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## Nata

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LumCAT: 1-0935-N	
Luminaire: 92.361.000	
Report No: 220519-B008	Voltage(V): 38.1100
Test No: 220519-C008	Current(A): 0.3610
LampCAT: CREE CXA1507	Power (W): 13.7690
Lamp flux(lm): 1272.8	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 43	Width(mm): 43
Phm Type: C	Height(mm): 0

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## Photometric Results

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Lumens(lm): 1052.88  
Efficiency(%): 82.72%  
Lumens(lm)/Power(W): 76.47  
Central intensity(cd): 5883.420  
Maximum intensity(cd): 5883.420  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=18.1  
                                  [C90/270]Total=18.1  
Field angle(10%Imax): [C0/180]Total=45.5  
                                  [C90/270]Total=45.5  
Maximum s/h(1/2): C0\_180=0.31 C90\_270=0.31  
Maximum s/h(1/4): C0\_180=0.34 C90\_270=0.34  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 82.72%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 98.091%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5883.420	0.000	0	.000%	.000%
1.0	5837.858	5.608	5.608	.441%	.533%
2.0	5713.199	16.579	22.188	1.303%	2.107%
3.0	5496.146	26.809	48.997	2.106%	4.654%
4.0	5205.523	35.822	84.819	2.814%	8.056%
5.0	4816.681	43.115	127.934	3.387%	12.151%
6.0	4343.289	48.138	176.072	3.782%	16.723%
7.0	3870.793	50.985	227.056	4.006%	21.565%
8.0	3415.028	52.143	279.2	4.097%	26.518%
9.0	2955.752	51.632	330.831	4.057%	31.422%
10.0	2568.254	49.990	380.821	3.928%	36.170%
11.0	2254.328	48.188	429.009	3.786%	40.746%
12.0	1980.809	46.296	475.305	3.637%	45.143%
13.0	1740.378	44.161	519.466	3.470%	49.338%
14.0	1535.179	41.927	561.393	3.294%	53.320%
15.0	1378.798	40.004	601.397	3.143%	57.119%
16.0	1238.394	38.349	639.747	3.013%	60.762%
17.0	1098.438	36.391	676.137	2.859%	64.218%
18.0	994.998	34.516	710.654	2.712%	67.496%
19.0	899.565	32.962	743.615	2.590%	70.627%
20.0	805.178	31.202	774.817	2.451%	73.590%
21.0	720.187	29.290	804.107	2.301%	76.372%
22.0	643.165	27.397	831.504	2.153%	78.974%
23.0	568.960	25.434	856.937	1.998%	81.390%
24.0	496.323	23.291	880.228	1.830%	83.602%
25.0	425.769	20.966	901.195	1.647%	85.594%
26.0	363.641	18.634	919.829	1.464%	87.363%
27.0	295.075	16.116	935.944	1.266%	88.894%
28.0	235.494	13.433	949.377	1.055%	90.170%
29.0	188.886	11.103	960.48	.872%	91.224%
30.0	139.986	8.879	969.36	.698%	92.068%
31.0	105.994	6.845	976.205	.538%	92.718%
32.0	81.951	5.384	981.59	.423%	93.229%
33.0	65.691	4.350	985.939	.342%	93.642%
34.0	55.869	3.679	989.618	.289%	93.992%
35.0	49.737	3.280	992.898	.258%	94.303%
36.0	46.040	3.050	995.947	.240%	94.593%
37.0	43.030	2.905	998.852	.228%	94.869%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	39.900	2.768	1001.62	.217%	95.132%
39.0	36.494	2.608	1004.228	.205%	95.379%
40.0	33.536	2.442	1006.67	.192%	95.611%
41.0	30.354	2.275	1008.945	.179%	95.827%
42.0	27.255	2.093	1011.038	.164%	96.026%
43.0	24.491	1.917	1012.955	.151%	96.208%
44.0	22.019	1.755	1014.71	.138%	96.375%
45.0	19.905	1.611	1016.322	.127%	96.528%
46.0	18.225	1.491	1017.813	.117%	96.670%
47.0	16.761	1.391	1019.204	.109%	96.802%
48.0	15.625	1.309	1020.514	.103%	96.926%
49.0	14.669	1.244	1021.758	.098%	97.044%
50.0	13.758	1.185	1022.943	.093%	97.157%
51.0	13.011	1.133	1024.075	.089%	97.265%
52.0	12.384	1.090	1025.165	.086%	97.368%
53.0	11.786	1.051	1026.217	.083%	97.468%
54.0	11.248	1.015	1027.232	.080%	97.564%
55.0	10.815	0.985	1028.217	.077%	97.658%
56.0	10.390	0.958	1029.175	.075%	97.749%
57.0	10.001	0.932	1030.107	.073%	97.837%
58.0	9.680	0.910	1031.017	.072%	97.924%
59.0	9.366	0.890	1031.908	.070%	98.008%
60.0	9.090	0.872	1032.78	.069%	98.091%
61.0	8.851	0.856	1033.636	.067%	98.173%
62.0	8.642	0.843	1034.479	.066%	98.253%
63.0	8.433	0.830	1035.309	.065%	98.331%
64.0	8.231	0.818	1036.127	.064%	98.409%
65.0	8.052	0.806	1036.933	.063%	98.486%
66.0	7.865	0.794	1037.727	.062%	98.561%
67.0	7.708	0.783	1038.51	.062%	98.635%
68.0	7.536	0.772	1039.282	.061%	98.709%
69.0	7.342	0.759	1040.041	.060%	98.781%
70.0	7.163	0.745	1040.786	.059%	98.852%
71.0	6.961	0.730	1041.516	.057%	98.921%
72.0	6.767	0.714	1042.23	.056%	98.989%
73.0	6.595	0.699	1042.929	.055%	99.055%
74.0	6.431	0.685	1043.613	.054%	99.120%
75.0	6.252	0.670	1044.284	.053%	99.184%

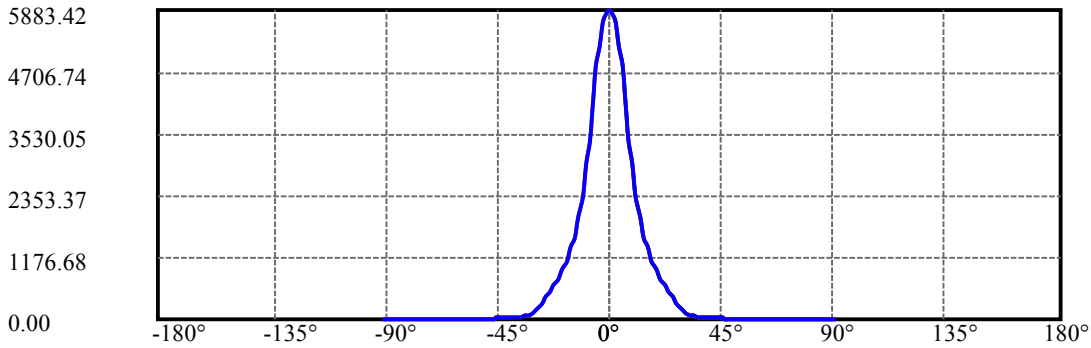
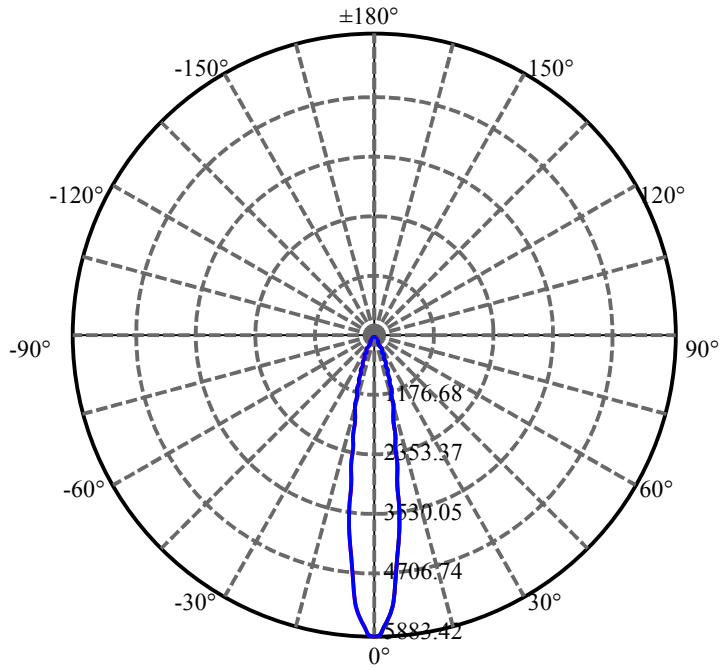
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	6.110	0.656	1044.94	.052%	99.246%
77.0	5.975	0.644	1045.584	.051%	99.307%
78.0	5.826	0.632	1046.216	.050%	99.367%
79.0	5.691	0.619	1046.835	.049%	99.426%
80.0	5.542	0.606	1047.44	.048%	99.484%
81.0	5.438	0.594	1048.034	.047%	99.540%
82.0	5.318	0.583	1048.617	.046%	99.595%
83.0	5.206	0.572	1049.189	.045%	99.650%
84.0	5.161	0.565	1049.754	.044%	99.703%
85.0	4.974	0.553	1050.307	.043%	99.756%
86.0	4.833	0.536	1050.843	.042%	99.807%
87.0	4.735	0.524	1051.367	.041%	99.857%
88.0	4.616	0.512	1051.879	.040%	99.905%
89.0	4.541	0.502	1052.381	.039%	99.953%
90.0	4.496	0.496	1052.877	.039%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	969.36	76.16%	92.07%
0-40	1006.67	79.09%	95.61%
0-60	1032.78	81.14%	98.09%
0-90	1052.38	82.68%	99.95%
0-120	1052.38	82.68%	99.95%
0-180	1052.88	82.72%	100.00%
60-90	20.47	1.61%	1.94%
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%
0-22.42	842.30	66.18%	80.00%

ZONAL LUMEN SUMMARY

0-10	380.82
10-20	394.00
20-30	194.54
30-40	37.31
40-50	16.27
50-60	9.84
60-70	8.01
70-80	6.65
80-90	4.94
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



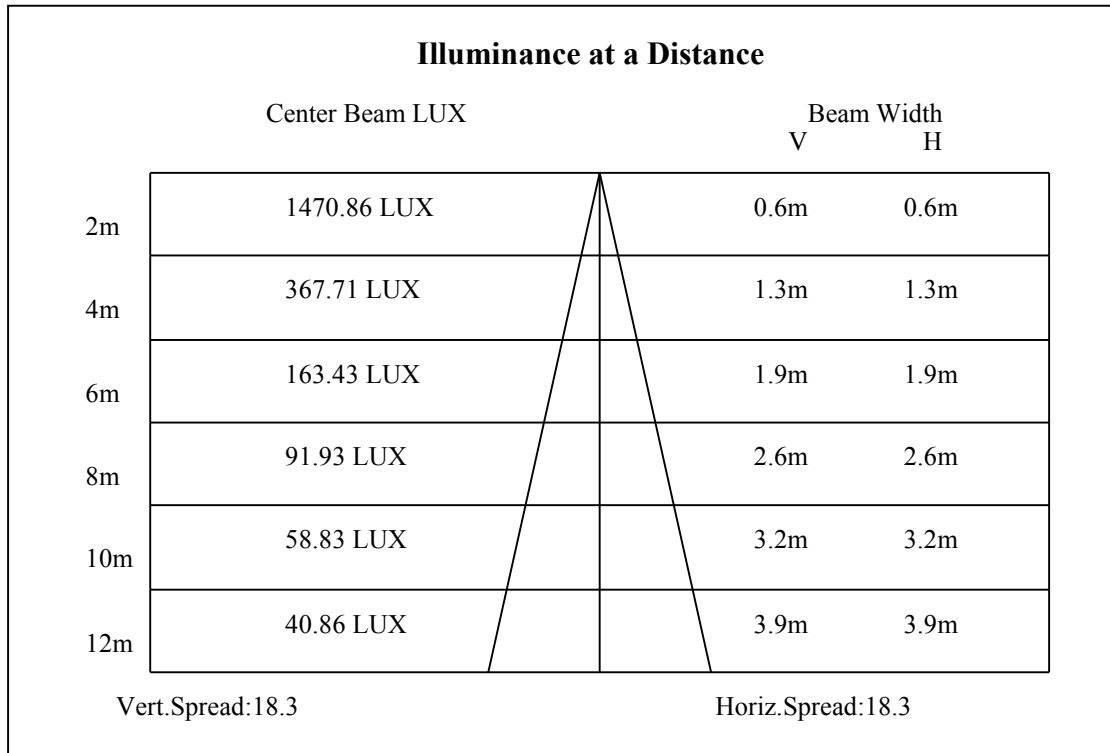
C0(Max): —————

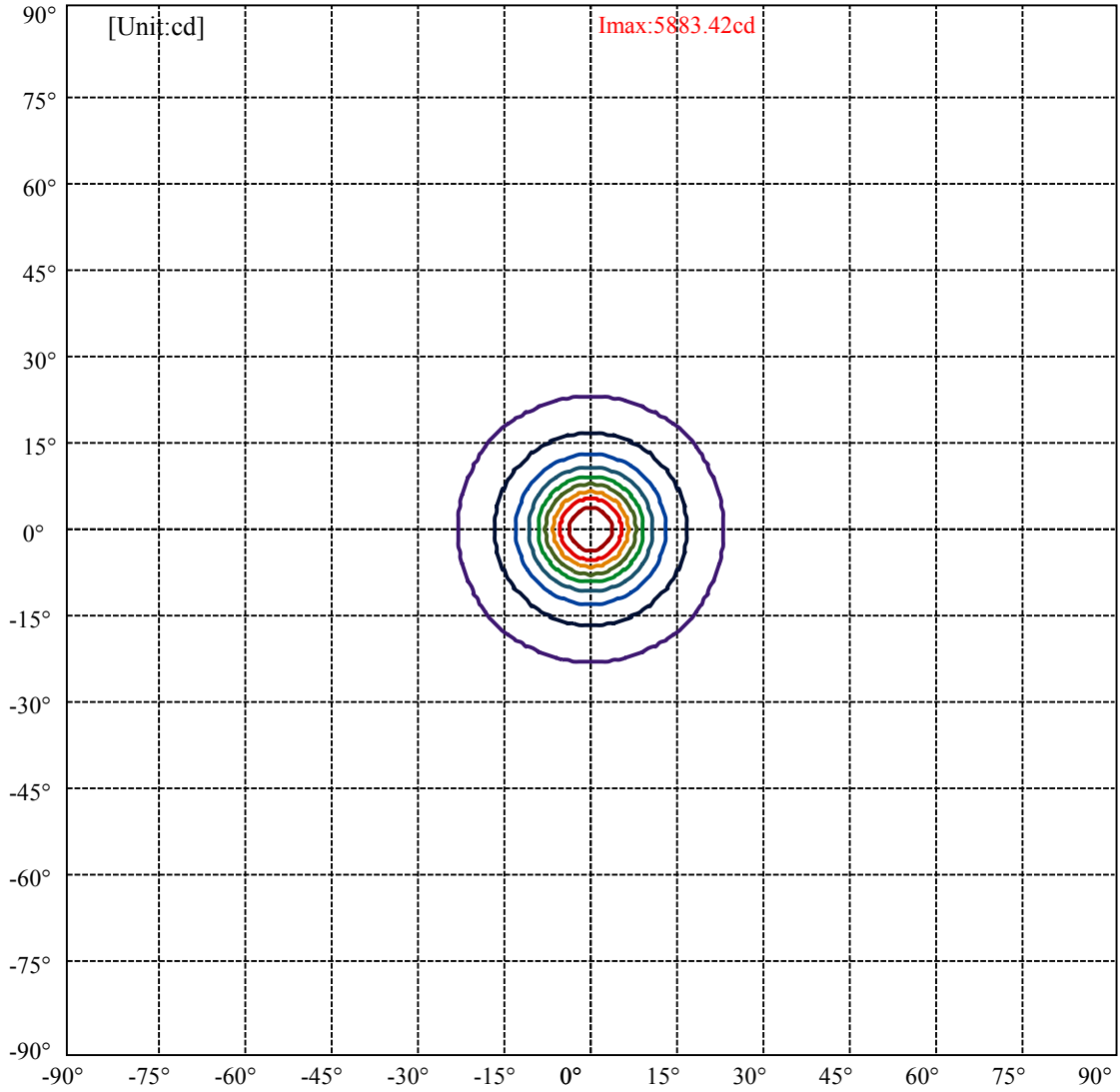
C0/C180: —————

C90/C270: —————

Field angle(10%Imax):C0/180Left:22.7 Right:22.7  
:C90/270Left:22.7 Right:22.7

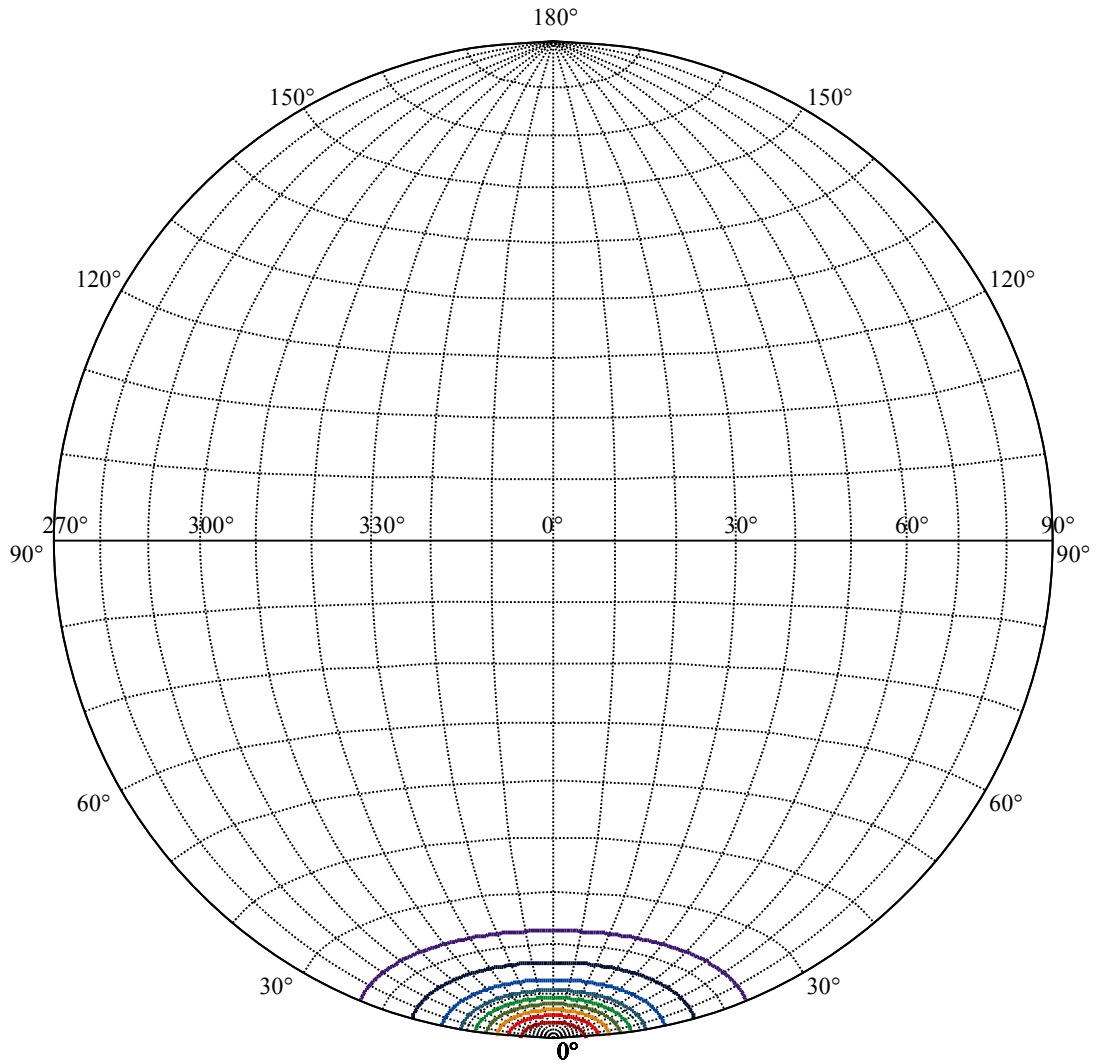
Beam Angle(50%Imax):C0/180Left:9.0 Right:9.0  
:C90/270Left:9.0 Right:9.0





(10%Imax) 588.342	—
(20%Imax) 1176.68	—
(30%Imax) 1765.03	—
(40%Imax) 2353.37	—
(50%Imax) 2941.71	—
(60%Imax) 3530.05	—
(70%Imax) 4118.39	—
(80%Imax) 4706.74	—
(90%Imax) 5295.08	—





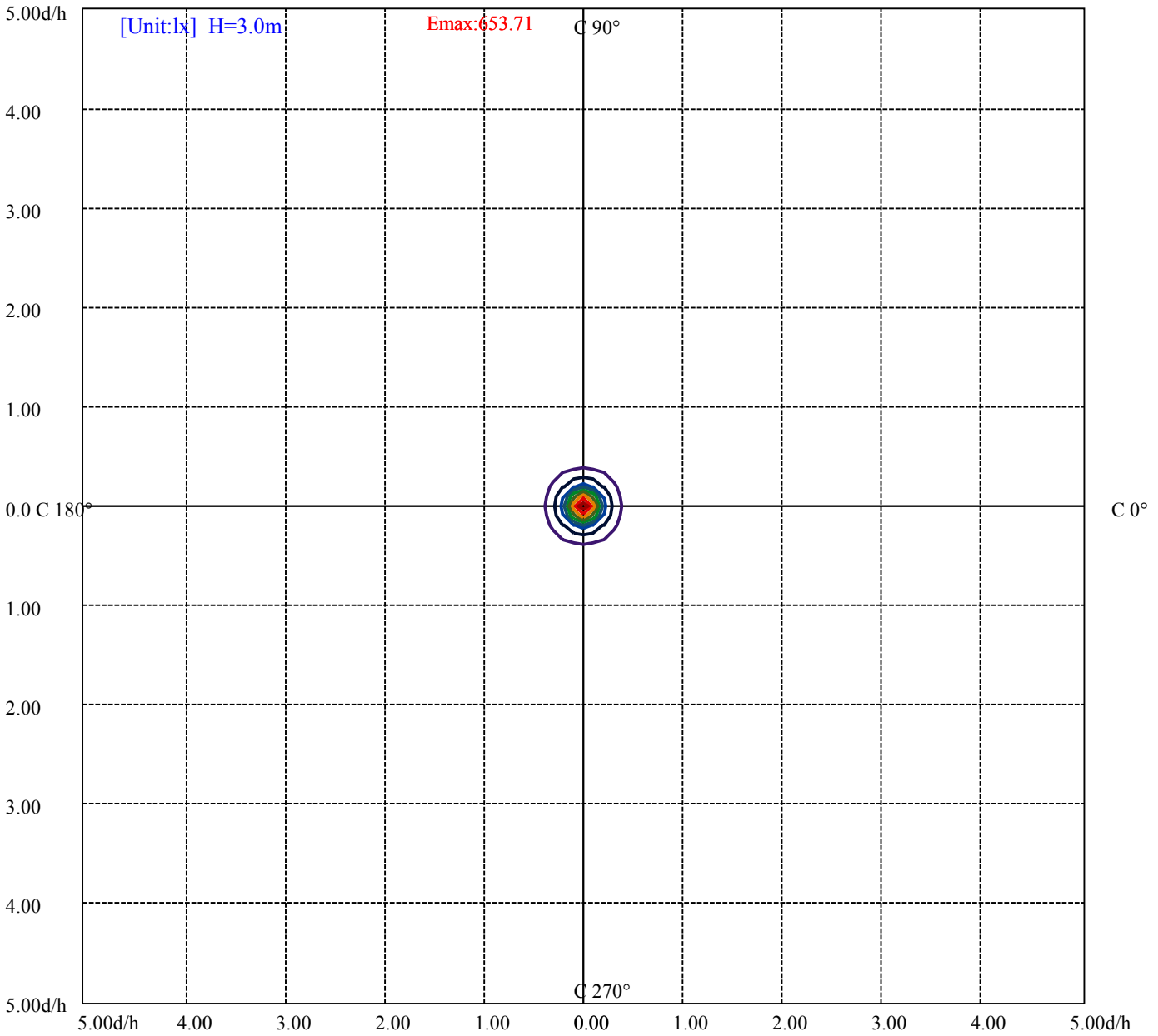
House

[Unit:cd]

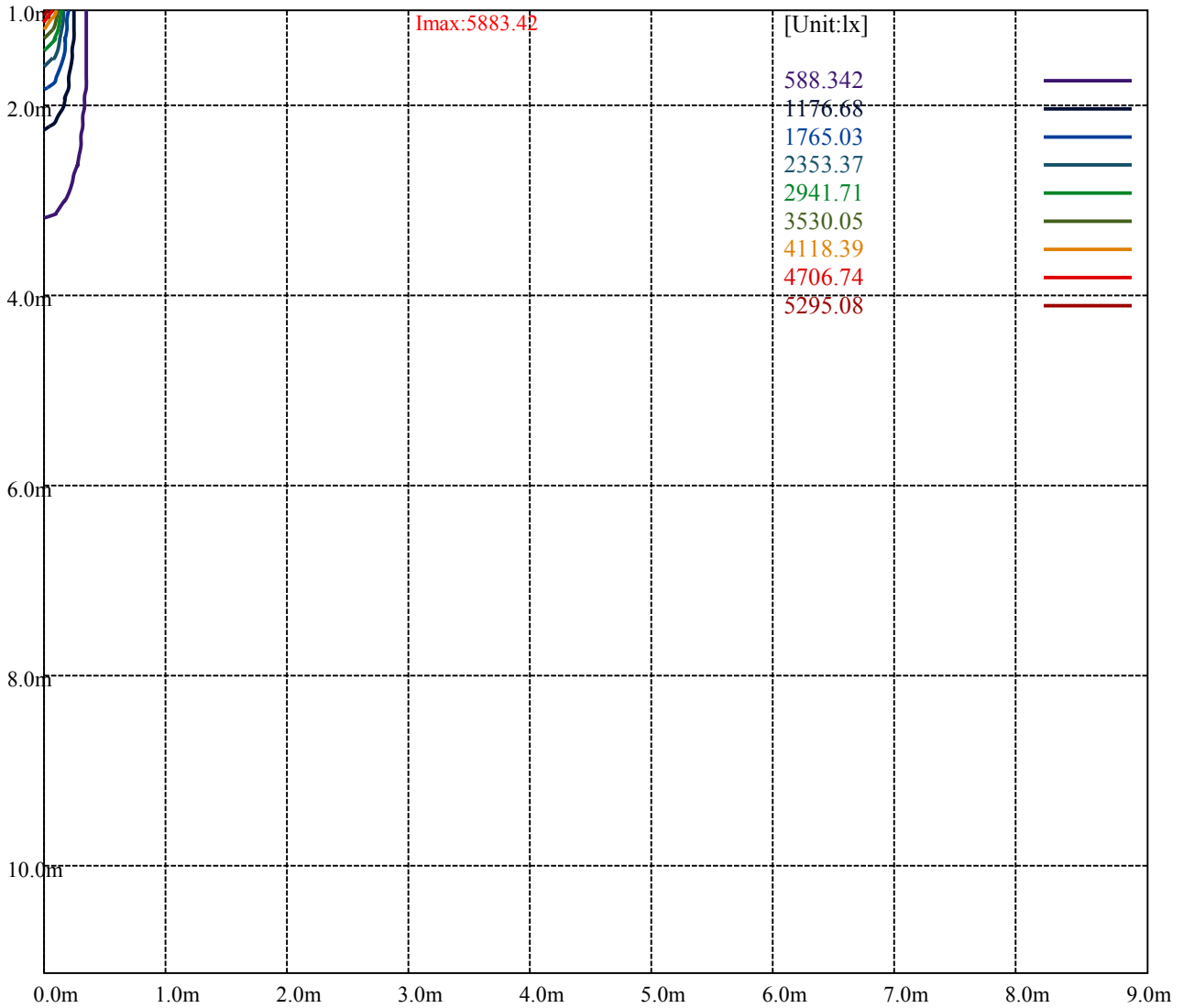
Road

**Imax:5883.42**

(10%Imax) 588.342	—
(20%Imax) 1176.68	—
(30%Imax) 1765.03	—
(40%Imax) 2353.37	—
(50%Imax) 2941.71	—
(60%Imax) 3530.05	—
(70%Imax) 4118.39	—
(80%Imax) 4706.74	—
(90%Imax) 5295.08	—



- (10%Emax) 65.37122
- (20%Emax) 130.7422
- (30%Emax) 196.1133
- (40%Emax) 261.4856
- (50%Emax) 326.8567
- (60%Emax) 392.2278
- (70%Emax) 457.5989
- (80%Emax) 522.97
- (90%Emax) 588.3411



Luminance Table

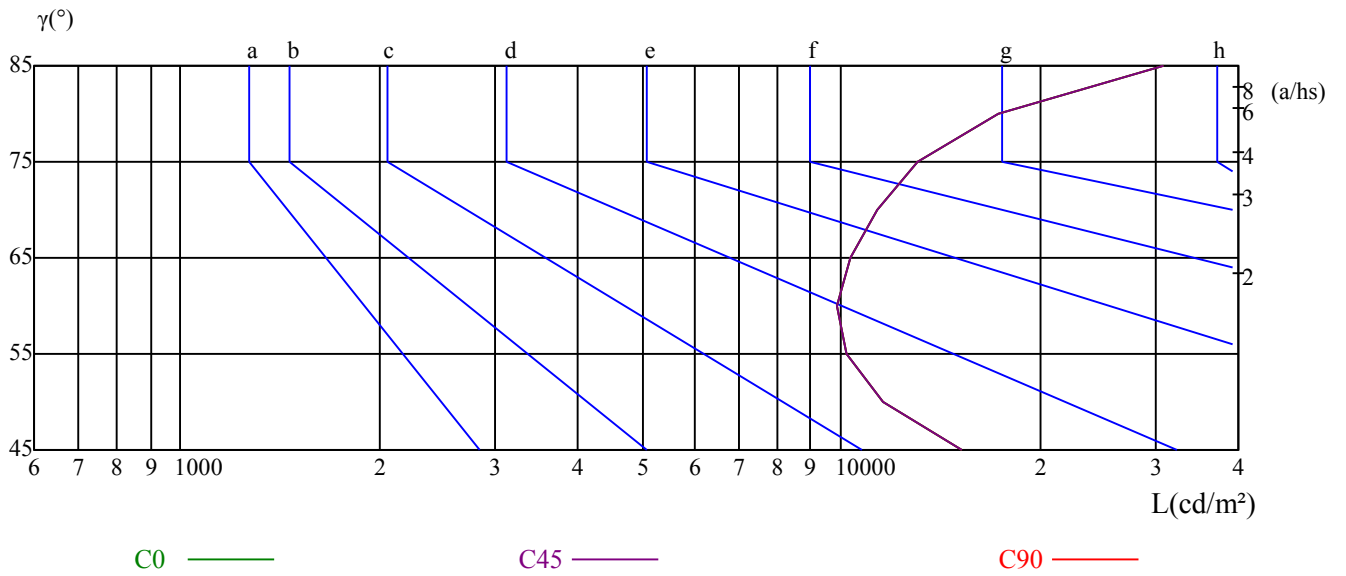
$\gamma$	45	50	55	60	65	70	75	80	85
C0	15225	11576	10198	9832	10304	11327	13064	17261	30868
C45	15225	11576	10198	9832	10304	11327	13064	17261	30868
C90	15225	11576	10198	9832	10304	11327	13064	17261	30868

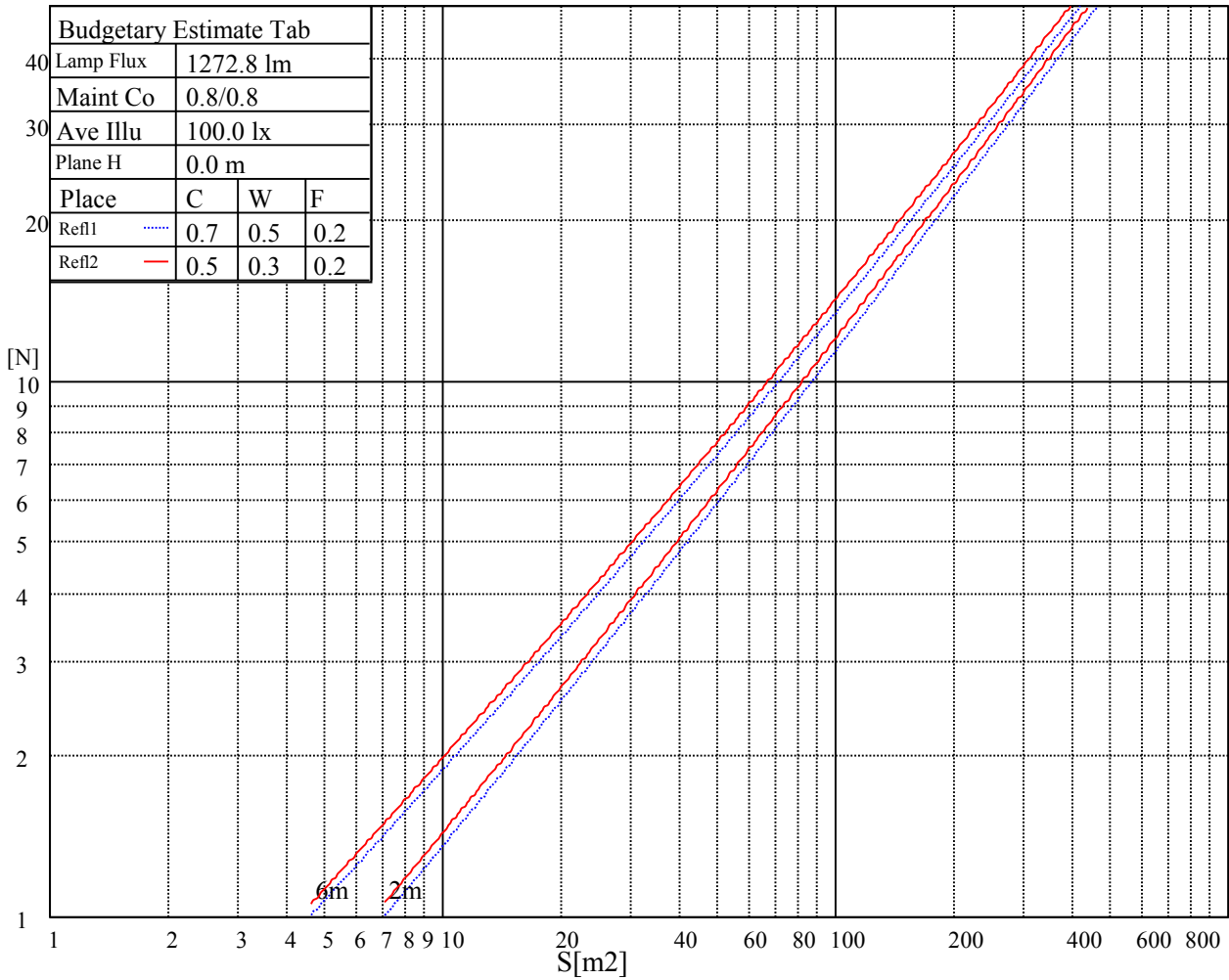
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
10304	10304	10304	13064	13064	13064	30868	30868	30868

Glare Table

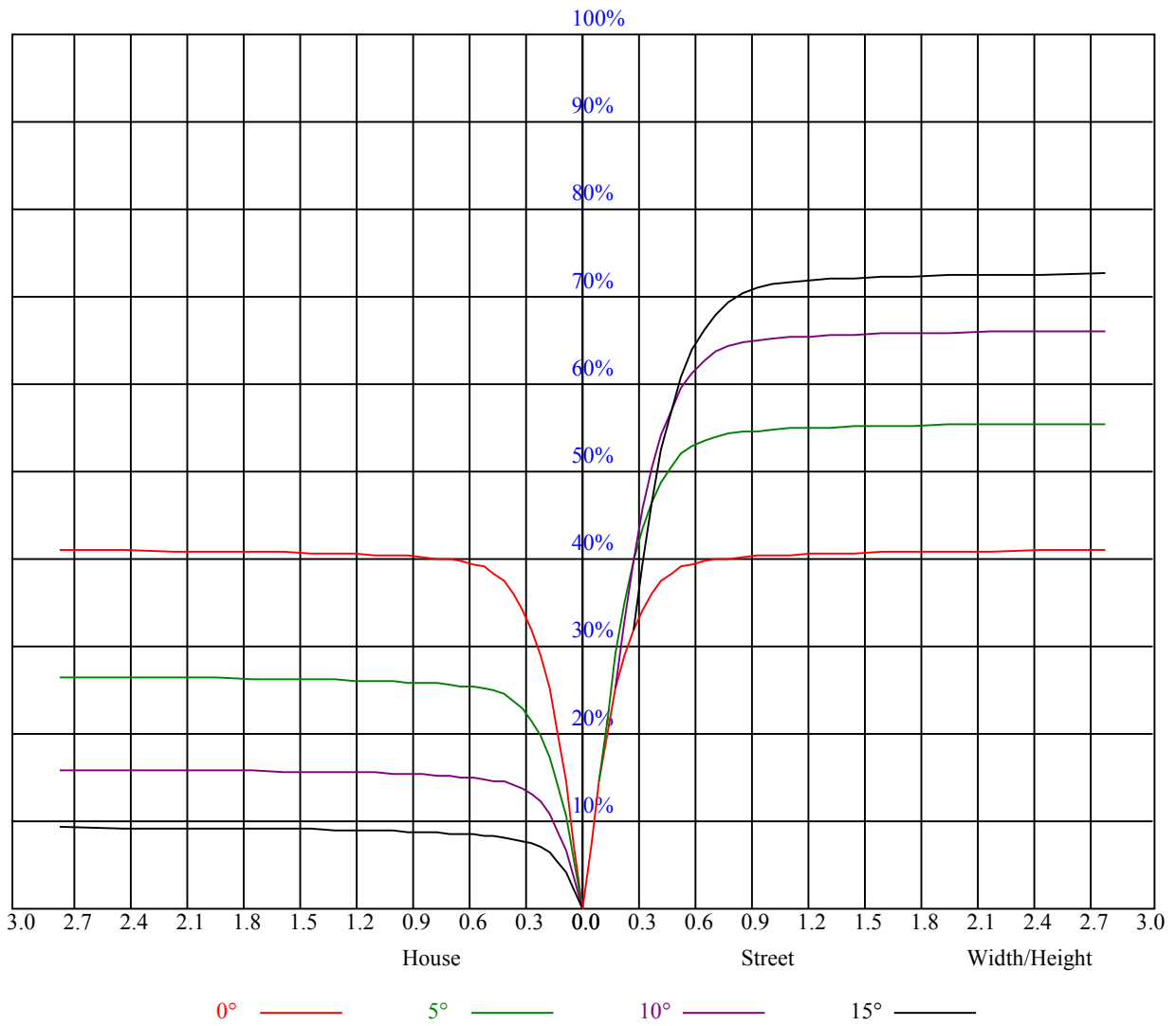
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	0.98	0.98	0.98	0.96	0.96	0.96	0.92	0.92	0.92	0.88	0.88	0.88	0.84	0.84	0.84	0.83
1	0.93	0.91	0.90	0.91	0.90	0.88	0.88	0.87	0.85	0.85	0.84	0.83	0.82	0.81	0.80	0.79
2	0.88	0.85	0.83	0.87	0.84	0.82	0.84	0.82	0.80	0.82	0.80	0.79	0.80	0.78	0.77	0.76
3	0.84	0.81	0.78	0.83	0.80	0.78	0.81	0.78	0.76	0.79	0.77	0.75	0.77	0.76	0.74	0.73
4	0.81	0.77	0.74	0.80	0.76	0.74	0.78	0.75	0.73	0.76	0.74	0.72	0.75	0.73	0.72	0.70
5	0.77	0.74	0.71	0.77	0.73	0.71	0.75	0.72	0.70	0.74	0.72	0.70	0.73	0.71	0.69	0.68
6	0.75	0.71	0.68	0.74	0.71	0.68	0.73	0.70	0.68	0.72	0.69	0.67	0.71	0.69	0.67	0.66
7	0.72	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.65	0.70	0.67	0.65	0.69	0.67	0.65	0.64
8	0.70	0.66	0.64	0.69	0.66	0.64	0.69	0.66	0.63	0.68	0.65	0.63	0.67	0.65	0.63	0.62
9	0.68	0.64	0.62	0.67	0.64	0.62	0.67	0.64	0.62	0.66	0.63	0.61	0.66	0.63	0.61	0.60
10	0.66	0.62	0.60	0.66	0.62	0.60	0.65	0.62	0.60	0.64	0.62	0.60	0.64	0.61	0.60	0.59



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	5858.17	5928.68	5960.95	5892.83	5736.28	5442.89	5031.19	4595.00	4040.49
45.0	5932.27	5832.48	5612.59	5328.17	4911.69	4408.57	3913.81	3376.64	2965.54
90.0	5846.82	5657.40	5376.57	4933.80	4509.55	4021.97	3417.27	2994.22	2623.15
135.0	5896.42	5754.20	5504.44	5165.04	4780.83	4271.73	3717.83	3257.73	2901.60
180.0	5858.17	5709.39	5438.71	5084.37	4701.36	4184.50	3629.39	3168.10	2718.76
225.0	5932.27	5932.27	5897.01	5748.23	5526.55	5231.37	4795.77	4294.44	3812.83
270.0	5846.82	5932.27	5953.18	5919.72	5787.07	5555.82	5195.51	4737.21	4272.93
315.0	5896.42	5956.17	5962.14	5897.01	5690.87	5416.60	5045.53	4543.01	3984.92
360.0	5858.17	5928.68	5960.95	5892.83	5736.28	5442.89	5031.19	4595.00	4040.49
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3490.17	3058.75	2637.49	2317.22	2014.27	1763.31	1575.09	1411.36	1238.08
45.0	2567.58	2226.99	1971.25	1749.56	1515.93	1359.38	1226.73	1087.50	988.91
90.0	2274.20	1987.38	1776.45	1547.60	1392.84	1181.73	1127.00	1025.78	919.42
135.0	2422.98	2142.14	1933.60	1686.23	1498.60	1371.93	1215.37	1091.69	1001.46
180.0	2383.54	2077.61	1832.62	1650.97	1472.91	1316.95	1178.27	1082.42	956.23
225.0	3290.59	2840.06	2493.49	2166.64	1924.64	1697.58	1500.99	1352.21	1189.08
270.0	3722.01	3210.52	2811.37	2466.60	2108.68	1872.06	1670.09	1476.49	1312.17
315.0	3494.95	3002.58	2578.34	2261.65	1995.15	1718.49	1536.84	1379.69	1182.15
360.0	3490.17	3058.75	2637.49	2317.22	2014.27	1763.31	1575.09	1411.36	1238.08
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1122.16	1021.18	903.46	816.82	733.77	651.31	579.01	512.68	436.79
45.0	899.88	804.27	709.86	638.76	562.27	487.58	421.26	346.57	302.95
90.0	817.96	734.36	661.40	579.66	511.31	445.64	365.81	304.56	247.32
135.0	883.15	796.51	716.44	631.59	562.27	498.34	412.30	345.37	309.52
180.0	864.56	782.58	692.78	627.23	559.88	474.14	405.78	340.89	264.94
225.0	1082.42	986.04	894.86	789.57	713.45	649.39	577.93	500.31	432.13
270.0	1188.49	1067.19	958.44	870.00	774.40	699.71	628.60	554.51	487.58
315.0	1101.37	1004.39	904.18	807.86	727.97	645.57	579.90	501.27	427.89
360.0	1122.16	1021.18	903.46	816.82	733.77	651.31	579.01	512.68	436.79
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	371.66	302.95	266.74	187.33	141.79	112.57	80.85	64.11	55.21
45.0	222.76	178.78	125.96	94.47	71.76	56.41	51.21	47.92	44.40
90.0	195.63	142.45	109.23	81.20	61.13	52.82	49.36	46.07	43.26
135.0	212.48	165.46	126.92	92.74	69.25	58.26	52.58	48.82	45.89
180.0	216.96	164.08	117.00	91.84	70.33	56.05	52.28	48.94	44.87
225.0	358.16	293.75	230.17	176.57	135.46	98.05	71.76	58.86	52.94
270.0	419.47	336.41	304.14	214.33	157.39	121.12	92.14	70.93	57.84
315.0	363.48	300.08	230.94	181.41	140.84	100.33	75.35	61.31	53.48
360.0	371.66	302.95	266.74	187.33	141.79	112.57	80.85	64.11	55.21
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	49.95	46.97	44.16	40.57	37.76	34.78	31.13	28.20	25.51
45.0	41.83	39.08	35.73	32.86	30.06	26.77	23.66	21.63	19.30
90.0	40.27	37.17	34.24	30.89	27.49	24.74	22.41	19.84	18.16
135.0	42.66	39.62	36.33	32.92	30.00	26.89	23.42	21.21	19.30
180.0	42.36	39.44	36.09	32.39	29.28	25.99	23.42	20.91	18.70
225.0	48.46	45.53	42.66	39.14	36.27	33.04	29.64	26.29	23.78
270.0	53.36	49.83	46.31	42.72	39.91	36.45	33.10	29.94	26.65
315.0	49.42	46.61	43.68	40.45	37.52	34.18	31.25	27.90	24.74
360.0	49.95	46.97	44.16	40.57	37.76	34.78	31.13	28.20	25.51



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	22.65	20.38	18.70	17.15	16.01	15.00	14.10	13.38	12.73
45.0	17.51	16.37	15.24	14.46	13.62	12.85	12.19	11.65	11.05
90.0	16.91	15.60	14.70	13.92	13.15	12.43	11.89	11.29	10.88
135.0	17.45	16.13	15.18	14.22	13.38	12.73	12.07	11.53	10.99
180.0	17.27	15.95	14.88	14.04	13.32	12.61	11.95	11.41	10.93
225.0	21.03	19.36	17.63	16.25	15.24	14.28	13.38	12.73	12.19
270.0	24.14	21.69	19.54	18.05	16.79	15.48	14.58	13.80	12.97
315.0	22.29	20.32	18.22	16.91	15.83	14.70	13.92	13.27	12.55
360.0	22.65	20.38	18.70	17.15	16.01	15.00	14.10	13.38	12.73
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	12.13	11.59	11.11	10.64	10.28	9.92	9.56	9.32	9.08
45.0	10.64	10.22	9.74	9.50	9.20	8.96	8.72	8.48	8.31
90.0	10.40	9.98	9.74	9.38	9.08	8.84	8.60	8.37	8.19
135.0	10.52	10.16	9.80	9.50	9.26	9.02	8.78	8.60	8.43
180.0	10.46	10.10	9.80	9.38	9.14	8.90	8.66	8.43	8.25
225.0	11.47	11.11	10.64	10.22	9.86	9.50	9.20	8.96	8.72
270.0	12.43	11.89	11.35	10.82	10.46	10.04	9.68	9.44	9.14
315.0	11.95	11.47	10.93	10.58	10.16	9.74	9.50	9.20	9.02
360.0	12.13	11.59	11.11	10.64	10.28	9.92	9.56	9.32	9.08
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	8.78	8.60	8.43	8.25	8.07	7.89	7.71	7.53	7.35
45.0	8.13	7.95	7.77	7.59	7.41	7.23	7.05	6.87	6.63
90.0	8.07	7.83	7.65	7.47	7.29	7.17	6.99	6.75	6.57
135.0	8.19	8.01	7.89	7.71	7.53	7.41	7.17	6.99	6.81
180.0	8.07	7.89	7.77	7.59	7.41	7.23	7.05	6.87	6.69
225.0	8.48	8.31	8.13	7.89	7.77	7.59	7.41	7.23	7.05
270.0	8.90	8.66	8.43	8.25	8.13	7.89	7.65	7.53	7.29
315.0	8.84	8.60	8.37	8.19	8.07	7.89	7.71	7.53	7.29
360.0	8.78	8.60	8.43	8.25	8.07	7.89	7.71	7.53	7.35
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	7.17	6.93	6.75	6.51	6.33	6.21	6.04	5.86	5.74
45.0	6.45	6.27	6.15	5.98	5.86	5.68	5.50	5.38	5.26
90.0	6.39	6.21	6.09	5.92	5.74	5.62	5.50	5.32	5.20
135.0	6.63	6.45	6.33	6.21	6.15	6.09	5.92	5.80	5.68
180.0	6.45	6.33	6.21	5.98	5.86	5.74	5.56	5.44	5.38
225.0	6.81	6.63	6.51	6.33	6.15	6.04	5.92	5.80	5.56
270.0	7.11	6.99	6.69	6.51	6.39	6.21	6.09	5.98	5.74
315.0	7.11	6.93	6.69	6.57	6.39	6.21	6.09	5.98	5.80
360.0	7.17	6.93	6.75	6.51	6.33	6.21	6.04	5.86	5.74
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	5.62	5.44	5.32	5.20	5.14	4.96	4.90	4.78	4.66
45.0	5.14	5.08	4.96	4.84	4.72	4.66	4.54	4.48	4.36
90.0	5.08	5.02	4.90	4.84	4.72	4.60	4.54	4.42	4.42
135.0	5.56	5.44	5.32	5.56	4.84	4.72	4.60	4.48	4.48
180.0	5.26	5.14	5.08	4.96	4.84	4.66	4.60	4.48	4.48
225.0	5.50	5.38	5.26	5.20	5.08	4.96	4.84	4.72	4.54
270.0	5.68	5.50	5.38	5.32	5.14	5.08	4.96	4.78	4.72
315.0	5.68	5.56	5.44	5.38	5.32	5.02	4.90	4.78	4.66
360.0	5.62	5.44	5.32	5.20	5.14	4.96	4.90	4.78	4.66

Intensity data(cd)

C/γ(°)	90.0
0.0	4.60
45.0	4.42
90.0	4.42
135.0	4.48
180.0	4.48
225.0	4.42
270.0	4.54
315.0	4.60
360.0	4.60