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## Nata

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LumCAT: 1-1061-N	
Luminaire: 92.361.000	
Report No: 220518-B010	Voltage(V): 36.4900
Test No: 220518-C010	Current(A): 0.3610
LampCAT: CREE CXA1520	Power (W): 13.1720
Lamp flux(lm): 1029.7	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): 885.48  
Efficiency(%): 85.99%  
Lumens(lm)/Power(W): 67.22  
Central intensity(cd): 4233.941  
Maximum intensity(cd): 4233.941  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=21.3  
                                  [C90/270]Total=21.3  
Field angle(10%Imax): [C0/180]Total=48.4  
                                  [C90/270]Total=48.4  
Maximum s/h(1/2): C0\_180=0.36 C90\_270=0.36  
Maximum s/h(1/4): C0\_180=0.38 C90\_270=0.38  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 85.99%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 98.184%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4233.941	0.000	0	.000%	.000%
1.0	4210.339	4.040	4.04	.392%	.456%
2.0	4129.896	11.971	16.011	1.163%	1.808%
3.0	3998.963	19.442	35.453	1.888%	4.004%
4.0	3840.543	26.241	61.694	2.548%	6.967%
5.0	3618.710	32.089	93.783	3.116%	10.591%
6.0	3377.159	36.765	130.548	3.570%	14.743%
7.0	3120.446	40.331	170.879	3.917%	19.298%
8.0	2842.445	42.675	213.554	4.144%	24.117%
9.0	2560.561	43.788	257.343	4.252%	29.063%
10.0	2286.370	43.863	301.206	4.260%	34.016%
11.0	2022.710	43.057	344.262	4.181%	38.879%
12.0	1786.537	41.641	385.903	4.044%	43.581%
13.0	1551.036	39.609	425.511	3.847%	48.054%
14.0	1344.746	37.066	462.577	3.600%	52.240%
15.0	1175.496	34.599	497.176	3.360%	56.148%
16.0	1048.507	32.588	529.764	3.165%	59.828%
17.0	925.796	30.745	560.509	2.986%	63.300%
18.0	828.272	28.921	589.43	2.809%	66.566%
19.0	750.877	27.474	616.904	2.668%	69.669%
20.0	671.137	26.027	642.931	2.528%	72.608%
21.0	598.657	24.383	667.313	2.368%	75.362%
22.0	540.077	22.883	690.197	2.222%	77.946%
23.0	482.034	21.447	711.643	2.083%	80.368%
24.0	432.805	20.002	731.645	1.942%	82.627%
25.0	385.361	18.603	750.248	1.807%	84.728%
26.0	338.022	17.076	767.324	1.658%	86.656%
27.0	292.177	15.418	782.742	1.497%	88.397%
28.0	239.833	13.469	796.211	1.308%	89.919%
29.0	192.300	11.306	807.517	1.098%	91.195%
30.0	150.092	9.245	816.762	.898%	92.239%
31.0	112.074	7.296	824.057	.709%	93.063%
32.0	79.061	5.476	829.533	.532%	93.682%
33.0	58.737	4.060	833.593	.394%	94.140%
34.0	47.190	3.206	836.798	.311%	94.502%
35.0	40.893	2.736	839.534	.266%	94.811%
36.0	36.330	2.459	841.993	.239%	95.089%
37.0	32.804	2.255	844.247	.219%	95.343%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	29.316	2.074	846.321	.201%	95.578%
39.0	26.329	1.899	848.22	.184%	95.792%
40.0	23.879	1.751	849.971	.170%	95.990%
41.0	21.690	1.623	851.594	.158%	96.173%
42.0	19.569	1.499	853.093	.146%	96.342%
43.0	17.866	1.387	854.48	.135%	96.499%
44.0	16.395	1.293	855.773	.126%	96.645%
45.0	14.968	1.205	856.978	.117%	96.781%
46.0	13.855	1.127	858.105	.109%	96.908%
47.0	12.787	1.060	859.165	.103%	97.028%
48.0	11.846	0.996	860.161	.097%	97.141%
49.0	11.054	0.940	861.101	.091%	97.247%
50.0	10.330	0.892	861.993	.087%	97.347%
51.0	9.732	0.849	862.842	.082%	97.443%
52.0	9.217	0.813	863.655	.079%	97.535%
53.0	8.754	0.782	864.436	.076%	97.623%
54.0	8.343	0.754	865.19	.073%	97.709%
55.0	8.067	0.732	865.922	.071%	97.791%
56.0	7.798	0.717	866.639	.070%	97.872%
57.0	7.574	0.703	867.342	.068%	97.952%
58.0	7.394	0.692	868.034	.067%	98.030%
59.0	7.245	0.684	868.719	.066%	98.107%
60.0	7.096	0.678	869.396	.066%	98.184%
61.0	6.946	0.670	870.066	.065%	98.259%
62.0	6.797	0.662	870.729	.064%	98.334%
63.0	6.655	0.654	871.383	.064%	98.408%
64.0	6.483	0.645	872.027	.063%	98.481%
65.0	6.334	0.634	872.662	.062%	98.552%
66.0	6.169	0.624	873.286	.061%	98.623%
67.0	6.005	0.612	873.898	.059%	98.692%
68.0	5.848	0.600	874.498	.058%	98.760%
69.0	5.684	0.588	875.087	.057%	98.826%
70.0	5.564	0.578	875.664	.056%	98.891%
71.0	5.445	0.569	876.233	.055%	98.956%
72.0	5.303	0.559	876.792	.054%	99.019%
73.0	5.184	0.548	877.341	.053%	99.081%
74.0	5.064	0.539	877.879	.052%	99.142%
75.0	4.989	0.531	878.41	.052%	99.202%

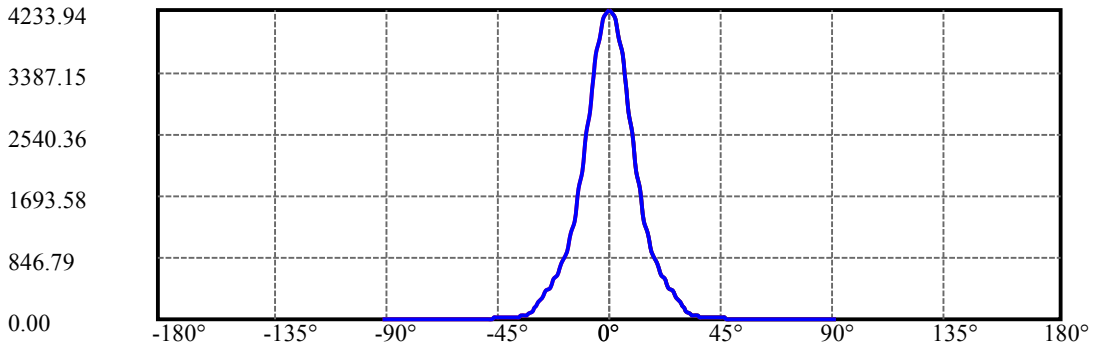
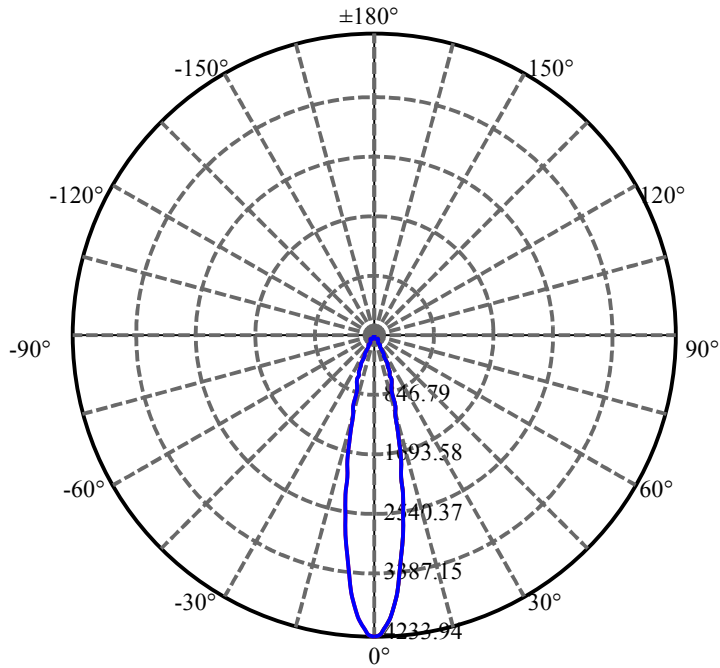
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	4.862	0.523	878.933	.051%	99.261%
77.0	4.780	0.514	879.448	.050%	99.319%
78.0	4.676	0.506	879.954	.049%	99.376%
79.0	4.601	0.498	880.452	.048%	99.432%
80.0	4.519	0.492	880.944	.048%	99.488%
81.0	4.444	0.485	881.428	.047%	99.542%
82.0	4.399	0.480	881.908	.047%	99.597%
83.0	4.317	0.474	882.382	.046%	99.650%
84.0	4.257	0.467	882.849	.045%	99.703%
85.0	4.190	0.461	883.31	.045%	99.755%
86.0	4.063	0.451	883.761	.044%	99.806%
87.0	3.996	0.441	884.202	.043%	99.856%
88.0	3.899	0.432	884.635	.042%	99.905%
89.0	3.854	0.425	885.06	.041%	99.953%
90.0	3.817	0.421	885.48	.041%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	816.76	79.32%	92.24%
0-40	849.97	82.54%	95.99%
0-60	869.40	84.43%	98.18%
0-90	885.06	85.95%	99.95%
0-120	885.06	85.95%	99.95%
0-180	885.48	85.99%	100.00%
60-90	16.34	1.59%	1.85%
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%
0-22.85	708.38	68.79%	80.00%

ZONAL LUMEN SUMMARY

0-10	301.21
10-20	341.73
20-30	173.83
30-40	33.21
40-50	12.02
50-60	7.40
60-70	6.27
70-80	5.28
80-90	4.12
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: —————

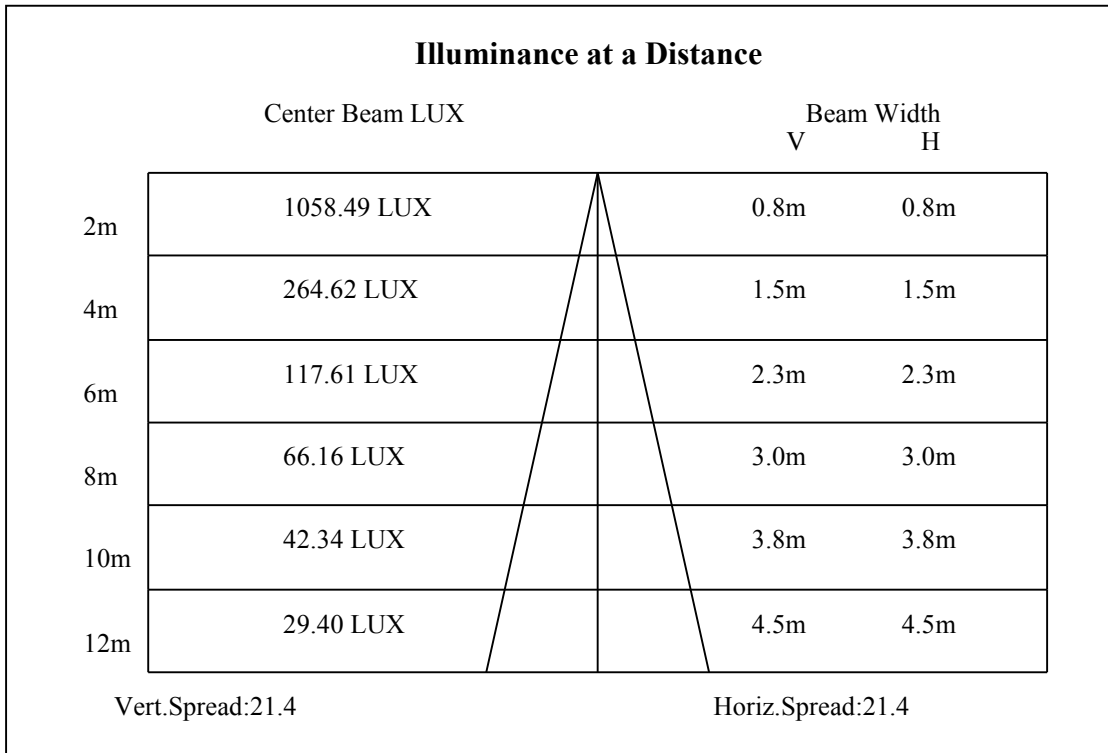
C90/C270: —————

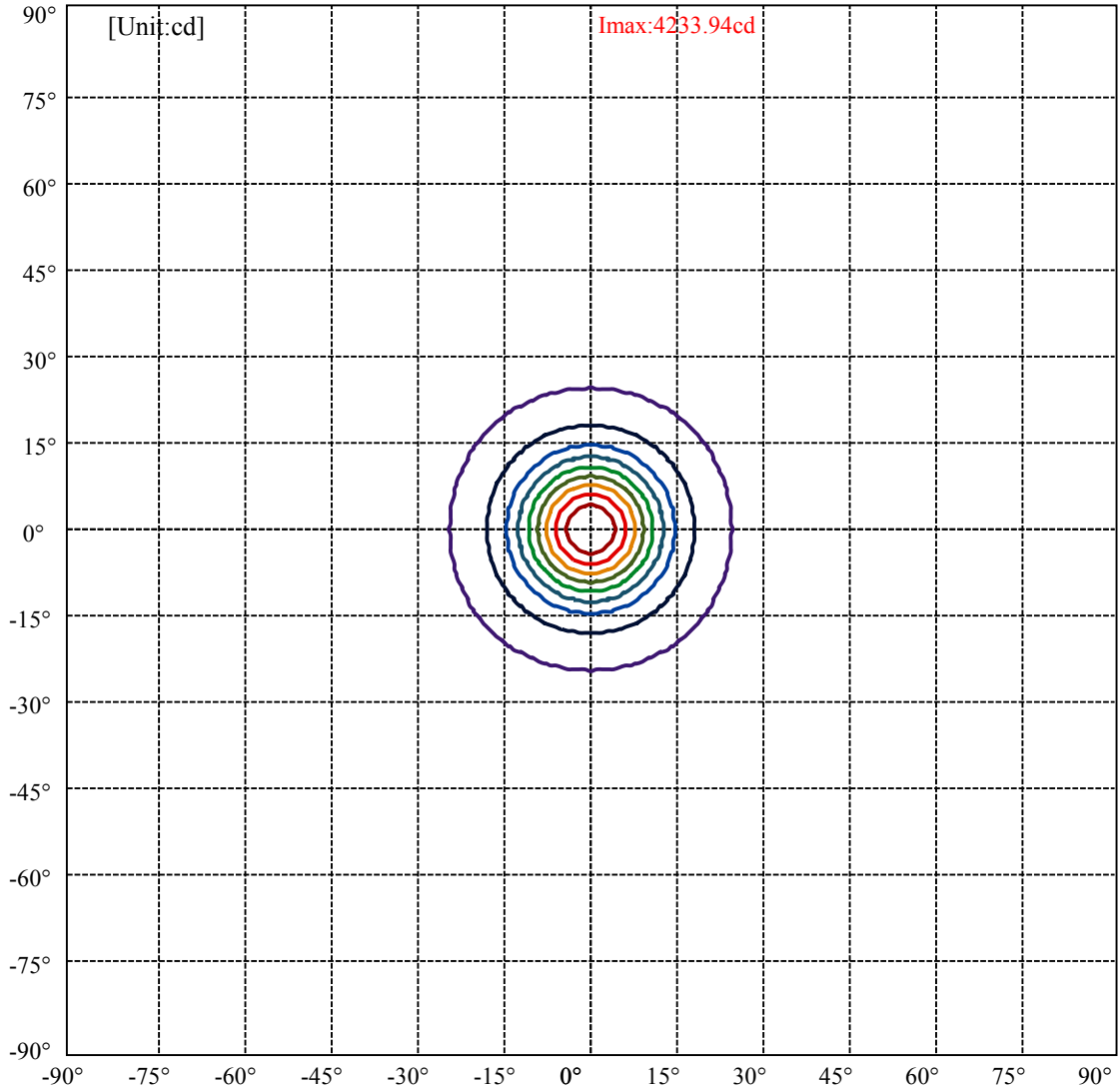
Field angle(10%Imax):C0/180Left:24.2 Right:24.2

:C90/270Left:24.2 Right:24.2

Beam Angle(50%Imax):C0/180Left:10.6 Right:10.6

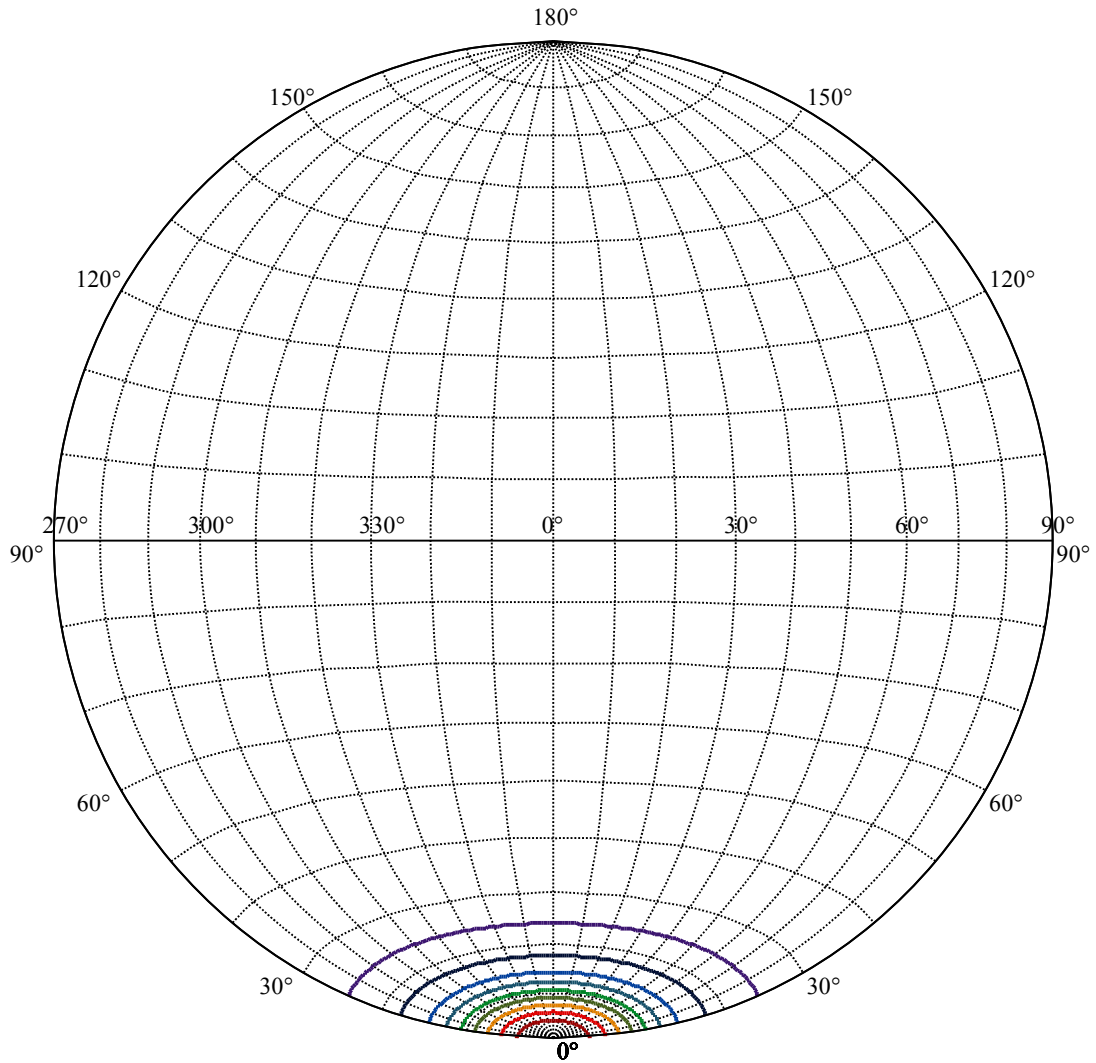
:C90/270Left:10.6 Right:10.6





(10%Imax) 423.394	—
(20%Imax) 846.788	—
(30%Imax) 1270.18	—
(40%Imax) 1693.58	—
(50%Imax) 2116.97	—
(60%Imax) 2540.36	—
(70%Imax) 2963.76	—
(80%Imax) 3387.15	—
(90%Imax) 3810.55	—





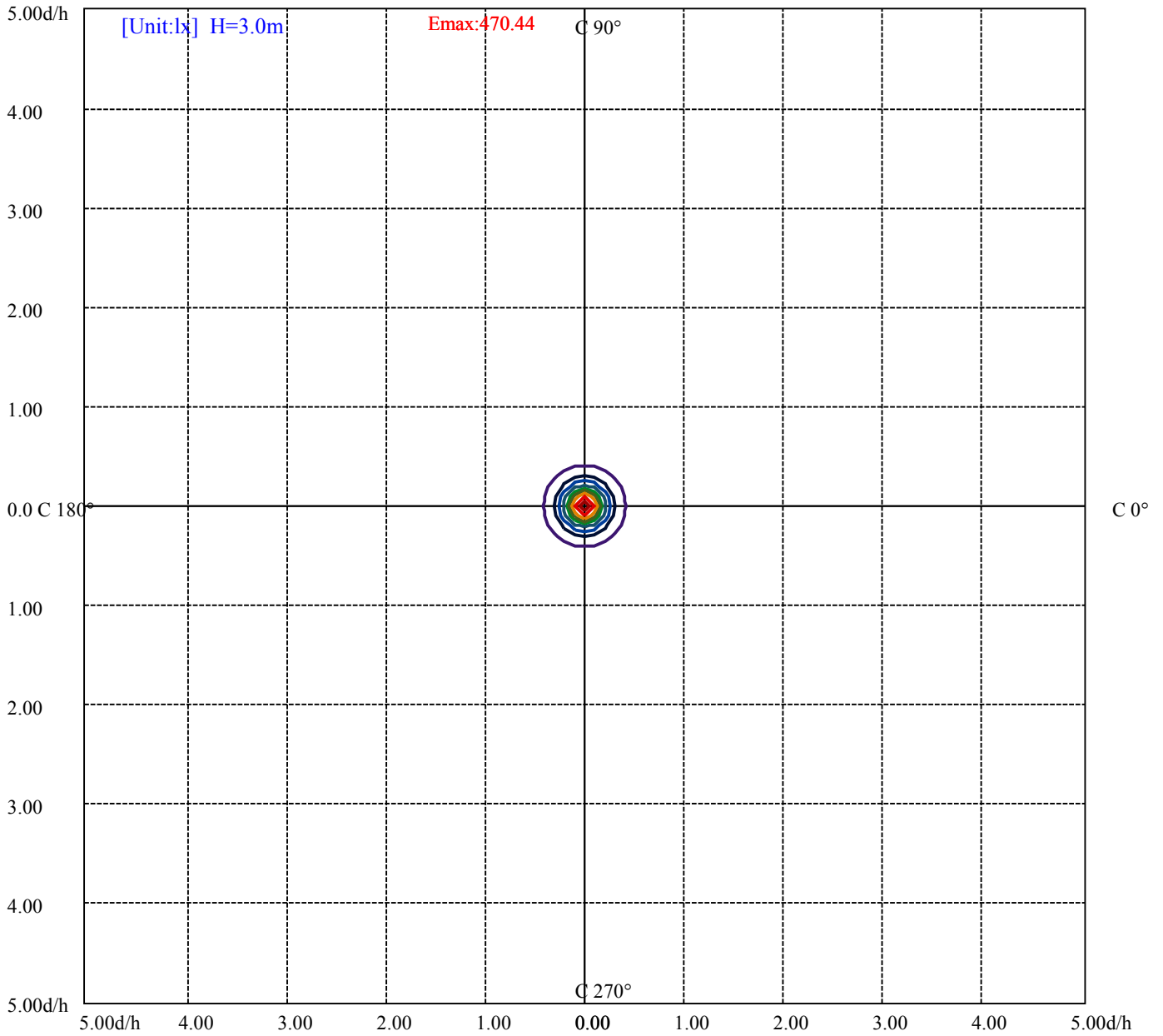
House

[Unit:cd]

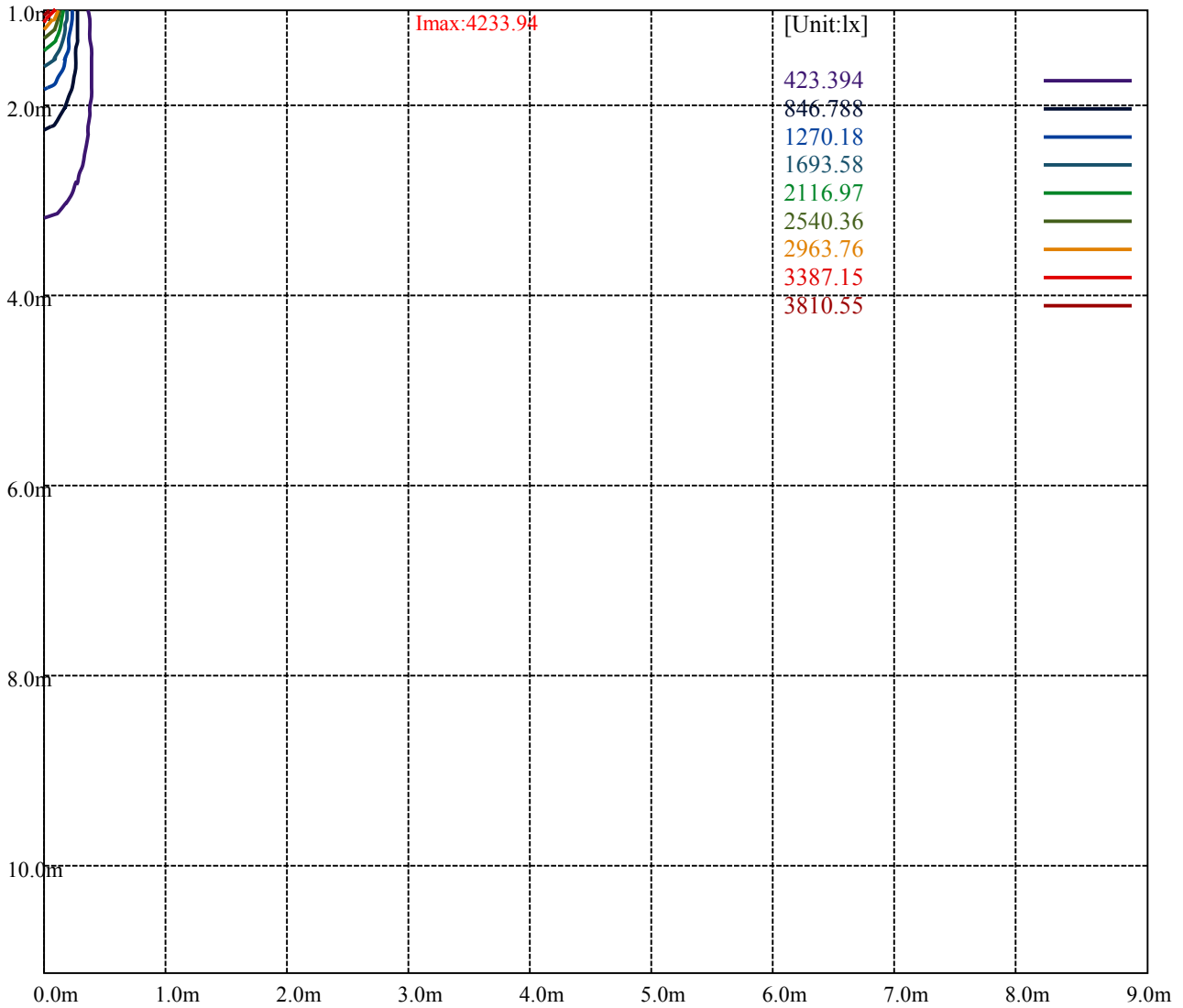
Road

**Imax:4233.94**

(10%Imax) 423.394	—
(20%Imax) 846.788	—
(30%Imax) 1270.18	—
(40%Imax) 1693.58	—
(50%Imax) 2116.97	—
(60%Imax) 2540.36	—
(70%Imax) 2963.76	—
(80%Imax) 3387.15	—
(90%Imax) 3810.55	—



- (10%Emax) 47.04378
- (20%Emax) 94.08744
- (30%Emax) 141.1311
- (40%Emax) 188.1744
- (50%Emax) 235.2189
- (60%Emax) 282.2622
- (70%Emax) 329.3067
- (80%Emax) 376.35
- (90%Emax) 423.3933



Luminance Table

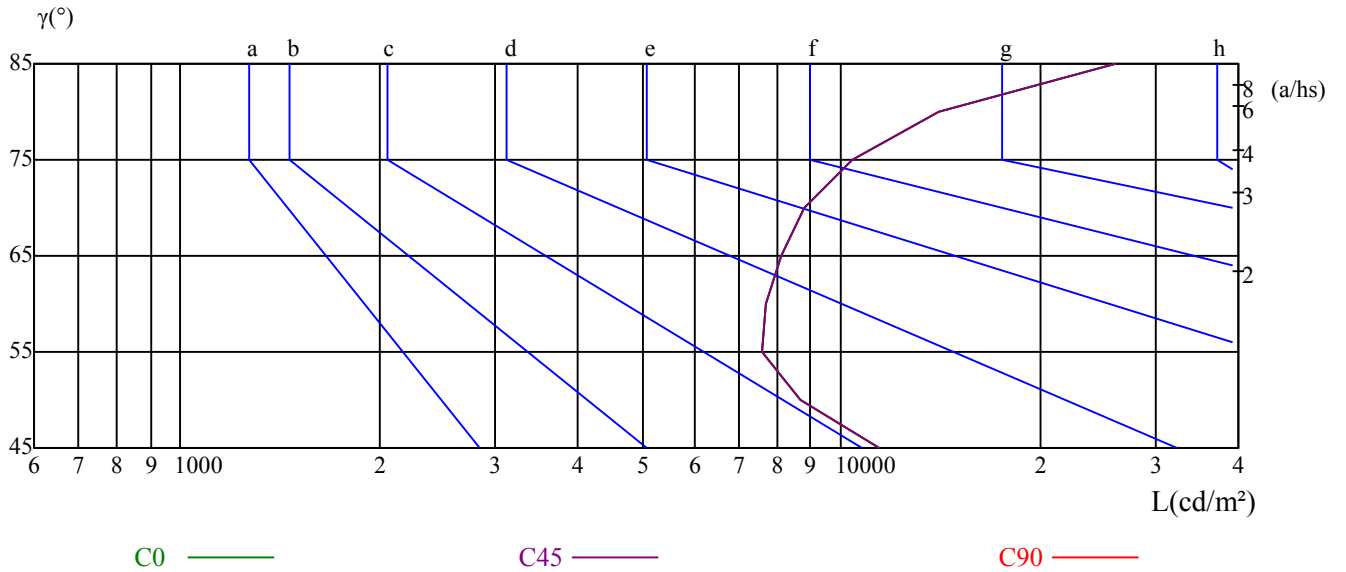
$\gamma$	45	50	55	60	65	70	75	80	85
C0	11448	8691	7606	7675	8105	8799	10426	14074	26002
C45	11448	8691	7606	7675	8105	8799	10426	14074	26002
C90	11448	8691	7606	7675	8105	8799	10426	14074	26002

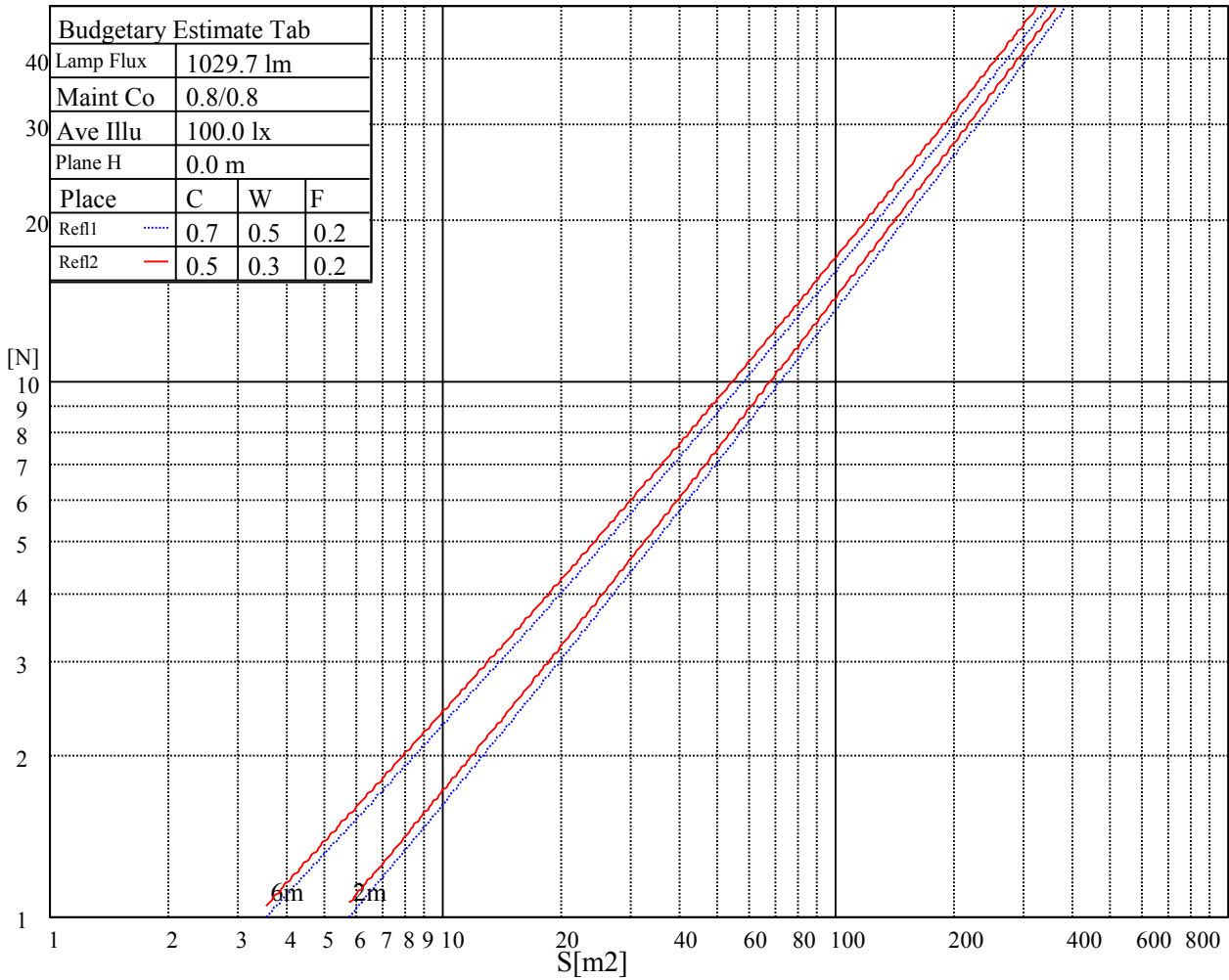
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
8105	8105	8105	10426	10426	10426	26002	26002	26002

Glare Table

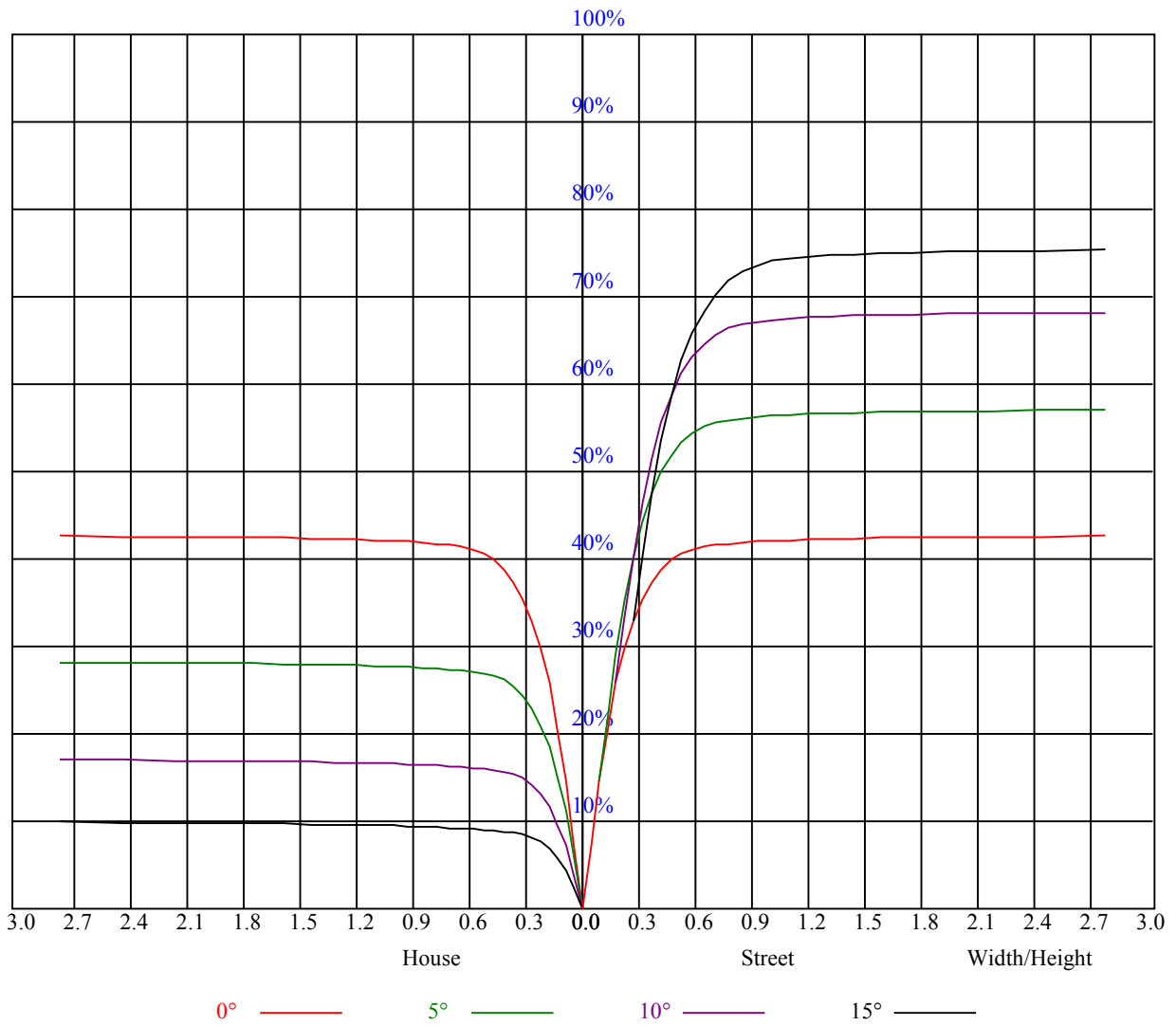
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	1.02	1.02	1.02	1.00	1.00	1.00	0.96	0.96	0.96	0.91	0.91	0.91	0.88	0.88	0.88	0.86
1	0.96	0.95	0.93	0.95	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.86	0.85	0.84	0.84	0.82
2	0.91	0.89	0.86	0.90	0.88	0.85	0.87	0.85	0.84	0.85	0.83	0.82	0.83	0.81	0.80	0.79
3	0.87	0.84	0.81	0.86	0.83	0.81	0.84	0.81	0.79	0.82	0.80	0.78	0.80	0.78	0.77	0.76
4	0.84	0.80	0.77	0.83	0.79	0.77	0.81	0.78	0.76	0.79	0.77	0.75	0.78	0.76	0.74	0.73
5	0.80	0.76	0.74	0.79	0.76	0.73	0.78	0.75	0.73	0.77	0.74	0.72	0.76	0.73	0.72	0.70
6	0.77	0.73	0.71	0.77	0.73	0.70	0.76	0.72	0.70	0.74	0.72	0.70	0.73	0.71	0.69	0.68
7	0.75	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.68	0.72	0.69	0.67	0.71	0.69	0.67	0.66
8	0.72	0.68	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
9	0.70	0.66	0.64	0.70	0.66	0.64	0.69	0.66	0.63	0.68	0.65	0.63	0.68	0.65	0.63	0.62
10	0.68	0.64	0.62	0.68	0.64	0.62	0.67	0.64	0.62	0.66	0.63	0.61	0.66	0.63	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	4245.44	4208.99	4112.19	3982.53	3787.14	3554.10	3316.88	3034.25	2778.51
45.0	4197.64	4133.11	4011.21	3864.22	3682.57	3414.28	3166.90	2908.77	2617.77
90.0	4246.04	4228.12	4157.61	4032.13	3882.74	3674.21	3422.65	3176.46	2879.49
135.0	4246.64	4287.87	4273.53	4215.57	4116.38	3932.34	3744.12	3527.81	3258.33
180.0	4245.44	4229.31	4170.75	4038.10	3888.72	3701.69	3453.72	3177.66	2916.54
225.0	4197.64	4208.99	4162.98	4057.22	3920.39	3722.61	3513.47	3249.96	2972.11
270.0	4246.04	4225.73	4122.35	3993.29	3845.10	3584.58	3320.47	3099.38	2783.29
315.0	4246.64	4160.59	4028.54	3808.65	3601.31	3365.88	3079.07	2789.27	2533.52
360.0	4245.44	4208.99	4112.19	3982.53	3787.14	3554.10	3316.88	3034.25	2778.51
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	2491.10	2207.87	1969.46	1744.19	1492.03	1316.36	1165.78	1009.23	907.05
45.0	2327.38	2072.83	1808.12	1593.61	1380.29	1199.24	1064.80	938.12	832.96
90.0	2608.81	2313.03	2029.81	1793.78	1551.19	1288.87	1178.39	1040.54	900.72
135.0	2964.34	2691.87	2390.12	2130.19	1852.34	1603.17	1408.38	1217.17	1055.83
180.0	2621.36	2332.75	2085.97	1824.26	1607.95	1394.63	1190.28	1070.35	952.04
225.0	2719.95	2437.92	2157.68	1920.46	1700.57	1454.98	1187.71	1135.96	999.61
270.0	2502.45	2256.27	1989.17	1766.30	1535.65	1334.28	1181.91	1052.25	921.99
315.0	2249.10	1978.42	1751.36	1519.52	1288.27	1166.44	1026.73	924.44	836.18
360.0	2491.10	2207.87	1969.46	1744.19	1492.03	1316.36	1165.78	1009.23	907.05
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	821.60	737.95	662.06	599.32	530.61	475.63	431.42	379.43	330.43
45.0	756.47	687.16	605.30	543.15	483.40	430.82	386.60	338.80	304.74
90.0	809.29	733.23	665.53	587.85	529.59	474.92	421.56	380.39	337.13
135.0	936.93	850.28	740.94	669.83	611.87	532.40	479.22	439.18	389.59
180.0	832.24	752.71	682.80	595.92	544.29	489.02	439.24	394.25	350.45
225.0	890.44	808.82	728.21	653.82	590.90	523.79	476.23	426.70	373.99
270.0	835.35	760.06	673.42	608.28	547.34	490.57	442.17	394.37	337.01
315.0	743.86	676.82	610.85	531.08	482.62	439.12	386.00	329.78	280.84
360.0	821.60	737.95	662.06	599.32	530.61	475.63	431.42	379.43	330.43
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	307.13	229.45	181.41	140.36	99.43	68.78	52.82	44.75	39.80
45.0	238.77	199.81	159.60	116.88	80.67	58.80	47.26	41.83	37.76
90.0	286.93	237.58	195.39	151.47	115.56	81.26	57.30	46.55	40.93
135.0	342.98	303.54	243.07	201.19	156.91	112.75	81.14	56.05	43.80
180.0	299.60	255.14	208.48	163.48	125.96	89.93	62.62	48.52	41.95
225.0	325.53	272.53	223.48	181.95	141.79	97.64	71.11	53.78	46.37
270.0	305.34	232.56	184.94	143.41	102.89	70.87	53.48	45.95	40.51
315.0	231.12	188.04	142.03	102.00	73.38	52.46	44.16	40.09	36.03
360.0	307.13	229.45	181.41	140.36	99.43	68.78	52.82	44.75	39.80
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	35.79	32.68	28.50	25.93	23.90	21.39	19.36	17.99	16.25
45.0	33.70	30.53	27.13	24.68	22.59	20.91	18.52	17.15	15.89
90.0	36.57	32.98	29.88	26.35	24.02	21.87	19.66	17.81	16.43
135.0	38.90	34.96	30.77	27.84	25.28	22.83	20.67	18.88	17.21
180.0	36.57	32.63	29.34	26.47	23.36	21.21	19.18	17.39	16.07
225.0	40.75	36.75	33.10	29.16	26.35	24.02	21.63	19.48	17.93
270.0	36.63	33.16	29.58	26.47	24.14	21.81	19.78	18.16	16.49
315.0	31.73	28.74	26.23	23.72	21.39	19.48	17.75	16.07	14.88
360.0	35.79	32.68	28.50	25.93	23.90	21.39	19.36	17.99	16.25



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	14.88	13.98	12.73	11.83	11.05	10.28	9.74	9.26	8.72
45.0	14.34	13.32	12.55	11.53	10.76	10.22	9.56	9.08	8.66
90.0	15.00	13.80	12.85	11.77	11.05	10.34	9.80	9.20	8.78
135.0	15.77	14.58	13.50	12.55	11.59	10.82	10.28	9.68	9.02
180.0	14.64	13.56	12.49	11.71	10.88	10.16	9.50	9.02	8.60
225.0	16.25	15.00	13.68	12.61	11.71	10.88	10.16	9.56	9.14
270.0	15.24	13.98	12.85	11.95	11.17	10.40	9.80	9.26	8.84
315.0	13.62	12.61	11.65	10.82	10.22	9.56	9.02	8.66	8.25
360.0	14.88	13.98	12.73	11.83	11.05	10.28	9.74	9.26	8.72
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	8.37	8.13	7.77	7.59	7.41	7.23	7.17	6.99	6.81
45.0	8.25	7.95	7.77	7.59	7.41	7.23	7.05	6.93	6.69
90.0	8.31	8.01	7.77	7.53	7.35	7.17	7.05	6.87	6.75
135.0	8.60	8.31	7.95	7.71	7.47	7.29	7.11	6.99	6.81
180.0	8.19	7.89	7.65	7.41	7.23	7.11	6.93	6.75	6.63
225.0	8.66	8.37	8.07	7.77	7.59	7.41	7.29	7.11	6.99
270.0	8.43	8.13	7.89	7.65	7.47	7.35	7.23	7.11	6.93
315.0	7.95	7.77	7.53	7.35	7.23	7.17	6.93	6.81	6.75
360.0	8.37	8.13	7.77	7.59	7.41	7.23	7.17	6.99	6.81
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	6.69	6.45	6.33	6.15	5.98	5.80	5.68	5.56	5.44
45.0	6.51	6.39	6.21	6.09	5.92	5.80	5.68	5.56	5.44
90.0	6.57	6.45	6.27	6.09	5.98	5.80	5.68	5.62	5.50
135.0	6.69	6.57	6.39	6.27	6.04	5.92	5.74	5.68	5.56
180.0	6.51	6.33	6.21	6.04	5.92	5.80	5.56	5.44	5.32
225.0	6.87	6.75	6.57	6.39	6.21	6.04	5.86	5.74	5.56
270.0	6.87	6.57	6.45	6.33	6.09	5.92	5.80	5.62	5.50
315.0	6.51	6.33	6.21	5.98	5.92	5.74	5.50	5.32	5.26
360.0	6.69	6.45	6.33	6.15	5.98	5.80	5.68	5.56	5.44
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	5.32	5.20	5.02	4.96	4.84	4.78	4.66	4.60	4.48
45.0	5.32	5.20	5.08	4.96	4.84	4.72	4.60	4.60	4.48
90.0	5.32	5.20	5.08	4.96	4.90	4.78	4.66	4.60	4.48
135.0	5.38	5.26	5.14	5.02	4.90	4.84	4.72	4.60	4.54
180.0	5.20	5.08	4.96	4.96	4.72	4.66	4.54	4.48	4.42
225.0	5.44	5.32	5.20	5.14	5.02	4.90	4.84	4.72	4.66
270.0	5.32	5.20	5.08	5.02	4.96	4.90	4.78	4.66	4.60
315.0	5.14	5.02	4.96	4.90	4.72	4.66	4.60	4.54	4.48
360.0	5.32	5.20	5.02	4.96	4.84	4.78	4.66	4.60	4.48
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	4.42	4.36	4.24	4.24	4.18	4.06	3.94	3.82	3.76
45.0	4.42	4.36	4.30	4.24	4.18	4.06	4.00	3.94	3.88
90.0	4.36	4.36	4.24	4.18	4.12	4.00	4.00	3.94	3.88
135.0	4.42	4.42	4.30	4.18	4.12	4.00	4.00	3.88	3.88
180.0	4.36	4.24	4.18	4.12	4.00	3.94	3.88	3.82	3.76
225.0	4.60	4.48	4.42	4.36	4.30	4.24	4.18	4.06	4.00
270.0	4.54	4.54	4.48	4.48	4.36	4.18	4.06	3.94	3.82
315.0	4.42	4.42	4.36	4.24	4.24	4.00	3.88	3.76	3.82
360.0	4.42	4.36	4.24	4.24	4.18	4.06	3.94	3.82	3.76

Intensity data(cd)

<b>C/γ(°)</b>	<b>90.0</b>
<b>0.0</b>	<b>3.76</b>
<b>45.0</b>	<b>3.88</b>
<b>90.0</b>	<b>3.88</b>
<b>135.0</b>	<b>3.76</b>
<b>180.0</b>	<b>3.70</b>
<b>225.0</b>	<b>3.88</b>
<b>270.0</b>	<b>3.82</b>
<b>315.0</b>	<b>3.82</b>
<b>360.0</b>	<b>3.76</b>