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LumCAT: 2-2185-M  
Luminaire: 92.70.278.00  
Report No: 221221-B008  
Test No: 221221-C008  
LampCAT: CREE CXA 1830 LES12  
Lamp flux(lm): 1965.3  
Number of Lamps: 1  
Length(mm): 0  
Phm Type: C

Voltage(V): 34.7100  
Current(A): 0.4310  
Power (W): 14.9600  
PF: 0.0000  
Ballast type: DC  
Width(mm): 0  
Height(mm): 0

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### Photometric Results

Lumens(lm): 1555.91  
Efficiency(%): 79.17%  
Lumens(lm)/Power(W): 104.00  
Central intensity(cd): 5207.316  
Maximum intensity(cd): 5207.316  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=32.9  
                                  [C90/270]Total=32.9  
Field angle(10%Imax): [C0/180]Total=49.6  
                                  [C90/270]Total=49.6  
Maximum s/h(1/2): C0\_180=0.55 C90\_270=0.55  
Maximum s/h(1/4): C0\_180=0.52 C90\_270=0.52  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 79.17%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 98.199%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5207.316	0.000	0	.000%	.000%
1.0	5195.739	4.978	4.978	.253%	.320%
2.0	5151.596	14.851	19.829	.756%	1.274%
3.0	5093.711	24.503	44.333	1.247%	2.849%
4.0	5016.629	33.843	78.175	1.722%	5.024%
5.0	4914.751	42.724	120.899	2.174%	7.770%
6.0	4776.348	50.929	171.829	2.591%	11.044%
7.0	4632.717	58.402	230.231	2.972%	14.797%
8.0	4478.928	65.210	295.441	3.318%	18.988%
9.0	4299.669	71.146	366.587	3.620%	23.561%
10.0	4097.256	75.989	442.576	3.867%	28.445%
11.0	3900.819	79.917	522.493	4.066%	33.581%
12.0	3688.098	82.958	605.451	4.221%	38.913%
13.0	3452.747	84.744	690.195	4.312%	44.359%
14.0	3224.715	85.471	775.665	4.349%	49.853%
15.0	2975.097	85.114	860.779	4.331%	55.323%
16.0	2733.695	83.650	944.429	4.256%	60.699%
17.0	2429.105	80.399	1024.828	4.091%	65.867%
18.0	2166.864	75.778	1100.605	3.856%	70.737%
19.0	1928.525	71.251	1171.857	3.625%	75.316%
20.0	1649.382	65.486	1237.342	3.332%	79.525%
21.0	1374.182	58.059	1295.401	2.954%	83.257%
22.0	1137.934	50.482	1345.883	2.569%	86.501%
23.0	896.503	42.688	1388.571	2.172%	89.245%
24.0	661.860	34.071	1422.642	1.734%	91.434%
25.0	485.627	26.091	1448.734	1.328%	93.111%
26.0	328.641	19.221	1467.954	.978%	94.347%
27.0	210.106	13.181	1481.135	.671%	95.194%
28.0	118.378	8.317	1489.452	.423%	95.728%
29.0	63.458	4.757	1494.209	.242%	96.034%
30.0	37.458	2.725	1496.934	.139%	96.209%
31.0	27.471	1.807	1498.74	.092%	96.325%
32.0	23.072	1.448	1500.188	.074%	96.418%
33.0	20.697	1.289	1501.478	.066%	96.501%
34.0	19.166	1.206	1502.684	.061%	96.579%
35.0	17.747	1.146	1503.831	.058%	96.653%
36.0	16.776	1.099	1504.93	.056%	96.723%
37.0	16.006	1.069	1505.999	.054%	96.792%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	15.304	1.045	1507.044	.053%	96.859%
39.0	14.602	1.021	1508.065	.052%	96.925%
40.0	14.132	1.002	1509.067	.051%	96.989%
41.0	13.668	0.990	1510.057	.050%	97.053%
42.0	13.198	0.976	1511.033	.050%	97.115%
43.0	12.862	0.965	1511.998	.049%	97.177%
44.0	12.533	0.958	1512.957	.049%	97.239%
45.0	12.242	0.952	1513.909	.048%	97.300%
46.0	11.958	0.946	1514.855	.048%	97.361%
47.0	11.719	0.942	1515.797	.048%	97.422%
48.0	11.495	0.938	1516.736	.048%	97.482%
49.0	11.271	0.935	1517.67	.048%	97.542%
50.0	11.054	0.931	1518.601	.047%	97.602%
51.0	10.897	0.929	1519.53	.047%	97.662%
52.0	10.733	0.928	1520.458	.047%	97.721%
53.0	10.554	0.926	1521.384	.047%	97.781%
54.0	10.427	0.925	1522.309	.047%	97.840%
55.0	10.292	0.925	1523.234	.047%	97.900%
56.0	10.195	0.926	1524.16	.047%	97.959%
57.0	10.091	0.928	1525.087	.047%	98.019%
58.0	10.031	0.931	1526.018	.047%	98.078%
59.0	9.979	0.935	1526.953	.048%	98.139%
60.0	9.934	0.941	1527.894	.048%	98.199%
61.0	9.934	0.948	1528.842	.048%	98.260%
62.0	9.934	0.957	1529.799	.049%	98.322%
63.0	9.971	0.968	1530.767	.049%	98.384%
64.0	10.009	0.980	1531.748	.050%	98.447%
65.0	10.024	0.991	1532.739	.050%	98.510%
66.0	10.068	1.002	1533.742	.051%	98.575%
67.0	10.076	1.013	1534.755	.052%	98.640%
68.0	10.091	1.022	1535.776	.052%	98.706%
69.0	10.091	1.030	1536.806	.052%	98.772%
70.0	10.053	1.035	1537.84	.053%	98.838%
71.0	9.971	1.035	1538.875	.053%	98.905%
72.0	9.814	1.029	1539.904	.052%	98.971%
73.0	9.673	1.019	1540.923	.052%	99.036%
74.0	9.478	1.007	1541.93	.051%	99.101%
75.0	9.239	0.989	1542.919	.050%	99.165%

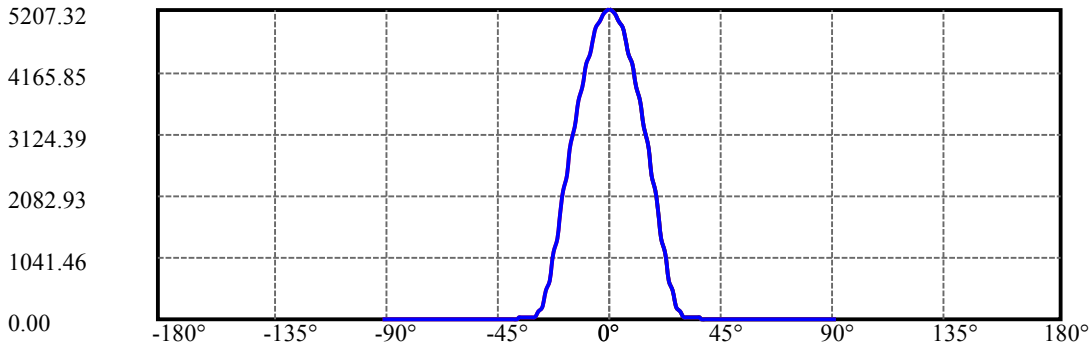
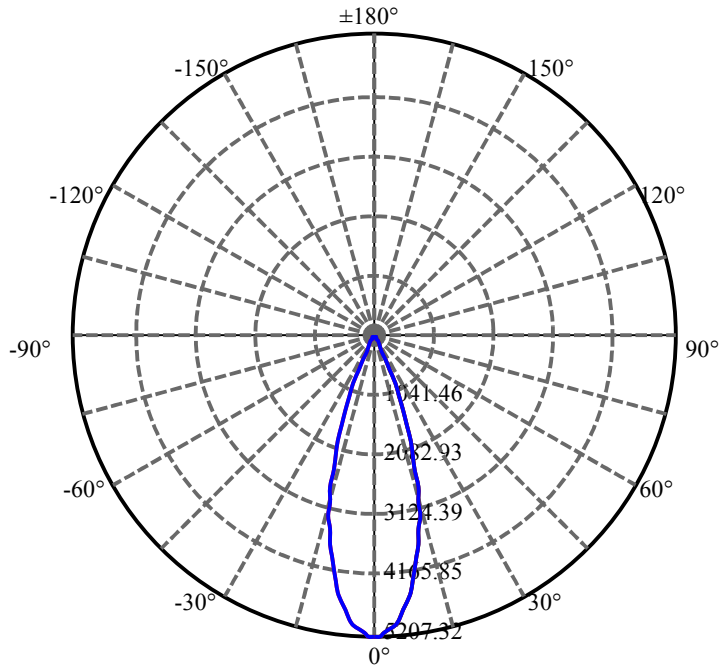
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	8.985	0.967	1543.886	.049%	99.227%
77.0	8.664	0.941	1544.827	.048%	99.287%
78.0	8.425	0.915	1545.742	.047%	99.346%
79.0	8.276	0.897	1546.639	.046%	99.404%
80.0	8.149	0.885	1547.525	.045%	99.461%
81.0	8.067	0.877	1548.402	.045%	99.517%
82.0	7.977	0.870	1549.272	.044%	99.573%
83.0	7.902	0.863	1550.135	.044%	99.629%
84.0	7.805	0.856	1550.991	.044%	99.684%
85.0	7.716	0.847	1551.838	.043%	99.738%
86.0	7.581	0.836	1552.674	.043%	99.792%
87.0	7.477	0.824	1553.498	.042%	99.845%
88.0	7.372	0.813	1554.311	.041%	99.897%
89.0	7.297	0.804	1555.115	.041%	99.949%
90.0	7.282	0.799	1555.915	.041%	100.000%

## ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1496.93	76.17%	96.21%
0-40	1509.07	76.79%	96.99%
0-60	1527.89	77.74%	98.20%
0-90	1555.12	79.13%	99.95%
0-120	1555.12	79.13%	99.95%
0-180	1555.91	79.17%	100.00%
60-90	28.16	1.43%	1.81%
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%
0-20.13	1244.73	63.34%	80.00%

## ZONAL LUMEN SUMMARY

0-10	442.58
10-20	794.77
20-30	259.59
30-40	12.13
40-50	9.53
50-60	9.29
60-70	9.95
70-80	9.68
80-90	7.59
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: —————

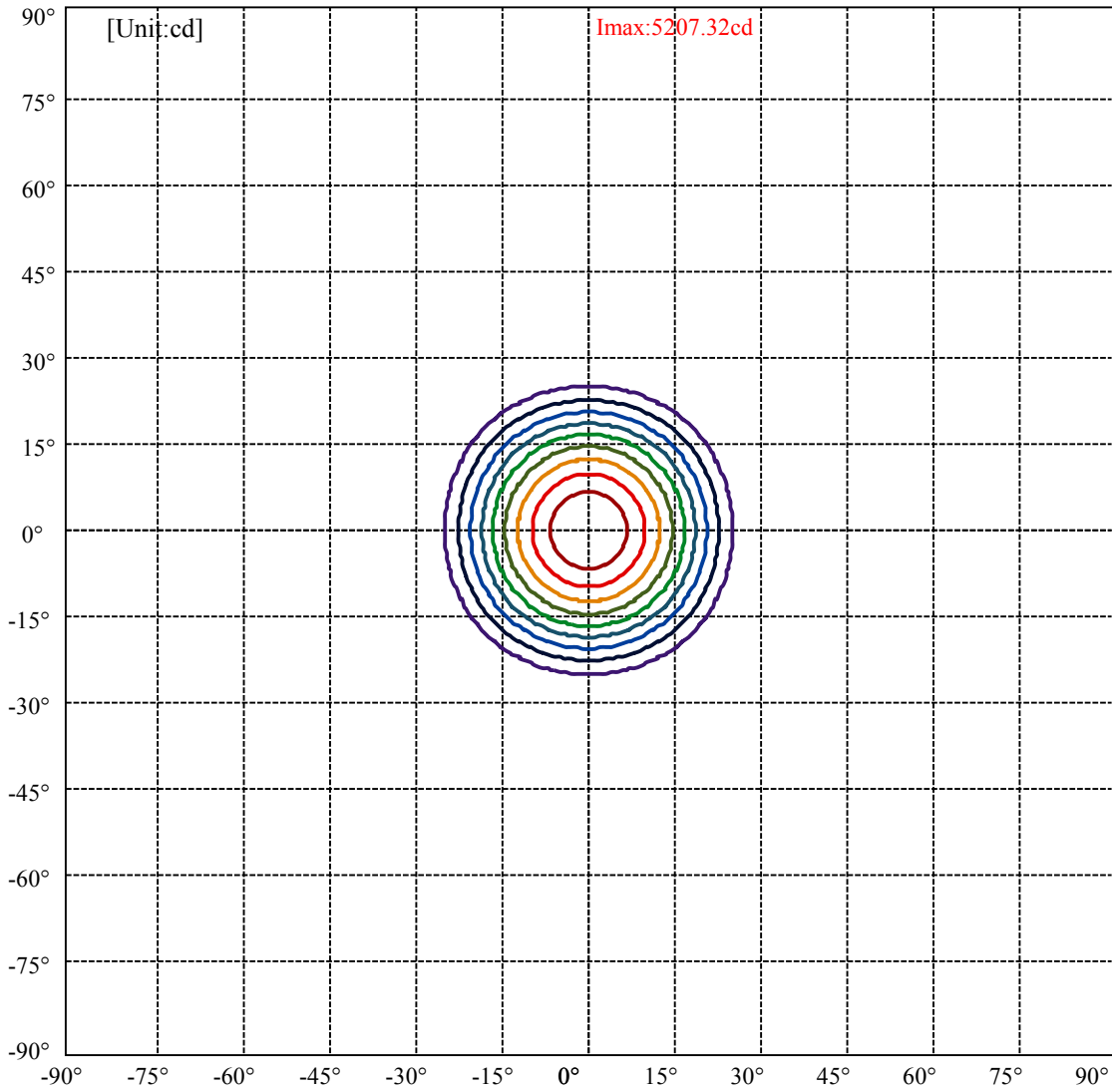
Field angle(10%Imax):C0/180Left:24.8 Right:24.8

:C90/270Left:24.8 Right:24.8

Beam Angle(50%Imax):C0/180Left:16.4 Right:16.4

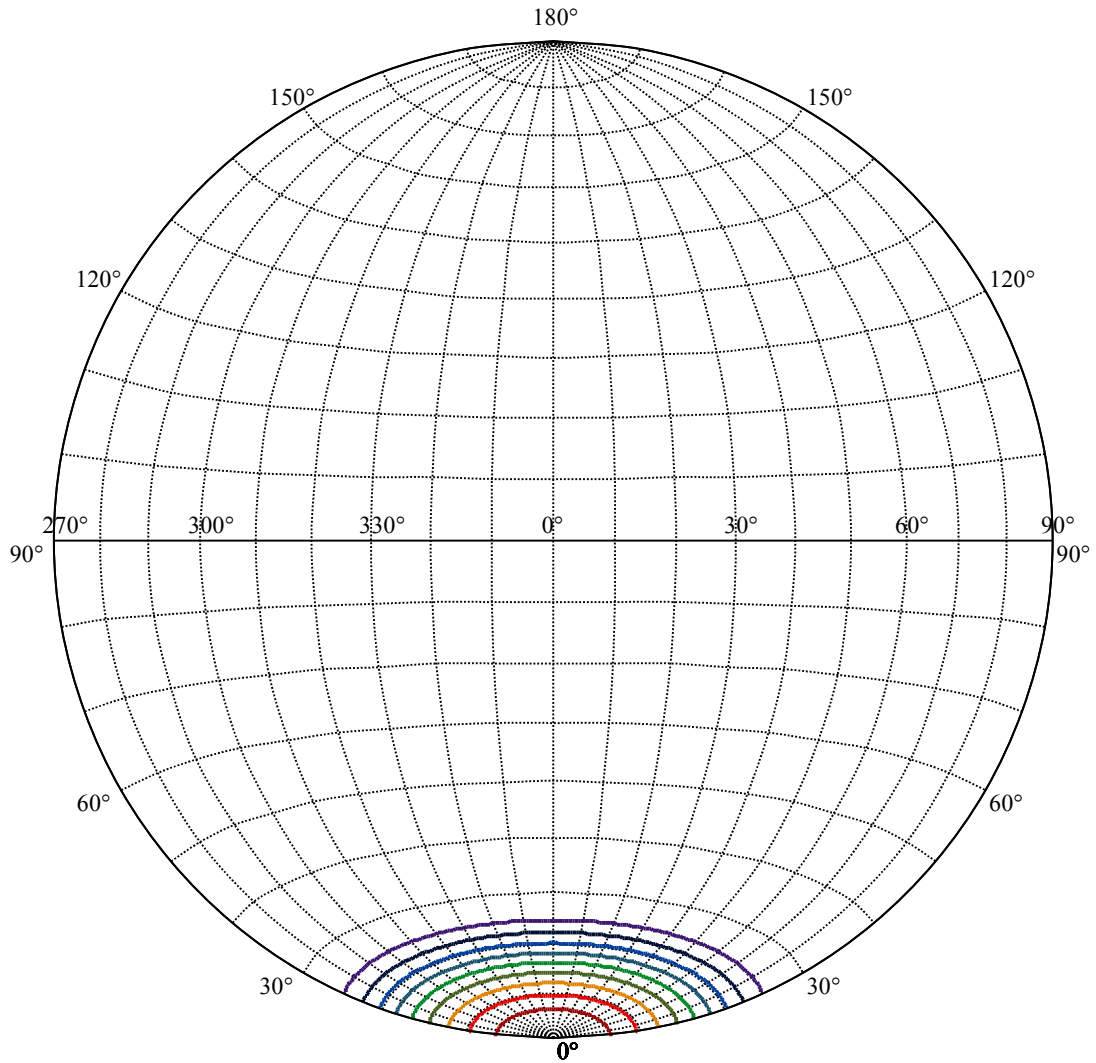
:C90/270Left:16.4 Right:16.4





(10%Imax) 520.732	—
(20%Imax) 1041.46	—
(30%Imax) 1562.19	—
(40%Imax) 2082.93	—
(50%Imax) 2603.66	—
(60%Imax) 3124.39	—
(70%Imax) 3645.12	—
(80%Imax) 4165.85	—
(90%Imax) 4686.58	—





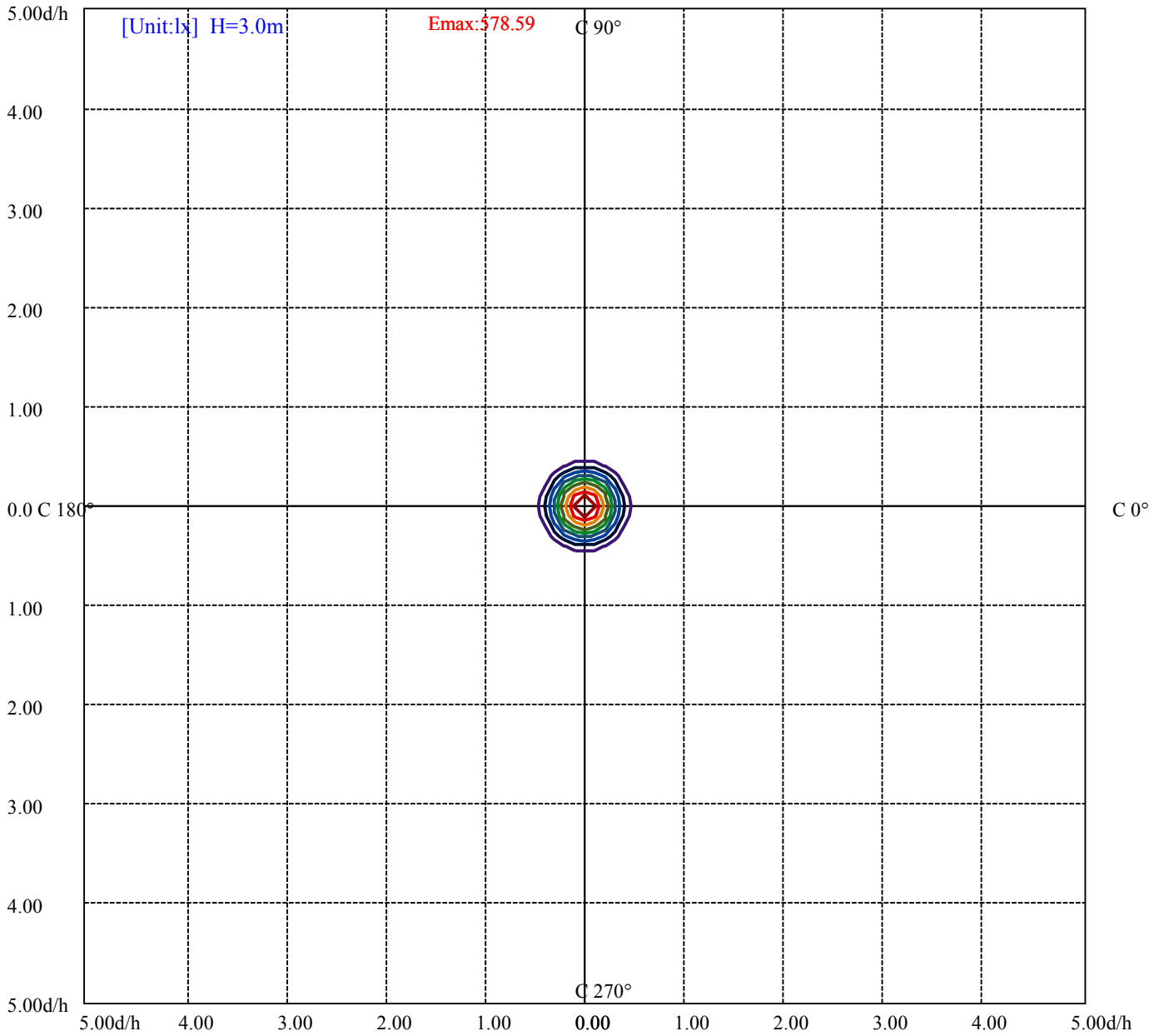
House

[Unit:cd]

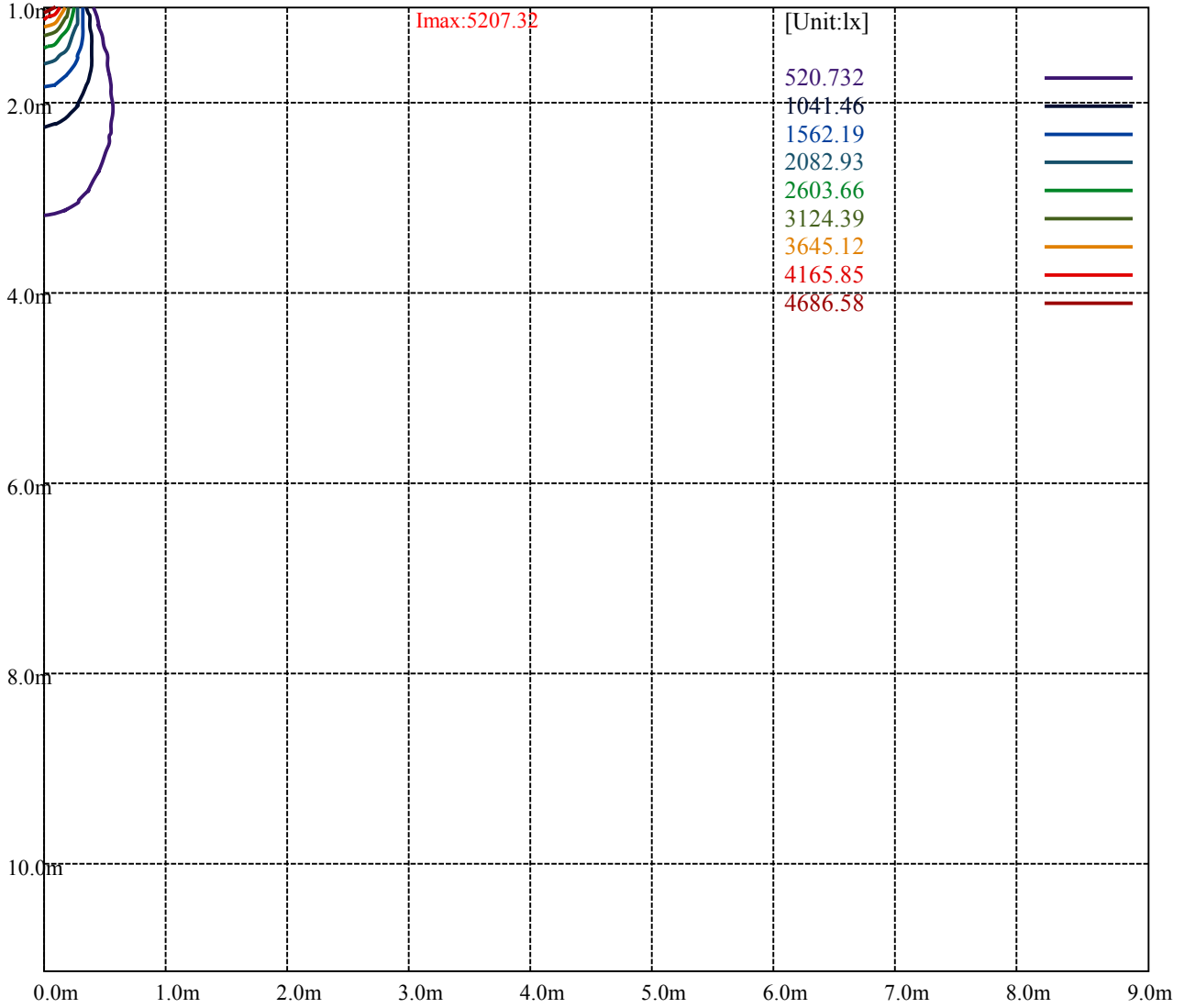
Road

**Imax:5207.32**

(10%Imax) 520.732	—
(20%Imax) 1041.46	—
(30%Imax) 1562.19	—
(40%Imax) 2082.93	—
(50%Imax) 2603.66	—
(60%Imax) 3124.39	—
(70%Imax) 3645.12	—
(80%Imax) 4165.85	—
(90%Imax) 4686.58	—



(10%Emax) 57.859	—
(20%Emax) 115.7178	—
(30%Emax) 173.5767	—
(40%Emax) 231.4367	—
(50%Emax) 289.2955	—
(60%Emax) 347.1544	—
(70%Emax) 405.0133	—
(80%Emax) 462.8722	—
(90%Emax) 520.7311	—



Luminance Table

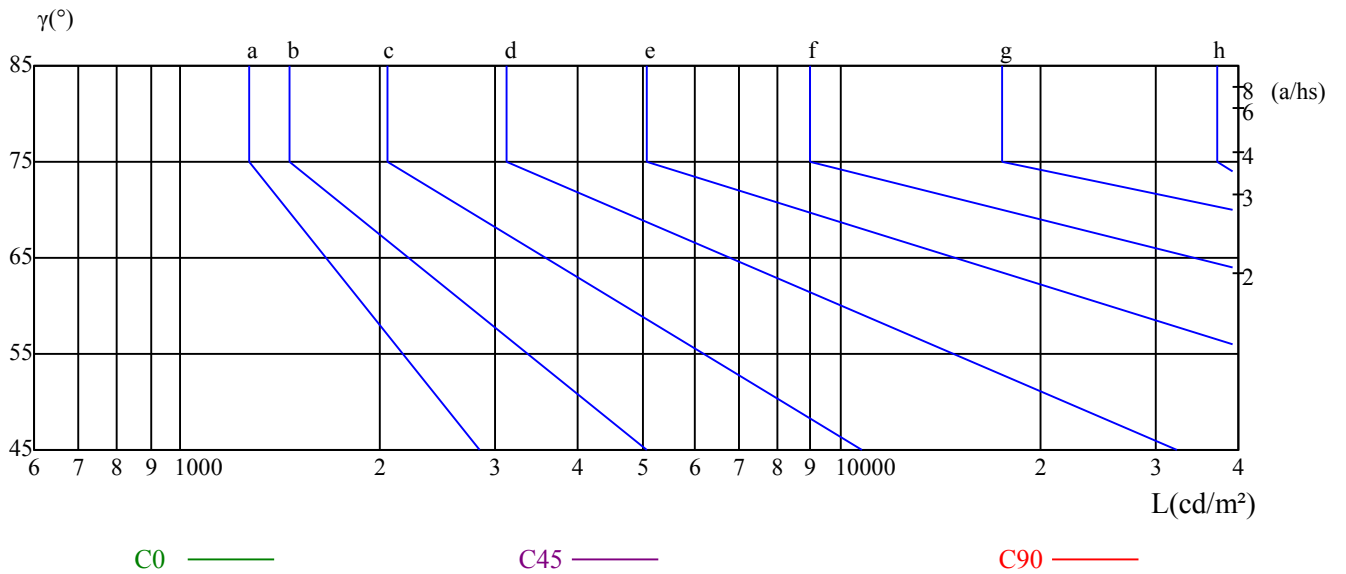
$\gamma$	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

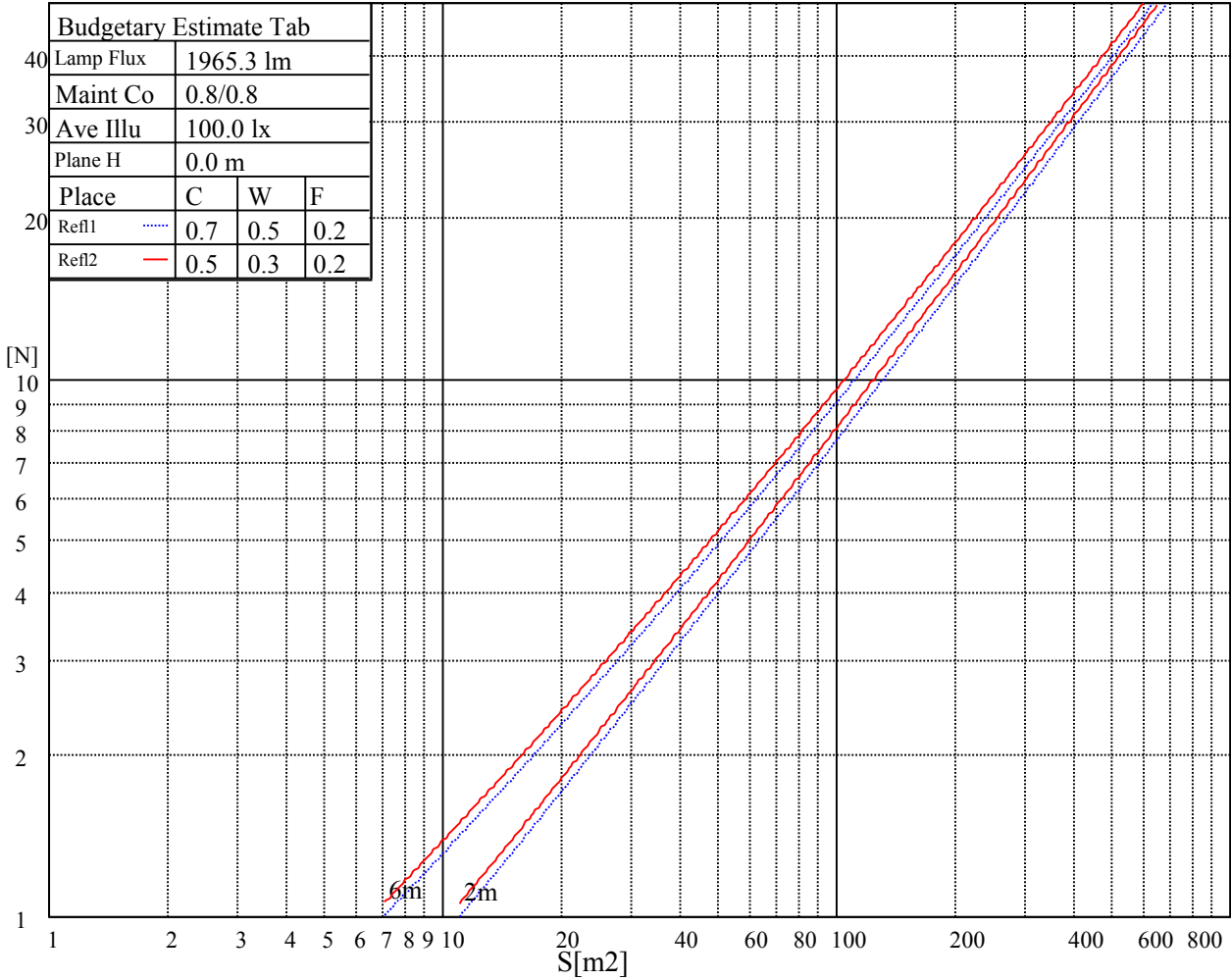
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

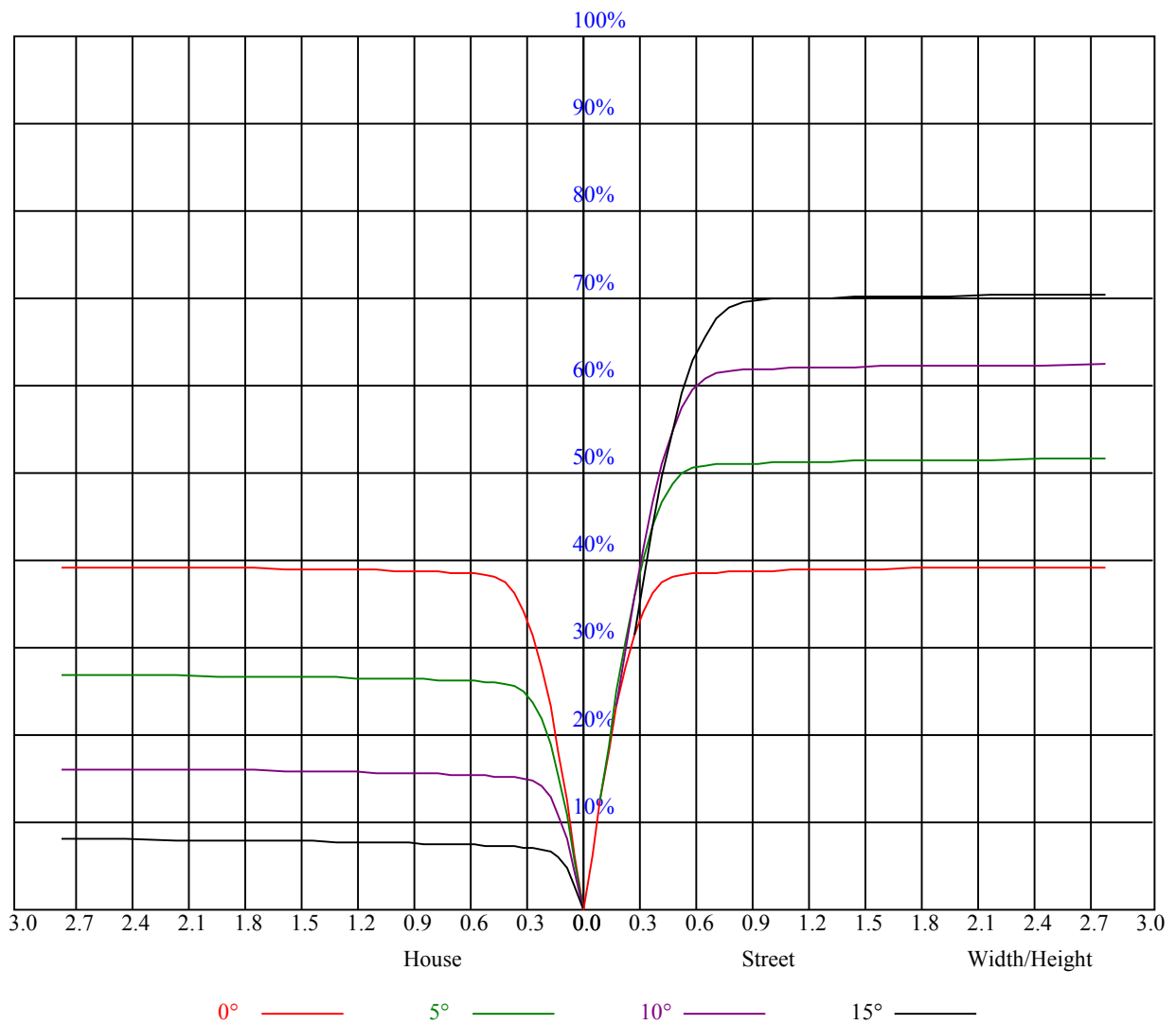
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	0.94	0.94	0.94	0.92	0.92	0.92	0.88	0.88	0.88	0.84	0.84	0.84	0.81	0.81	0.81	0.79
1	0.89	0.87	0.86	0.87	0.86	0.84	0.84	0.83	0.82	0.81	0.80	0.79	0.78	0.78	0.77	0.76
2	0.84	0.82	0.80	0.83	0.81	0.79	0.81	0.79	0.77	0.78	0.77	0.75	0.76	0.75	0.74	0.73
3	0.81	0.78	0.75	0.80	0.77	0.75	0.78	0.75	0.73	0.76	0.74	0.72	0.74	0.72	0.71	0.70
4	0.77	0.74	0.71	0.76	0.73	0.71	0.75	0.72	0.70	0.73	0.71	0.69	0.72	0.70	0.69	0.68
5	0.74	0.71	0.68	0.74	0.70	0.68	0.72	0.70	0.67	0.71	0.69	0.67	0.70	0.68	0.66	0.65
6	0.72	0.68	0.66	0.71	0.68	0.65	0.70	0.67	0.65	0.69	0.66	0.65	0.68	0.66	0.64	0.63
7	0.69	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.63	0.67	0.64	0.62	0.66	0.64	0.62	0.61
8	0.67	0.63	0.61	0.67	0.63	0.61	0.66	0.63	0.61	0.65	0.62	0.61	0.64	0.62	0.60	0.60
9	0.65	0.61	0.59	0.64	0.61	0.59	0.64	0.61	0.59	0.63	0.61	0.59	0.63	0.60	0.59	0.58
10	0.63	0.60	0.57	0.63	0.59	0.57	0.62	0.59	0.57	0.62	0.59	0.57	0.61	0.59	0.57	0.56



## 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	5216.43	5217.62	5196.11	5157.27	5093.34	5007.89	4891.97	4753.94	4616.51
45.0	5197.31	5162.65	5080.19	4997.73	4878.82	4747.37	4586.04	4431.87	4243.05
90.0	5193.12	5142.93	5064.66	4968.45	4865.68	4739.00	4541.82	4375.11	4206.01
135.0	5222.40	5200.29	5136.36	5068.24	4973.83	4867.47	4727.65	4565.72	4406.18
180.0	5216.43	5188.94	5137.55	5061.67	4969.05	4856.72	4691.80	4542.42	4384.67
225.0	5197.31	5223.60	5217.62	5185.36	5143.53	5064.06	4956.50	4842.38	4703.15
270.0	5193.12	5216.43	5205.08	5181.17	5139.35	5061.07	4972.04	4838.79	4712.11
315.0	5222.40	5213.44	5175.20	5129.79	5069.44	4974.43	4842.97	4711.52	4559.74
360.0	5216.43	5217.62	5196.11	5157.27	5093.34	5007.89	4891.97	4753.94	4616.51
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	4458.76	4251.42	4072.16	3883.34	3642.54	3434.60	3206.34	2920.72	2621.96
45.0	4060.81	3851.07	3616.25	3407.71	3131.05	2896.22	2645.26	2429.55	2085.97
90.0	3987.31	3765.63	3552.31	3309.12	3084.44	2817.95	2545.47	2289.73	2014.27
135.0	4236.48	4008.82	3820.00	3615.65	3348.55	3134.64	2899.81	2625.54	2335.74
180.0	4172.55	3995.08	3811.04	3564.26	3387.99	3138.82	2831.69	2605.23	2313.63
225.0	4557.95	4375.11	4180.91	3990.30	3772.80	3541.55	3330.03	3102.97	2800.02
270.0	4546.00	4352.40	4161.19	3967.00	3718.42	3511.68	3280.43	3086.24	2739.67
315.0	4377.50	4178.52	3992.69	3767.42	3536.18	3322.26	3061.74	2809.58	2531.57
360.0	4458.76	4251.42	4072.16	3883.34	3642.54	3434.60	3206.34	2920.72	2621.96
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	2367.41	2094.94	1852.94	1575.09	1293.65	1052.85	794.71	564.07	382.42
45.0	1836.80	1624.68	1302.02	1029.54	834.15	586.77	392.58	313.11	144.78
90.0	1741.20	1503.98	1172.17	976.36	762.15	572.07	367.42	242.78	153.62
135.0	2092.55	1823.66	1566.12	1294.85	1038.51	823.39	598.72	396.76	311.31
180.0	2006.50	1789.60	1536.84	1170.68	996.92	779.18	535.74	372.14	248.03
225.0	2548.46	2304.07	2039.37	1768.09	1522.50	1178.92	971.40	750.02	553.37
270.0	2487.51	2263.44	1974.24	1702.96	1490.24	1195.66	929.16	741.53	500.13
315.0	2254.48	2023.83	1751.36	1475.90	1165.36	983.17	705.14	504.61	335.45
360.0	2367.41	2094.94	1852.94	1575.09	1293.65	1052.85	794.71	564.07	382.42
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	308.92	134.50	62.74	37.41	27.73	24.50	22.47	20.91	19.36
45.0	75.95	37.47	27.61	23.84	21.57	19.54	18.34	17.33	16.31
90.0	77.92	41.29	30.12	23.72	21.27	19.06	17.39	16.49	15.54
135.0	168.62	89.51	42.90	31.19	26.11	21.93	19.90	18.64	17.09
180.0	163.72	75.89	43.56	32.39	26.83	23.54	21.57	20.02	18.82
225.0	360.85	220.85	140.00	66.15	38.18	28.98	24.56	22.05	20.02
270.0	335.81	237.22	108.51	53.72	32.98	24.92	21.69	19.54	17.75
315.0	189.06	110.30	52.22	31.25	25.10	22.11	19.66	18.34	17.09
360.0	308.92	134.50	62.74	37.41	27.73	24.50	22.47	20.91	19.36
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	18.34	17.51	16.67	15.89	15.36	14.76	14.28	13.92	13.50
45.0	15.60	15.00	14.40	13.86	13.38	12.97	12.55	12.25	12.01
90.0	14.76	14.28	13.80	13.15	12.85	12.49	12.01	11.77	11.53
135.0	16.25	15.60	14.76	14.22	13.80	13.32	12.91	12.61	12.19
180.0	17.99	17.15	16.55	15.83	15.30	14.88	14.40	13.98	13.62
225.0	18.58	17.57	16.73	15.77	15.18	14.70	14.10	13.68	13.38
270.0	16.61	15.72	14.94	14.22	13.74	13.21	12.85	12.55	12.19
315.0	16.07	15.24	14.58	13.86	13.44	13.03	12.49	12.13	11.83
360.0	18.34	17.51	16.67	15.89	15.36	14.76	14.28	13.92	13.50



## 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	12.85	12.55	12.31	12.01	11.71	11.47	11.29	10.99
45.0	11.77	11.53	11.29	11.11	10.93	10.82	10.70	10.52	10.40
90.0	11.29	11.11	10.93	10.70	10.58	10.40	10.34	10.16	10.04
135.0	11.89	11.65	11.41	11.23	11.05	10.82	10.70	10.58	10.40
180.0	13.27	12.85	12.61	12.25	11.95	11.65	11.41	11.11	10.93
225.0	12.97	12.67	12.43	12.19	11.95	11.71	11.53	11.35	11.17
270.0	11.95	11.71	11.47	11.29	11.05	10.82	10.70	10.58	10.40
315.0	11.59	11.29	11.05	10.88	10.64	10.52	10.34	10.28	10.10
360.0	13.21	12.85	12.55	12.31	12.01	11.71	11.47	11.29	10.99
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	10.82	10.58	10.40	10.22	10.16	10.22	10.34	10.58	10.82
45.0	10.28	10.16	10.04	9.86	9.80	9.74	9.68	9.56	9.56
90.0	9.92	9.80	9.74	9.62	9.50	9.50	9.38	9.32	9.20
135.0	10.34	10.22	10.10	10.04	9.92	9.86	9.74	9.68	9.50
180.0	10.76	10.64	10.76	10.88	10.88	10.88	10.99	11.23	11.53
225.0	10.99	10.88	10.70	10.52	10.46	10.28	10.22	10.10	9.98
270.0	10.34	10.22	10.04	9.92	9.92	9.80	9.68	9.62	9.56
315.0	9.98	9.86	9.80	9.68	9.62	9.56	9.44	9.38	9.32
360.0	10.82	10.58	10.40	10.22	10.16	10.22	10.34	10.58	10.82
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	10.93	11.11	11.29	11.53	11.83	12.13	12.19	12.13	12.07
45.0	9.62	9.68	9.74	9.92	9.98	10.04	10.10	10.16	10.10
90.0	9.14	9.08	9.02	8.96	8.78	8.78	8.72	8.72	8.66
135.0	9.44	9.38	9.26	9.20	9.14	9.08	9.02	8.90	8.78
180.0	11.95	12.25	12.49	12.61	12.61	12.61	12.55	12.37	12.01
225.0	9.98	10.04	10.04	10.16	10.22	10.22	10.34	10.46	10.58
270.0	9.44	9.38	9.26	9.14	9.08	9.02	8.96	8.90	8.84
315.0	9.26	9.14	9.08	9.02	8.96	8.84	8.84	8.78	8.72
360.0	10.93	11.11	11.29	11.53	11.83	12.13	12.19	12.13	12.07
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	11.83	11.65	11.23	10.70	10.34	9.50	8.60	8.37	8.25
45.0	9.80	9.56	9.32	9.02	8.72	8.48	8.19	8.07	8.01
90.0	8.60	8.60	8.48	8.43	8.37	8.25	8.13	8.07	8.01
135.0	8.72	8.60	8.60	8.48	8.43	8.25	8.19	8.13	8.01
180.0	11.53	10.99	10.64	10.28	9.32	8.66	8.43	8.37	8.25
225.0	10.64	10.64	10.40	9.98	9.80	9.44	9.20	8.78	8.43
270.0	8.78	8.72	8.66	8.60	8.54	8.48	8.43	8.37	8.25
315.0	8.60	8.60	8.48	8.43	8.37	8.25	8.25	8.07	8.01
360.0	11.83	11.65	11.23	10.70	10.34	9.50	8.60	8.37	8.25
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	8.25	8.13	8.07	7.95	7.95	7.89	7.71	7.59	7.35
45.0	7.95	7.95	7.89	7.83	7.65	7.41	7.35	7.29	7.29
90.0	7.95	7.83	7.71	7.59	7.53	7.35	7.35	7.29	7.29
135.0	7.95	7.83	7.77	7.65	7.53	7.35	7.35	7.29	7.29
180.0	8.19	8.07	7.95	7.83	7.71	7.35	7.41	7.35	7.17
225.0	8.19	8.07	8.01	7.89	7.83	7.77	7.65	7.41	7.35
270.0	8.13	8.01	7.95	7.89	7.77	7.71	7.53	7.41	7.35
315.0	7.95	7.95	7.89	7.83	7.77	7.83	7.47	7.35	7.29
360.0	8.25	8.13	8.07	7.95	7.95	7.89	7.71	7.59	7.35

Intensity data(cd)

C/γ(°)	90.0
0.0	7.23
45.0	7.29
90.0	7.29
135.0	7.23
180.0	7.17
225.0	7.41
270.0	7.35
315.0	7.29
360.0	7.23