



NATA LIGHTING CO.,LTD.
www.nata.cn
Email:info@nata.com
Tel:+86-750-3770000 Fax:+86-750-3771111
Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

Nata

LumCAT: LN01D05015DA-N

Luminaire: 97.70.234.00

Report No: 201228-B006

Test No: 201228-C006

LampCAT: CXM-9-TC40 LES9.8

Lamp flux(lm): 2079.0

Number of Lamps: 1

Length(mm): 92

Phm Type: C

Voltage(V): 35.0900

Current(A): 0.5000

Power (W): 17.5450

PF: 0.0000

Ballast type: DC

Width(mm): 92

Height(mm): 50

Photometric Results

Lumens(lm): 1848.83

Efficiency(%): 88.93%

Lumens(lm)/Power(W): 105.38

Central intensity(cd): 10179.700

Maximum intensity(cd): 10179.700

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=20.3

[C90/270]Total=20.3

Field angle(10%Imax): [C0/180]Total=40.5

[C90/270]Total=40.5

Maximum s/h(1/2): C0_180=0.35 C90_270=0.35

Maximum s/h(1/4): C0_180=0.36 C90_270=0.36

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 88.93%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 96.732%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	10179.703	0.000	0	.000%	.000%
1.0	10099.195	9.703	9.703	.467%	.525%
2.0	9886.219	28.685	38.388	1.380%	2.076%
3.0	9546.469	46.477	84.865	2.236%	4.590%
4.0	9080.438	62.350	147.215	2.999%	7.963%
5.0	8568.844	75.926	223.141	3.652%	12.069%
6.0	7900.242	86.549	309.691	4.163%	16.751%
7.0	7222.992	93.870	403.56	4.515%	21.828%
8.0	6597.914	98.914	502.474	4.758%	27.178%
9.0	5886.000	101.175	603.649	4.867%	32.650%
10.0	5184.633	100.185	703.834	4.819%	38.069%
11.0	4601.531	97.784	801.618	4.703%	43.358%
12.0	4016.531	94.208	895.826	4.531%	48.454%
13.0	3410.156	88.136	983.962	4.239%	53.221%
14.0	2943.211	81.323	1065.285	3.912%	57.619%
15.0	2512.969	74.905	1140.189	3.603%	61.671%
16.0	2120.414	67.892	1208.081	3.266%	65.343%
17.0	1770.363	60.590	1268.671	2.914%	68.620%
18.0	1465.917	53.359	1322.031	2.567%	71.506%
19.0	1259.592	47.418	1369.449	2.281%	74.071%
20.0	1058.794	42.433	1411.882	2.041%	76.366%
21.0	881.838	37.264	1449.146	1.792%	78.382%
22.0	744.757	32.687	1481.833	1.572%	80.150%
23.0	632.665	28.902	1510.735	1.390%	81.713%
24.0	530.170	25.424	1536.159	1.223%	83.088%
25.0	447.525	22.231	1558.389	1.069%	84.290%
26.0	385.404	19.661	1578.051	.946%	85.354%
27.0	333.534	17.589	1595.64	.846%	86.305%
28.0	280.948	15.557	1611.197	.748%	87.147%
29.0	250.179	13.896	1625.093	.668%	87.898%
30.0	217.631	12.631	1637.724	.608%	88.581%
31.0	188.023	11.289	1649.012	.543%	89.192%
32.0	167.280	10.179	1659.191	.490%	89.743%
33.0	151.193	9.382	1668.574	.451%	90.250%
34.0	135.858	8.687	1677.261	.418%	90.720%
35.0	123.040	8.040	1685.301	.387%	91.155%
36.0	112.683	7.505	1692.807	.361%	91.561%
37.0	102.846	7.029	1699.836	.338%	91.941%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	94.788	6.597	1706.433	.317%	92.298%
39.0	86.977	6.204	1712.637	.298%	92.633%
40.0	79.889	5.820	1718.457	.280%	92.948%
41.0	74.095	5.483	1723.94	.264%	93.245%
42.0	68.576	5.183	1729.123	.249%	93.525%
43.0	63.098	4.878	1734.001	.235%	93.789%
44.0	58.458	4.588	1738.589	.221%	94.037%
45.0	54.359	4.336	1742.925	.209%	94.272%
46.0	50.063	4.084	1747.008	.196%	94.492%
47.0	46.659	3.847	1750.855	.185%	94.701%
48.0	43.748	3.655	1754.51	.176%	94.898%
49.0	40.964	3.479	1757.989	.167%	95.086%
50.0	38.348	3.307	1761.295	.159%	95.265%
51.0	36.408	3.163	1764.458	.152%	95.436%
52.0	34.474	3.042	1767.5	.146%	95.601%
53.0	32.759	2.925	1770.424	.141%	95.759%
54.0	31.261	2.822	1773.246	.136%	95.912%
55.0	29.876	2.729	1775.975	.131%	96.059%
56.0	28.624	2.643	1778.619	.127%	96.202%
57.0	27.401	2.562	1781.18	.123%	96.341%
58.0	26.297	2.483	1783.663	.119%	96.475%
59.0	25.291	2.412	1786.075	.116%	96.606%
60.0	24.349	2.345	1788.42	.113%	96.732%
61.0	23.421	2.280	1790.7	.110%	96.856%
62.0	22.591	2.217	1792.917	.107%	96.976%
63.0	21.888	2.163	1795.081	.104%	97.093%
64.0	21.087	2.109	1797.189	.101%	97.207%
65.0	20.433	2.055	1799.244	.099%	97.318%
66.0	20.074	2.021	1801.265	.097%	97.427%
67.0	20.011	2.016	1803.281	.097%	97.536%
68.0	20.222	2.038	1805.319	.098%	97.646%
69.0	20.545	2.080	1807.399	.100%	97.759%
70.0	21.066	2.137	1809.536	.103%	97.874%
71.0	21.790	2.215	1811.751	.107%	97.994%
72.0	22.528	2.304	1814.055	.111%	98.119%
73.0	23.421	2.403	1816.458	.116%	98.249%
74.0	24.293	2.508	1818.966	.121%	98.385%
75.0	25.059	2.608	1821.574	.125%	98.526%

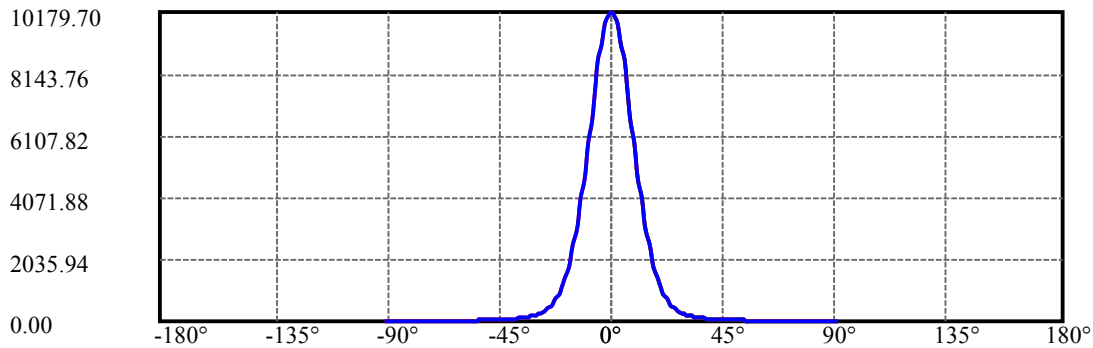
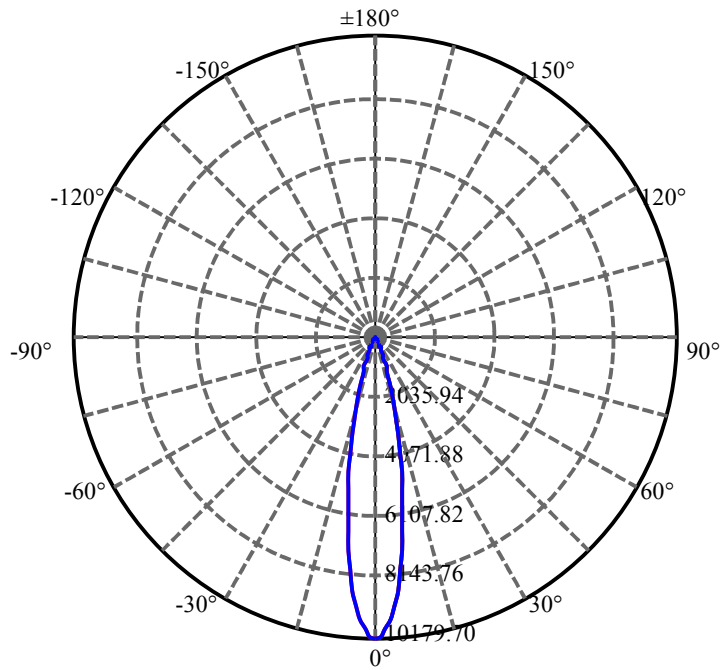
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	25.566	2.687	1824.261	.129%	98.671%
77.0	25.770	2.737	1826.998	.132%	98.819%
78.0	25.397	2.739	1829.737	.132%	98.967%
79.0	24.230	2.666	1832.404	.128%	99.111%
80.0	22.535	2.521	1834.925	.121%	99.248%
81.0	20.299	2.316	1837.241	.111%	99.373%
82.0	17.466	2.048	1839.289	.099%	99.484%
83.0	14.850	1.757	1841.046	.084%	99.579%
84.0	12.797	1.506	1842.552	.072%	99.660%
85.0	10.920	1.294	1843.846	.062%	99.730%
86.0	9.703	1.127	1844.974	.054%	99.791%
87.0	9.070	1.027	1846.001	.049%	99.847%
88.0	8.698	0.973	1846.974	.047%	99.899%
89.0	8.459	0.940	1847.915	.045%	99.950%
90.0	8.290	0.918	1848.833	.044%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1637.72	78.77%	88.58%
0-40	1718.46	82.66%	92.95%
0-60	1788.42	86.02%	96.73%
0-90	1847.91	88.88%	99.95%
0-120	1847.91	88.88%	99.95%
0-180	1848.83	88.93%	100.00%
60-90	61.84	2.97%	3.34%
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%
0-21.92	1479.07	71.14%	80.00%

ZONAL LUMEN SUMMARY

0-10	703.83
10-20	708.05
20-30	225.84
30-40	80.73
40-50	42.84
50-60	27.12
60-70	21.12
70-80	25.39
80-90	12.99
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: —————

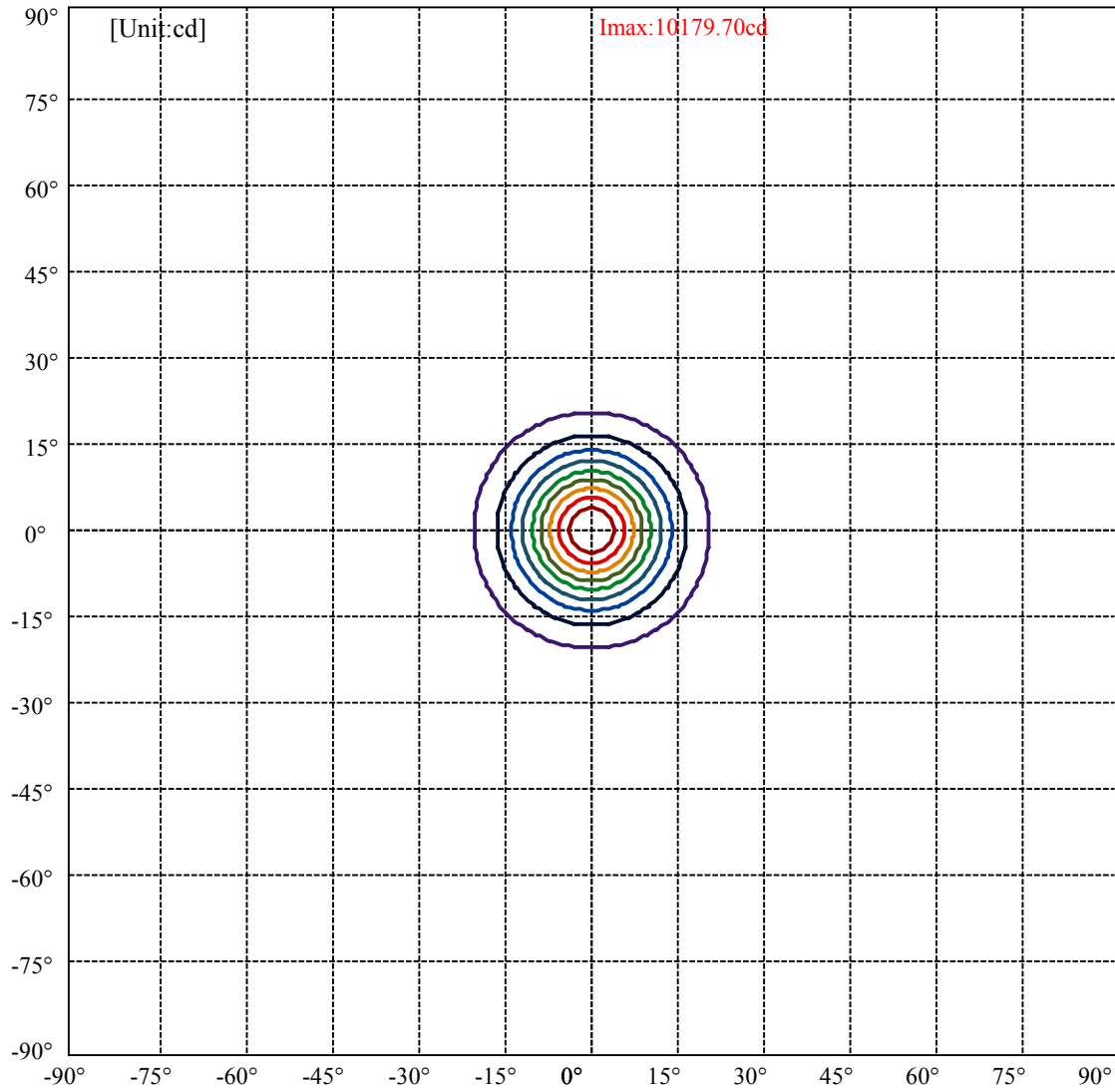
C90/C270: —————

Field angle(10%Imax):C0/180Left:20.2 Right:20.2

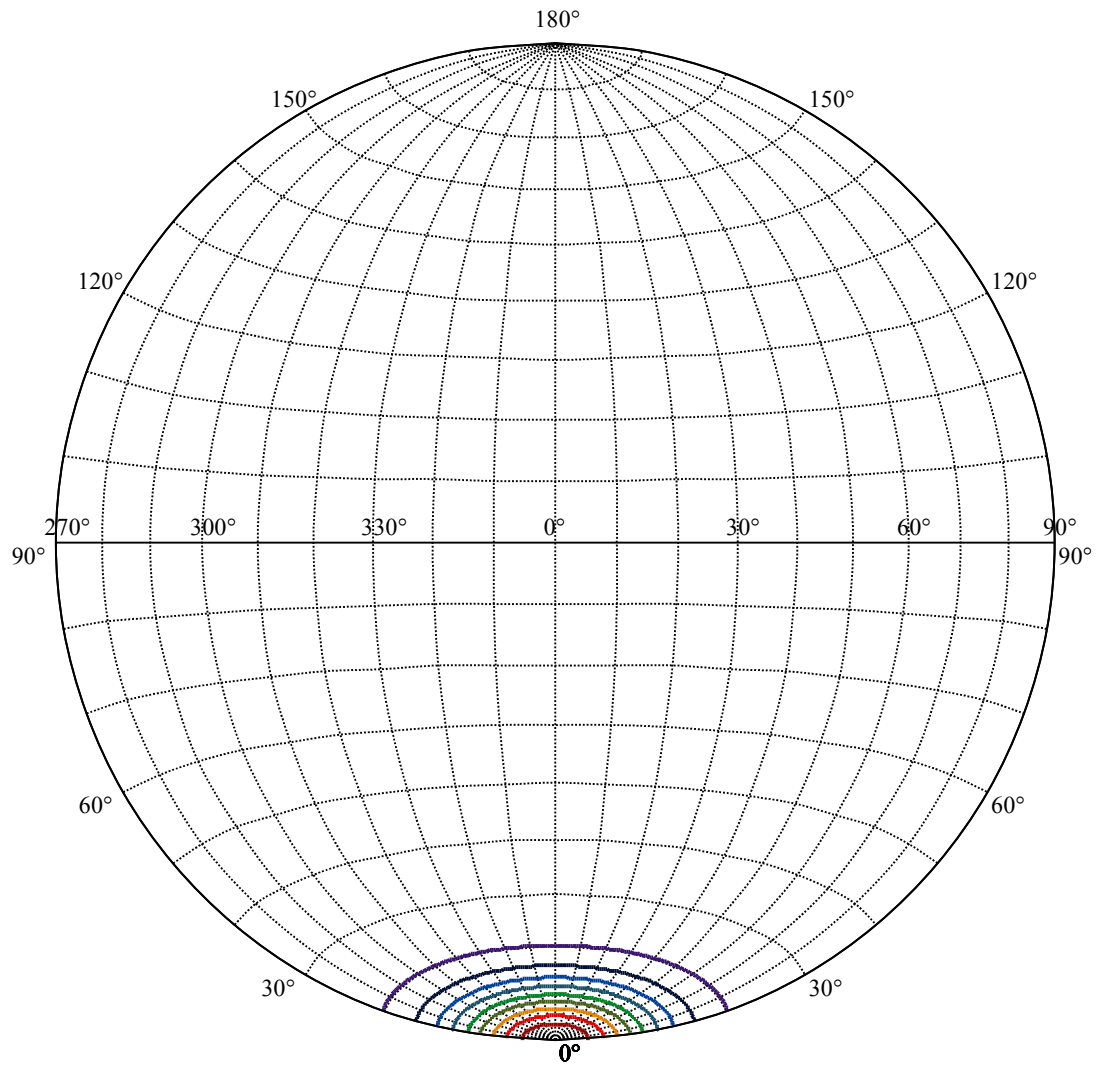
:C90/270Left:20.2 Right:20.2

Beam Angle(50%Imax):C0/180Left:10.2 Right:10.2

:C90/270Left:10.2 Right:10.2



(10%Imax) 1017.97	—
(20%Imax) 2035.94	—
(30%Imax) 3053.91	—
(40%Imax) 4071.88	—
(50%Imax) 5089.85	—
(60%Imax) 6107.82	—
(70%Imax) 7125.79	—
(80%Imax) 8143.76	—
(90%Imax) 9161.73	—



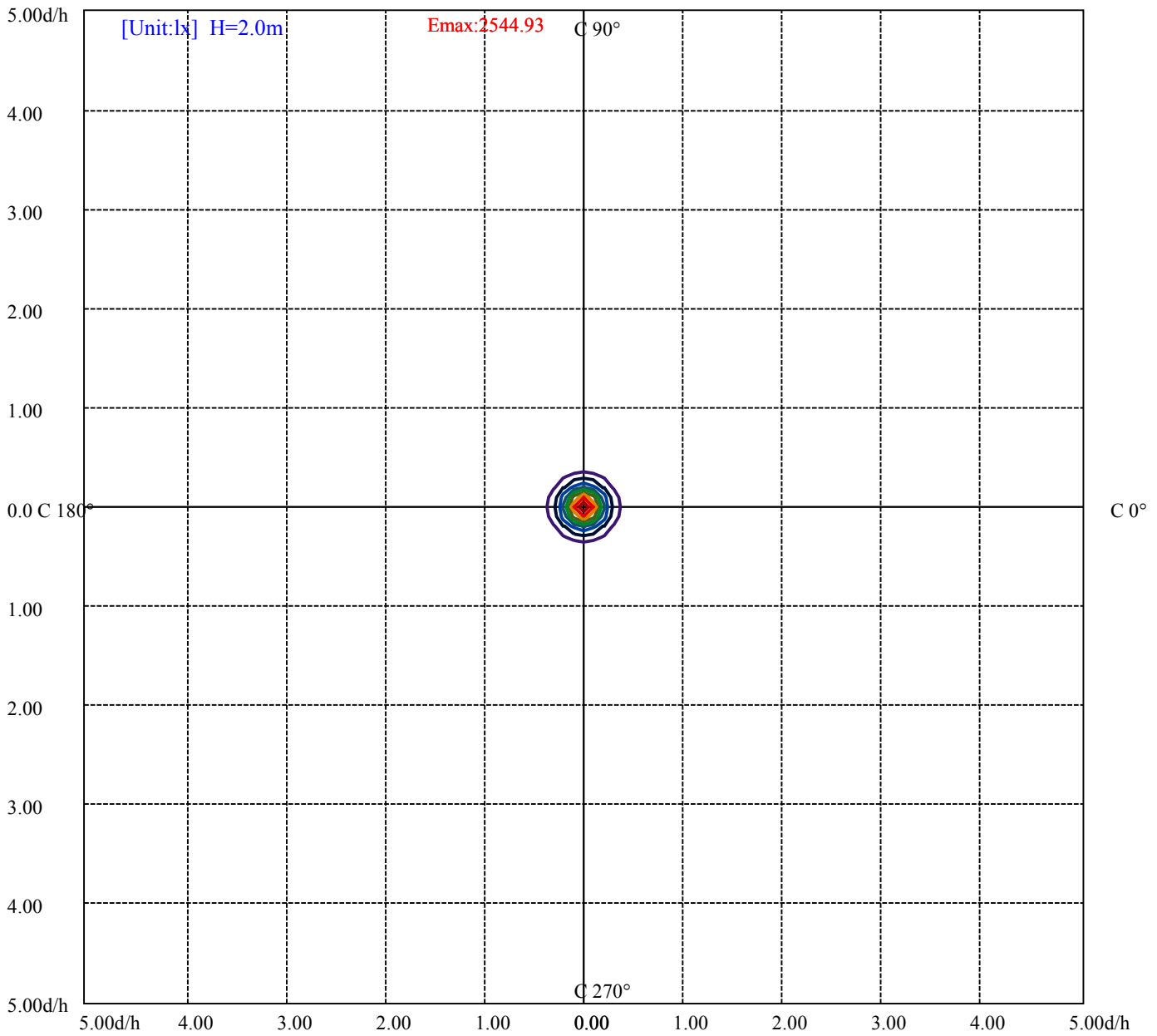
House

[Unit:cd]

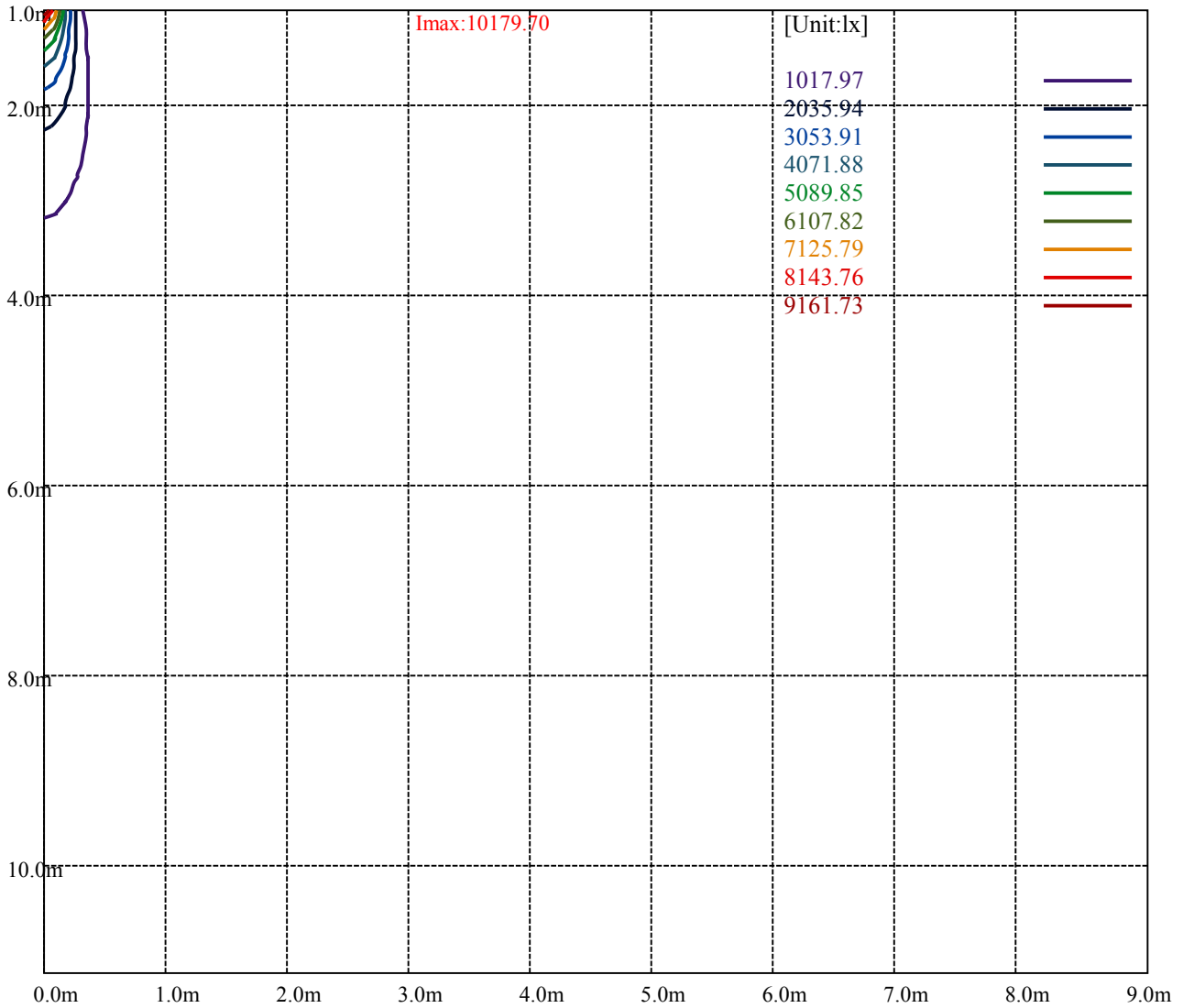
Road

Imax:10179.70

(10%Imax)	1017.97	—
(20%Imax)	2035.94	—
(30%Imax)	3053.91	—
(40%Imax)	4071.88	—
(50%Imax)	5089.85	—
(60%Imax)	6107.82	—
(70%Imax)	7125.79	—
(80%Imax)	8143.76	—
(90%Imax)	9161.73	—



(10%Emax) 254.4925	—
(20%Emax) 508.985	—
(30%Emax) 763.4775	—
(40%Emax) 1017.97	—
(50%Emax) 1272.463	—
(60%Emax) 1526.953	—
(70%Emax) 1781.445	—
(80%Emax) 2035.938	—
(90%Emax) 2290.43	—



Luminance Table

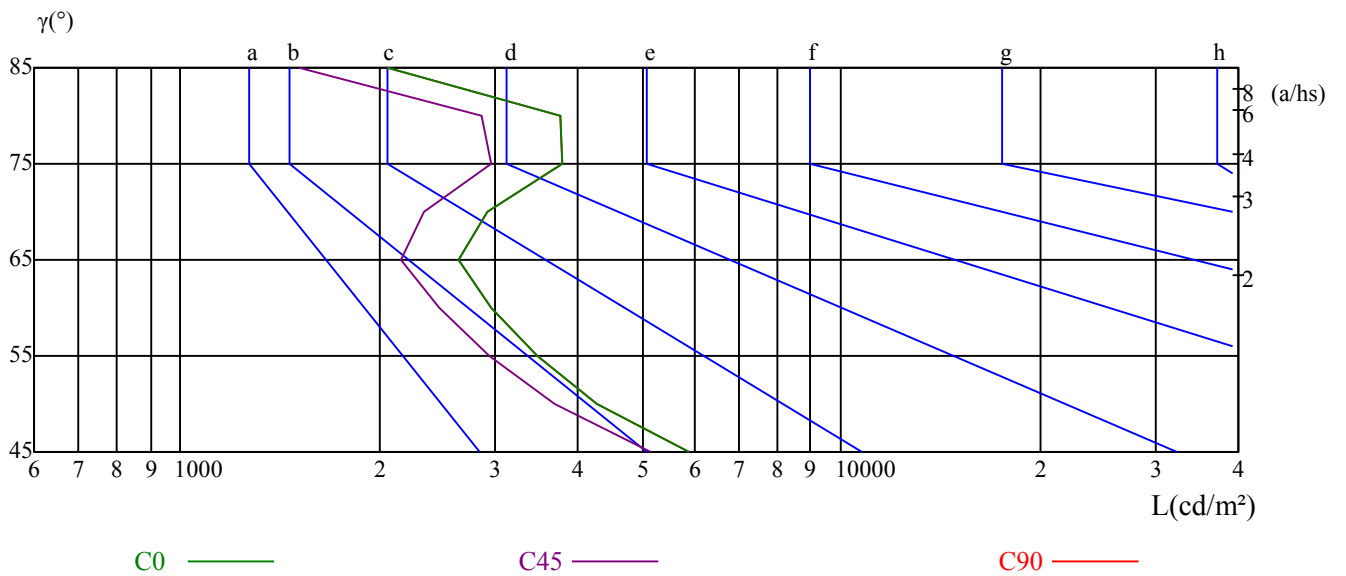
γ	45	50	55	60	65	70	75	80	85
C0	5884	4278	3465	2964	2638	2919	3777	3756	2052
C45	5135	3679	2934	2468	2157	2339	2957	2861	1513
C90	5884	4278	3465	2964	2638	2919	3777	3756	2052

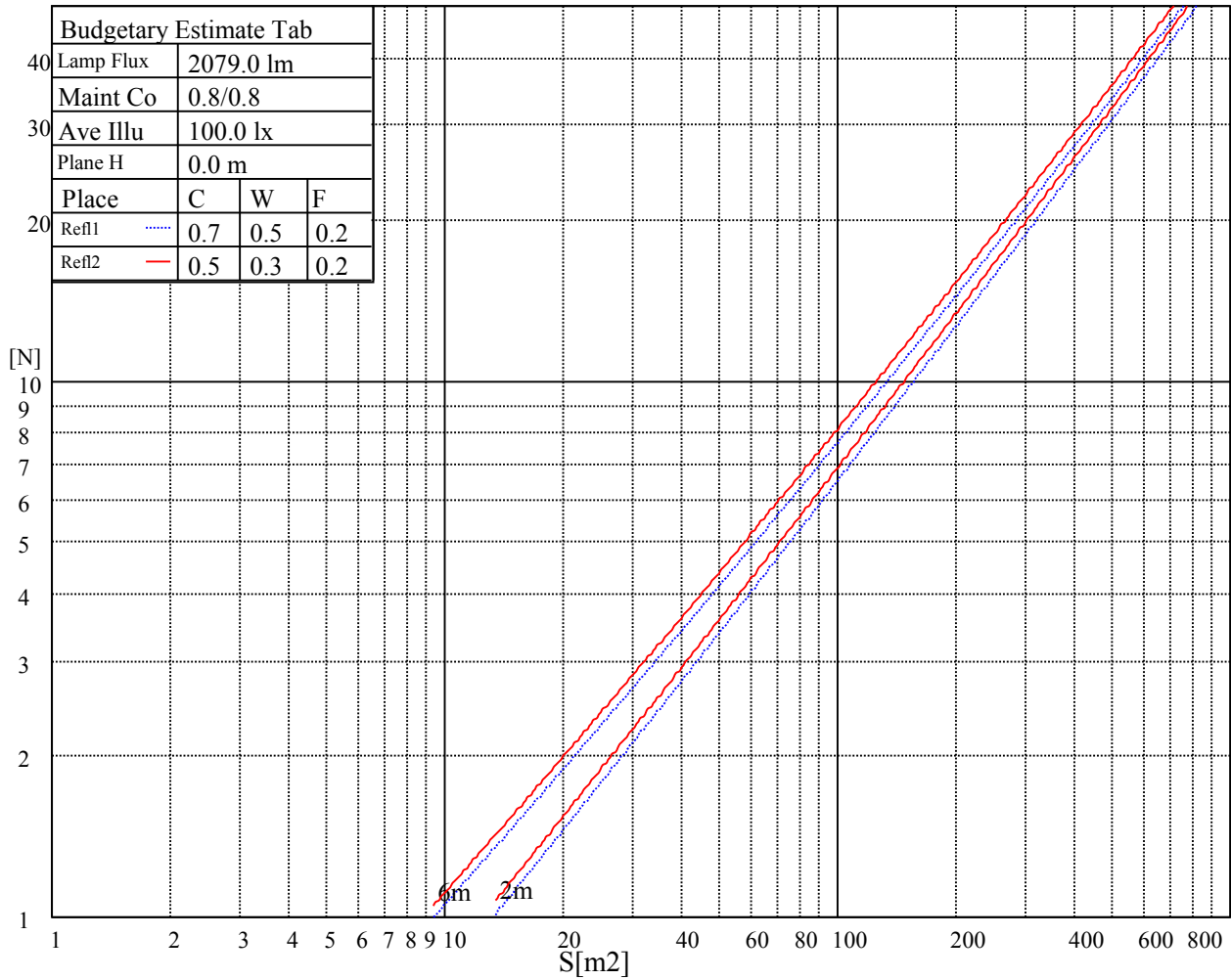
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
5712	5712	5712	11439	11439	11439	14802	14802	14802

Glare Table

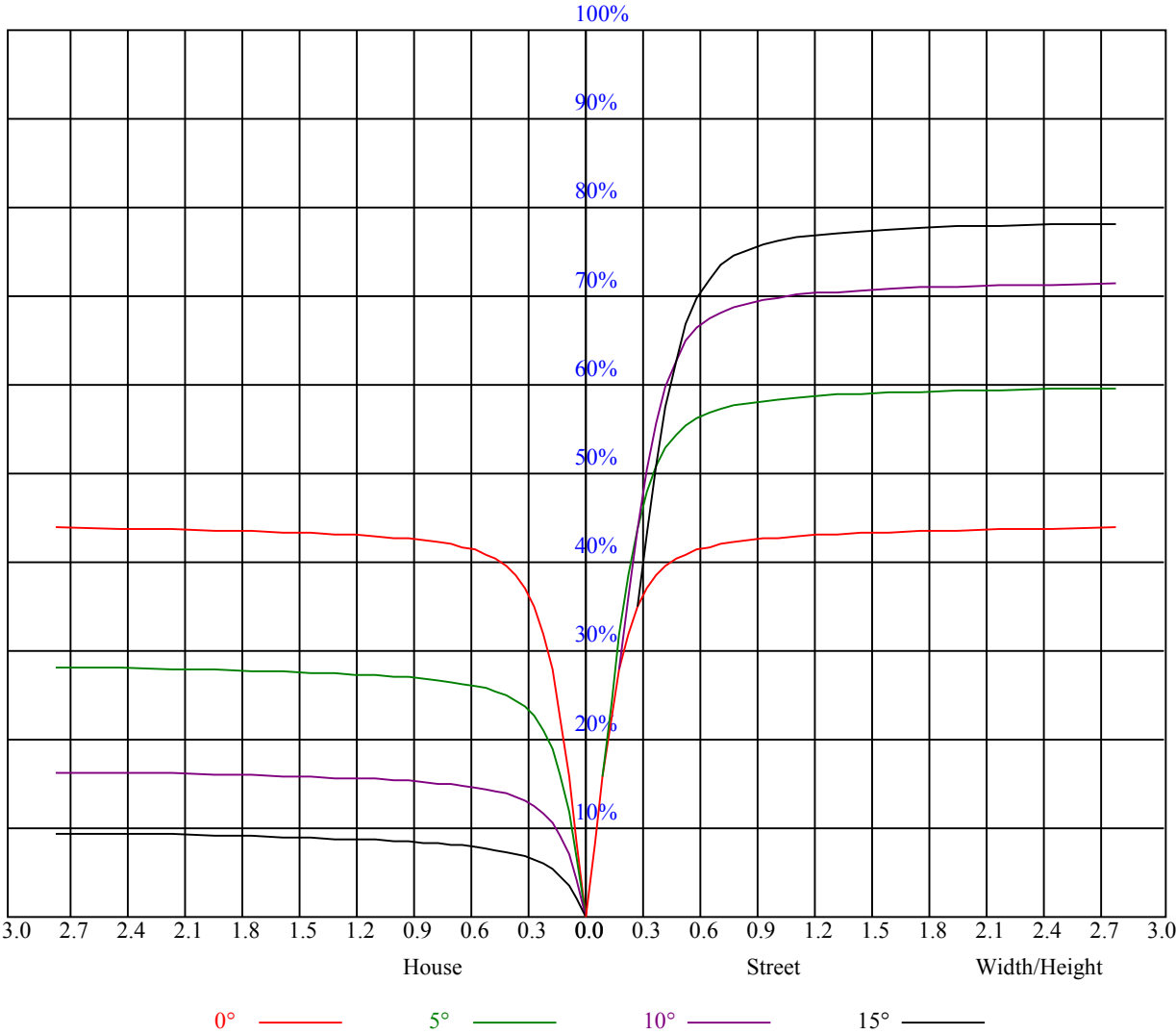
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	1.06	1.06	1.06	1.03	1.03	1.03	0.99	0.99	0.99	0.95	0.95	0.95	0.91	0.91	0.91	0.89
1	0.99	0.97	0.96	0.98	0.96	0.94	0.94	0.93	0.91	0.91	0.90	0.89	0.88	0.87	0.86	0.85
2	0.94	0.91	0.89	0.93	0.90	0.88	0.90	0.88	0.86	0.87	0.86	0.84	0.85	0.84	0.82	0.81
3	0.90	0.86	0.83	0.89	0.85	0.83	0.86	0.84	0.81	0.84	0.82	0.80	0.82	0.81	0.79	0.78
4	0.86	0.82	0.79	0.85	0.82	0.79	0.83	0.80	0.78	0.82	0.79	0.77	0.80	0.78	0.76	0.75
5	0.83	0.79	0.76	0.82	0.78	0.76	0.81	0.77	0.75	0.79	0.76	0.74	0.78	0.76	0.74	0.73
6	0.80	0.76	0.73	0.79	0.75	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.76	0.73	0.71	0.70
7	0.77	0.73	0.71	0.77	0.73	0.70	0.76	0.72	0.70	0.75	0.72	0.70	0.74	0.71	0.69	0.68
8	0.75	0.71	0.68	0.74	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.68	0.72	0.69	0.67	0.67
9	0.73	0.69	0.66	0.72	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.66	0.70	0.68	0.66	0.65
10	0.71	0.67	0.65	0.70	0.67	0.64	0.70	0.67	0.64	0.69	0.66	0.64	0.69	0.66	0.64	0.63



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	10113.75	10320.75	10398.94	10293.19	10054.69	9696.94	9114.19	8563.50	7957.69
45.0	10204.31	10227.38	10099.13	9816.75	9451.13	8986.50	8301.94	7688.81	7054.31
90.0	10162.13	9925.31	9552.94	9119.81	8535.38	7945.88	7229.25	6490.13	5841.56
135.0	10238.63	9969.19	9544.50	9003.94	8445.94	7749.00	7002.56	6332.63	5683.50
180.0	10113.75	9698.06	9257.06	8730.00	7979.06	7413.19	6660.56	5835.94	5270.63
225.0	10204.31	10018.13	9682.31	9275.06	8718.19	8145.00	7444.69	6733.13	6095.25
270.0	10162.13	10244.25	10178.44	9942.19	9608.06	9171.00	8510.63	7917.19	7292.25
315.0	10238.63	10390.50	10376.44	10190.81	9851.06	9443.25	8938.13	8222.63	7588.13
360.0	10113.75	10320.75	10398.94	10293.19	10054.69	9696.94	9114.19	8563.50	7957.69
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	7166.81	6515.44	5861.81	5144.63	4462.31	3893.63	3301.31	2822.06	2345.63
45.0	6249.94	5606.44	4982.06	4387.50	3699.00	3201.19	2751.75	2310.19	1935.56
90.0	5208.19	4466.25	3918.38	3412.13	2839.50	2441.81	2095.88	1760.06	1473.19
135.0	4907.25	4319.44	3776.06	3213.56	2712.38	2323.69	1950.19	1635.19	1395.56
180.0	4650.19	3868.31	3415.50	2940.75	2415.38	2056.50	1746.56	1445.63	1111.22
225.0	5469.75	4718.81	4145.06	3609.00	3006.00	2585.25	2215.69	1852.88	1543.50
270.0	6497.44	5863.50	5242.50	4575.38	3953.25	3446.44	2926.13	2512.13	2111.63
315.0	6938.44	6118.88	5470.88	4849.31	4193.44	3597.19	3116.25	2625.19	2246.63
360.0	7166.81	6515.44	5861.81	5144.63	4462.31	3893.63	3301.31	2822.06	2345.63
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1948.50	1652.63	1366.88	1127.25	946.13	795.38	640.69	540.56	456.75
45.0	1610.44	1371.38	1136.81	960.75	808.31	680.63	570.94	483.19	414.00
90.0	1109.76	1024.43	891.62	748.91	619.99	544.28	460.86	385.48	340.82
135.0	1159.88	990.00	825.75	692.44	591.75	495.56	420.75	366.75	319.50
180.0	994.89	834.92	685.80	566.10	478.97	398.70	333.00	286.09	243.56
225.0	1237.50	1088.83	923.68	768.77	639.51	542.76	453.32	380.76	328.11
270.0	1776.38	1524.94	1280.25	1074.94	920.25	789.75	664.88	560.81	482.63
315.0	1890.00	1589.63	1359.56	1115.55	953.16	814.28	696.94	576.56	497.87
360.0	1948.50	1652.63	1366.88	1127.25	946.13	795.38	640.69	540.56	456.75
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	378.56	316.13	288.00	231.41	201.04	179.16	158.91	144.28	130.61
45.0	364.50	300.94	286.88	230.85	199.18	177.92	160.20	143.66	129.49
90.0	297.96	249.53	223.76	198.00	173.64	154.52	140.23	126.34	114.41
135.0	284.06	237.09	211.33	186.53	162.96	147.09	133.65	119.19	109.58
180.0	212.96	184.67	162.23	145.91	132.75	119.31	110.42	102.43	93.94
225.0	283.67	238.16	209.81	186.24	162.51	146.64	133.43	119.31	109.80
270.0	415.69	347.06	303.19	284.06	226.74	201.99	183.26	161.21	144.11
315.0	430.88	374.01	316.24	278.04	245.36	211.61	189.45	170.44	152.38
360.0	378.56	316.13	288.00	231.41	201.04	179.16	158.91	144.28	130.61
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	119.03	110.14	102.21	93.43	86.96	81.51	75.04	70.26	65.76
45.0	118.74	108.23	99.96	91.69	84.15	77.96	71.78	66.66	61.59
90.0	104.79	95.23	87.64	79.93	73.01	67.44	62.38	56.53	52.26
135.0	100.63	91.69	84.04	77.74	71.21	65.87	60.36	55.86	51.30
180.0	87.86	82.41	76.73	71.49	66.99	62.21	58.33	54.28	50.34
225.0	101.25	92.31	86.51	79.71	72.84	68.46	63.90	58.11	54.73
270.0	132.75	118.41	108.68	99.79	90.11	83.53	77.51	70.43	65.19
315.0	136.41	124.37	112.56	102.04	93.83	85.78	79.31	72.68	66.49
360.0	119.03	110.14	102.21	93.43	86.96	81.51	75.04	70.26	65.76

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	60.92	56.53	52.88	49.39	46.01	42.81	40.33	38.03	35.94
45.0	57.66	52.88	49.56	46.52	43.65	41.12	39.04	37.01	35.16
90.0	48.60	44.33	41.46	38.87	36.56	34.26	32.63	31.11	29.64
135.0	47.42	43.71	40.89	38.81	36.00	34.14	32.85	31.05	29.64
180.0	47.25	44.21	41.34	39.21	37.29	35.10	33.53	32.01	30.54
225.0	51.19	46.80	44.38	41.79	39.54	37.35	35.61	33.86	32.40
270.0	60.47	55.24	51.30	47.70	44.21	41.06	38.70	36.39	34.43
315.0	61.37	56.81	51.47	47.70	44.44	40.95	38.59	36.34	34.31
360.0	60.92	56.53	52.88	49.39	46.01	42.81	40.33	38.03	35.94
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	34.31	32.63	31.22	29.70	28.52	27.45	26.27	25.14	24.30
45.0	33.64	32.06	30.77	29.42	28.13	27.06	25.93	24.86	23.96
90.0	28.24	27.17	26.04	24.98	24.19	23.29	22.61	21.88	21.26
135.0	28.52	27.23	26.04	25.14	24.13	23.34	22.56	21.71	20.98
180.0	29.14	28.01	26.89	25.76	24.86	23.85	23.01	22.22	21.32
225.0	30.94	29.48	28.35	27.11	25.88	24.92	24.08	23.06	22.22
270.0	32.79	31.33	30.09	28.80	27.56	26.55	25.37	24.41	23.63
315.0	32.51	31.11	29.59	28.29	27.11	25.88	24.98	24.08	23.06
360.0	34.31	32.63	31.22	29.70	28.52	27.45	26.27	25.14	24.30
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	23.51	22.44	21.77	21.09	20.42	19.80	19.29	18.68	18.11
45.0	23.12	22.05	21.32	20.64	19.97	19.24	18.68	18.06	17.33
90.0	20.70	20.19	19.74	20.81	23.12	26.78	29.98	33.02	36.68
135.0	20.36	19.69	19.13	18.68	18.11	17.61	17.27	17.89	19.18
180.0	20.64	20.03	19.35	18.84	18.28	17.66	17.16	16.65	16.03
225.0	21.49	20.64	19.97	19.46	18.96	18.17	17.61	16.99	16.37
270.0	22.89	21.99	21.38	20.81	21.38	23.23	25.59	28.86	32.63
315.0	22.39	21.66	20.81	20.25	19.86	19.29	18.79	18.39	18.00
360.0	23.51	22.44	21.77	21.09	20.42	19.80	19.29	18.68	18.11
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	17.61	16.99	16.48	15.92	15.41	15.02	14.74	14.18	13.84
45.0	16.76	16.14	15.58	14.96	14.51	14.18	13.78	13.33	12.94
90.0	39.99	42.75	45.96	48.60	50.12	50.91	49.39	43.82	37.29
135.0	20.42	21.99	23.18	24.19	24.08	22.89	20.87	18.39	15.81
180.0	15.53	15.13	14.68	14.23	13.84	13.44	13.05	12.66	12.21
225.0	15.69	15.13	14.63	14.18	13.84	13.44	13.05	12.60	12.15
270.0	35.78	39.77	43.03	46.29	49.22	51.81	53.83	55.24	54.39
315.0	18.45	19.46	20.81	22.11	23.51	24.47	24.47	23.63	21.66
360.0	17.61	16.99	16.48	15.92	15.41	15.02	14.74	14.18	13.84
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	13.56	12.99	12.49	12.04	11.64	11.25	10.35	9.62	9.23
45.0	12.49	11.93	11.48	11.03	10.52	9.79	9.23	8.72	8.49
90.0	30.38	22.84	15.53	12.38	9.90	9.06	8.49	8.27	8.16
135.0	13.39	12.09	11.70	10.86	9.45	8.72	8.33	8.10	8.04
180.0	11.76	11.36	10.91	10.58	9.45	8.94	8.66	8.55	8.61
225.0	11.70	11.31	10.74	10.24	9.73	9.17	8.61	8.38	8.10
270.0	49.67	40.28	31.73	22.73	14.79	10.41	9.34	8.89	8.44
315.0	19.46	16.93	14.23	12.54	11.87	10.29	9.56	9.06	8.61
360.0	13.56	12.99	12.49	12.04	11.64	11.25	10.35	9.62	9.23

Intensity data(cd)

C/ γ (°)	90.0
0.0	8.94
45.0	8.27
90.0	8.10
135.0	8.04
180.0	8.38
225.0	8.16
270.0	8.16
315.0	8.27
360.0	8.94