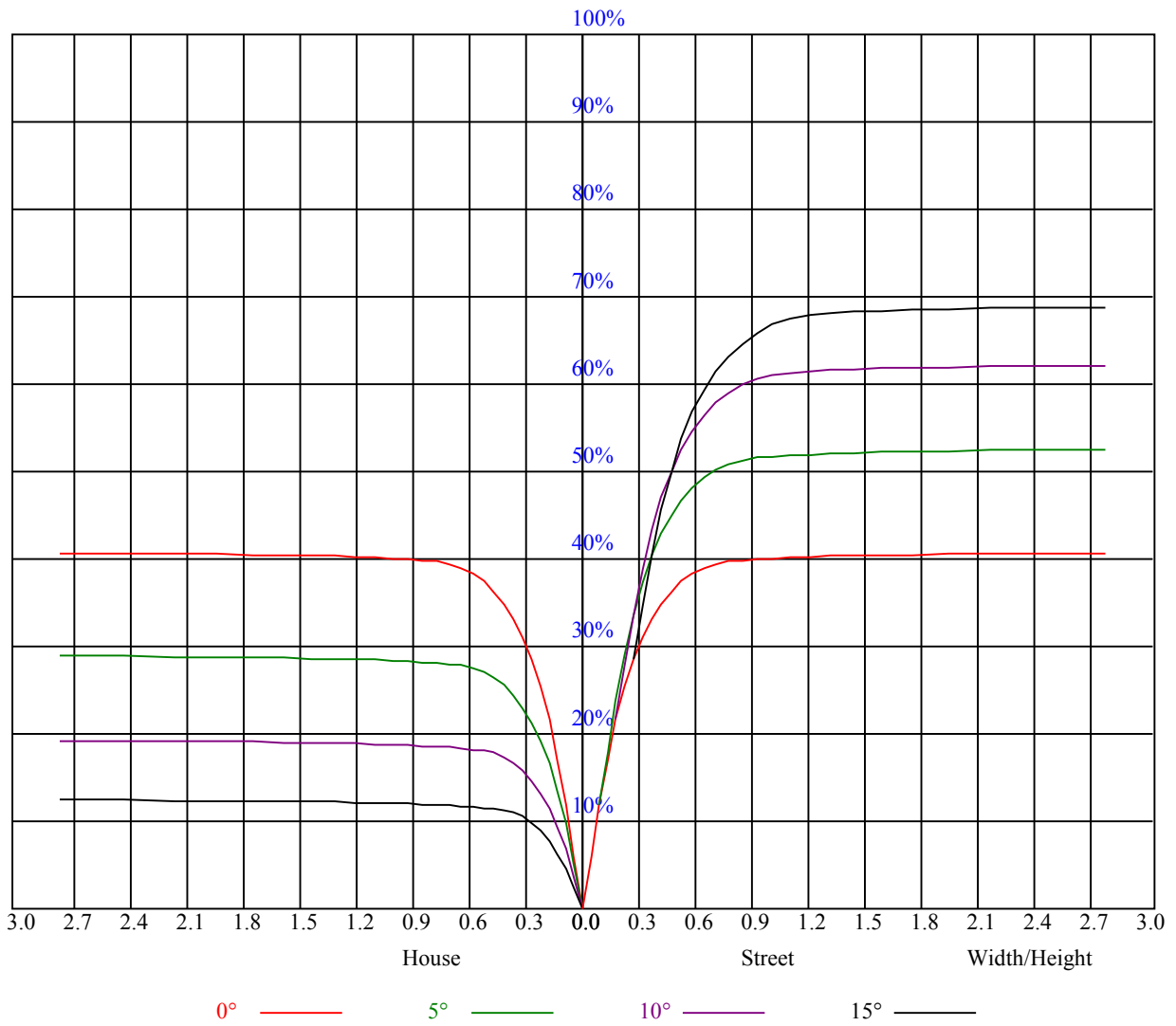
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	0.97	0.97	0.97	0.95	0.95	0.95	0.91	0.91	0.91	0.87	0.87	0.87	0.84	0.84	0.84	0.82
1	0.91	0.90	0.88	0.90	0.88	0.87	0.86	0.85	0.84	0.83	0.82	0.81	0.81	0.80	0.79	0.78
2	0.86	0.83	0.81	0.85	0.82	0.80	0.82	0.80	0.78	0.80	0.78	0.77	0.78	0.76	0.75	0.74
3	0.82	0.78	0.75	0.81	0.77	0.75	0.78	0.76	0.74	0.77	0.74	0.72	0.75	0.73	0.71	0.70
4	0.78	0.74	0.71	0.77	0.73	0.70	0.75	0.72	0.70	0.73	0.71	0.69	0.72	0.70	0.68	0.67
5	0.74	0.70	0.67	0.73	0.70	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.69	0.67	0.65	0.64
6	0.71	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.63	0.68	0.65	0.63	0.67	0.64	0.62	0.61
7	0.68	0.64	0.61	0.67	0.63	0.61	0.66	0.63	0.60	0.65	0.62	0.60	0.65	0.62	0.60	0.59
8	0.65	0.61	0.58	0.65	0.61	0.58	0.64	0.60	0.58	0.63	0.60	0.58	0.62	0.60	0.58	0.57
9	0.63	0.59	0.56	0.62	0.59	0.56	0.62	0.58	0.56	0.61	0.58	0.56	0.60	0.57	0.55	0.55
10	0.60	0.57	0.54	0.60	0.56	0.54	0.59	0.56	0.54	0.59	0.56	0.54	0.58	0.56	0.53	0.53



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	2761.97	2755.48	2718.35	2664.99	2584.71	2484.02	2358.73	2212.09	2055.25
45.0	2763.83	2735.99	2709.54	2647.82	2519.28	2450.61	2318.82	2176.36	2015.34
90.0	2722.07	2649.21	2547.13	2421.84	2276.13	2116.97	1953.16	1785.65	1614.88
135.0	2785.64	2740.63	2675.66	2586.57	2465.46	2321.14	2160.59	1994.46	1826.48
180.0	2761.97	2747.59	2727.63	2648.29	2549.91	2477.52	2280.77	2189.82	2023.23
225.0	2763.83	2763.37	2734.60	2677.52	2591.67	2482.16	2345.27	2192.60	2025.55
270.0	2722.07	2774.50	2800.95	2805.13	2788.89	2743.88	2658.49	2578.68	2456.18
315.0	2785.64	2804.20	2804.66	2777.29	2721.14	2645.04	2547.59	2424.16	2283.09
360.0	2761.97	2755.48	2718.35	2664.99	2584.71	2484.02	2358.73	2212.09	2055.25
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1891.91	1723.00	1555.95	1389.36	1227.41	913.54	872.34	872.34	780.27
45.0	1850.61	1680.78	1506.30	1338.78	1180.08	1036.23	911.87	801.90	712.80
90.0	1446.44	1285.42	1135.54	899.76	899.76	840.92	759.21	689.46	625.38
135.0	1726.25	1495.63	1396.32	1233.91	1092.38	969.88	865.47	775.45	699.34
180.0	1847.83	1668.25	1488.20	1315.58	1158.27	1021.85	908.16	813.50	731.83
225.0	1849.68	1676.60	1510.48	1349.92	1194.47	887.56	887.56	846.91	756.93
270.0	2314.18	2158.27	1993.07	1826.48	1656.18	1485.88	1320.22	1167.09	1030.66
315.0	2123.00	1957.80	1855.72	1613.49	1509.55	1338.32	1055.72	901.57	901.57
360.0	1891.91	1723.00	1555.95	1389.36	1227.41	913.54	872.34	872.34	780.27
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	705.28	642.55	589.28	538.74	494.06	455.73	422.04	394.20	370.35
45.0	637.63	574.98	521.16	474.29	435.31	414.43	384.73	349.46	336.01
90.0	569.28	522.50	481.71	446.35	417.07	391.41	369.37	349.70	331.27
135.0	634.38	579.16	528.58	484.96	447.84	415.82	390.30	367.56	345.29
180.0	664.08	607.93	557.81	516.05	477.54	444.59	417.68	393.55	376.38
225.0	681.71	619.39	563.52	516.47	472.90	435.91	403.99	379.12	357.35
270.0	915.12	813.50	729.51	656.65	595.87	562.92	497.49	459.44	438.56
315.0	806.63	727.14	658.56	600.18	547.47	501.43	462.97	431.18	415.03
360.0	705.28	642.55	589.28	538.74	494.06	455.73	422.04	394.20	370.35
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	349.09	331.23	316.05	297.63	267.61	245.20	186.77	145.43	121.76
45.0	316.98	299.81	283.57	265.47	236.70	236.70	156.61	119.30	84.92
90.0	310.39	279.02	239.67	197.54	155.40	123.15	85.75	52.25	39.72
135.0	325.80	304.92	277.07	250.16	242.74	195.73	129.79	94.76	65.20
180.0	352.25	332.29	315.59	290.53	255.73	247.84	232.99	133.18	96.10
225.0	337.45	317.86	298.47	274.89	244.31	209.23	170.86	131.92	108.96
270.0	398.19	384.73	366.17	349.93	335.08	317.45	291.00	253.41	236.70
315.0	383.38	363.57	352.94	328.81	316.29	285.47	246.31	203.80	160.51
360.0	349.09	331.23	316.05	297.63	267.61	245.20	186.77	145.43	121.76
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	85.85	57.68	41.86	34.11	27.98	23.85	21.25	19.07	17.22
45.0	58.14	41.62	36.10	27.84	23.76	22.09	19.95	18.10	16.61
90.0	32.25	26.91	23.29	20.97	19.07	17.54	16.15	14.99	14.01
135.0	44.64	35.31	29.42	25.10	22.37	20.19	18.42	16.98	15.73
180.0	66.91	47.29	37.17	31.04	26.36	23.29	20.93	19.72	17.31
225.0	66.31	48.58	41.95	32.25	29.19	25.57	22.92	20.70	18.89
270.0	197.35	126.59	89.23	59.44	41.81	33.18	27.56	24.22	21.11
315.0	121.25	84.59	56.47	40.74	33.09	27.24	23.48	21.02	18.98
360.0	85.85	57.68	41.86	34.11	27.98	23.85	21.25	19.07	17.22



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	15.78	14.62	13.55	12.67	11.93	11.28	10.72	10.26	9.79
45.0	15.36	14.29	13.36	12.58	11.97	11.37	10.81	10.30	9.93
90.0	13.22	12.53	11.88	11.23	10.77	10.35	9.98	9.65	9.42
135.0	15.03	13.74	13.22	12.53	11.65	11.32	10.81	10.49	10.12
180.0	15.96	15.22	14.15	13.36	12.62	11.88	11.32	10.90	10.39
225.0	17.45	16.19	15.13	14.25	13.55	12.90	12.30	11.74	11.28
270.0	19.49	17.82	16.33	15.08	14.11	13.27	12.44	11.74	11.23
315.0	17.26	15.82	15.08	13.69	12.76	12.34	11.42	11.04	10.53
360.0	15.78	14.62	13.55	12.67	11.93	11.28	10.72	10.26	9.79
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	9.56	9.37	9.14	8.82	8.31	7.98	7.70	7.52	7.29
45.0	9.74	9.51	9.05	8.54	8.26	8.03	7.75	7.33	7.15
90.0	9.14	8.58	8.45	8.07	7.70	7.52	7.24	6.87	6.64
135.0	9.74	9.42	9.00	8.63	8.35	8.03	7.80	7.47	7.24
180.0	10.07	9.74	9.37	9.00	8.54	8.21	7.93	7.61	7.29
225.0	10.95	10.63	10.30	9.51	9.19	8.77	8.45	8.07	7.66
270.0	10.72	10.30	9.98	9.70	9.33	8.86	8.45	8.17	7.89
315.0	10.12	9.70	9.37	9.14	8.68	8.21	8.03	7.80	7.56
360.0	9.56	9.37	9.14	8.82	8.31	7.98	7.70	7.52	7.29
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	6.96	6.68	6.50	6.22	5.89	5.57	5.34	5.10	4.83
45.0	6.87	6.59	6.31	6.03	5.71	5.43	5.15	4.92	4.64
90.0	6.31	6.08	5.71	5.52	5.24	4.92	4.59	4.41	4.22
135.0	7.01	6.77	6.40	6.13	5.89	5.61	5.38	5.06	4.87
180.0	6.91	6.59	6.40	6.08	5.85	5.52	5.24	4.97	4.73
225.0	7.33	7.05	6.73	6.40	6.08	5.80	5.52	5.20	4.87
270.0	7.61	7.47	7.19	7.05	6.82	6.45	6.22	5.94	5.66
315.0	7.29	7.05	6.82	6.54	6.31	6.13	5.80	5.52	5.29
360.0	6.96	6.68	6.50	6.22	5.89	5.57	5.34	5.10	4.83
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	4.50	4.32	4.13	3.81	3.62	3.48	3.25	3.06	2.92
45.0	4.41	4.22	3.94	3.71	3.53	3.29	3.16	2.88	2.74
90.0	3.99	3.71	3.53	3.39	3.16	2.92	2.83	2.60	2.51
135.0	4.69	4.41	4.18	4.04	3.81	3.57	3.39	3.25	3.06
180.0	4.45	4.22	3.99	3.81	3.57	3.34	3.11	2.97	2.78
225.0	4.69	4.45	4.13	3.85	3.67	3.48	3.25	3.02	2.92
270.0	5.34	5.10	4.83	4.59	4.32	4.08	3.85	3.62	3.39
315.0	5.06	4.87	4.59	4.41	4.18	3.99	3.71	3.57	3.34
360.0	4.50	4.32	4.13	3.81	3.62	3.48	3.25	3.06	2.92
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	2.64	2.51	2.41	2.18	2.00	1.90	1.72	1.58	1.53
45.0	2.55	2.41	2.18	2.04	1.86	1.67	1.58	1.44	1.35
90.0	2.37	2.18	2.09	1.90	1.81	1.67	1.58	1.44	1.35
135.0	2.83	2.74	2.60	2.41	2.27	2.13	1.95	1.81	1.67
180.0	2.55	2.37	2.23	2.09	1.86	1.76	1.72	1.58	1.39
225.0	2.64	2.46	2.32	2.13	1.90	1.76	1.67	1.53	1.39
270.0	3.25	3.06	2.78	2.55	2.41	2.23	2.13	2.00	1.81
315.0	3.16	2.97	2.83	2.64	2.41	2.32	2.18	1.95	1.86
360.0	2.64	2.51	2.41	2.18	2.00	1.90	1.72	1.58	1.53

Intensity data(cd)

<b>C/γ(°)</b>	<b>90.0</b>
<b>0.0</b>	<b>1.44</b>
<b>45.0</b>	<b>1.25</b>
<b>90.0</b>	<b>1.35</b>
<b>135.0</b>	<b>1.58</b>
<b>180.0</b>	<b>1.39</b>
<b>225.0</b>	<b>1.39</b>
<b>270.0</b>	<b>1.72</b>
<b>315.0</b>	<b>1.86</b>
<b>360.0</b>	<b>1.44</b>