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Nata

LumCAT: 1-1209-L

Luminaire:

Report No: 220923-B015

Voltage(V): 35.5900

Test No: 220923-C015

Current(A): 0.2820

LampCAT: CITIZEN CLU028

Power (W): 10.0360

Lamp flux(lm): 1199.6

PF: 0.0000

Number of Lamps: 1

Ballast type: DC

Length(mm): 43

Width(mm): 43

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 1012.50

Efficiency(%): 84.40%

Lumens(lm)/Power(W): 100.89

Central intensity(cd): 4987.126

Maximum intensity(cd): 4987.126

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=19.2

[C90/270]Total=19.2

Field angle(10%Imax): [C0/180]Total=49.3

[C90/270]Total=49.3

Maximum s/h(1/2): C0_180=0.33 C90_270=0.33

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(%): 84.40%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 98.009%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4987.126	0.000	0	.000%	.000%
1.0	4955.383	4.757	4.757	.397%	.470%
2.0	4844.242	14.065	18.823	1.173%	1.859%
3.0	4659.232	22.729	41.552	1.895%	4.104%
4.0	4429.557	30.423	71.975	2.536%	7.109%
5.0	4139.382	36.863	108.838	3.073%	10.749%
6.0	3800.733	41.727	150.565	3.478%	14.871%
7.0	3430.115	44.882	195.447	3.741%	19.304%
8.0	3074.063	46.549	241.996	3.880%	23.901%
9.0	2712.334	46.896	288.892	3.909%	28.533%
10.0	2347.841	45.793	334.685	3.817%	33.055%
11.0	2062.521	44.069	378.753	3.674%	37.408%
12.0	1820.521	42.447	421.2	3.538%	41.600%
13.0	1598.913	40.580	461.781	3.383%	45.608%
14.0	1417.787	38.613	500.394	3.219%	49.422%
15.0	1262.317	36.794	537.188	3.067%	53.056%
16.0	1143.080	35.246	572.434	2.938%	56.537%
17.0	1037.236	33.953	606.387	2.830%	59.890%
18.0	937.620	32.561	638.948	2.714%	63.106%
19.0	848.775	31.080	670.028	2.591%	66.176%
20.0	767.332	29.579	699.607	2.466%	69.097%
21.0	694.732	28.075	727.681	2.340%	71.870%
22.0	637.877	26.779	754.461	2.232%	74.515%
23.0	586.198	25.684	780.145	2.141%	77.052%
24.0	535.491	24.524	804.669	2.044%	79.474%
25.0	478.202	23.049	827.719	1.921%	81.750%
26.0	426.240	21.349	849.068	1.780%	83.859%
27.0	372.231	19.535	868.603	1.628%	85.788%
28.0	318.184	17.480	886.083	1.457%	87.515%
29.0	275.237	15.526	901.608	1.294%	89.048%
30.0	223.050	13.454	915.062	1.122%	90.377%
31.0	176.062	11.107	926.169	.926%	91.474%
32.0	137.439	8.981	935.15	.749%	92.361%
33.0	106.046	7.173	942.323	.598%	93.069%
34.0	80.569	5.648	947.971	.471%	93.627%
35.0	64.780	4.514	952.485	.376%	94.073%
36.0	54.666	3.803	956.288	.317%	94.449%
37.0	47.123	3.320	959.608	.277%	94.776%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	40.662	2.930	962.538	.244%	95.066%
39.0	35.142	2.587	965.125	.216%	95.321%
40.0	31.034	2.308	967.433	.192%	95.549%
41.0	27.875	2.098	969.531	.175%	95.757%
42.0	24.962	1.920	971.451	.160%	95.946%
43.0	22.482	1.757	973.208	.147%	96.120%
44.0	20.533	1.623	974.831	.135%	96.280%
45.0	18.800	1.512	976.343	.126%	96.429%
46.0	17.328	1.413	977.756	.118%	96.569%
47.0	16.111	1.330	979.086	.111%	96.700%
48.0	15.065	1.260	980.346	.105%	96.825%
49.0	14.109	1.198	981.544	.100%	96.943%
50.0	13.288	1.142	982.687	.095%	97.056%
51.0	12.615	1.096	983.782	.091%	97.164%
52.0	12.003	1.056	984.839	.088%	97.268%
53.0	11.458	1.021	985.859	.085%	97.369%
54.0	10.972	0.989	986.848	.082%	97.467%
55.0	10.576	0.962	987.81	.080%	97.562%
56.0	10.218	0.940	988.749	.078%	97.655%
57.0	9.912	0.920	989.67	.077%	97.746%
58.0	9.605	0.903	990.572	.075%	97.835%
59.0	9.351	0.886	991.459	.074%	97.922%
60.0	9.142	0.874	992.332	.073%	98.009%
61.0	8.941	0.863	993.195	.072%	98.094%
62.0	8.761	0.853	994.048	.071%	98.178%
63.0	8.619	0.845	994.894	.070%	98.262%
64.0	8.463	0.838	995.732	.070%	98.344%
65.0	8.276	0.828	996.56	.069%	98.426%
66.0	8.074	0.816	997.376	.068%	98.507%
67.0	7.865	0.801	998.177	.067%	98.586%
68.0	7.611	0.784	998.961	.065%	98.663%
69.0	7.394	0.766	999.727	.064%	98.739%
70.0	7.163	0.748	1000.474	.062%	98.813%
71.0	6.931	0.728	1001.203	.061%	98.885%
72.0	6.722	0.710	1001.913	.059%	98.955%
73.0	6.528	0.693	1002.606	.058%	99.023%
74.0	6.349	0.677	1003.283	.056%	99.090%
75.0	6.184	0.662	1003.945	.055%	99.155%

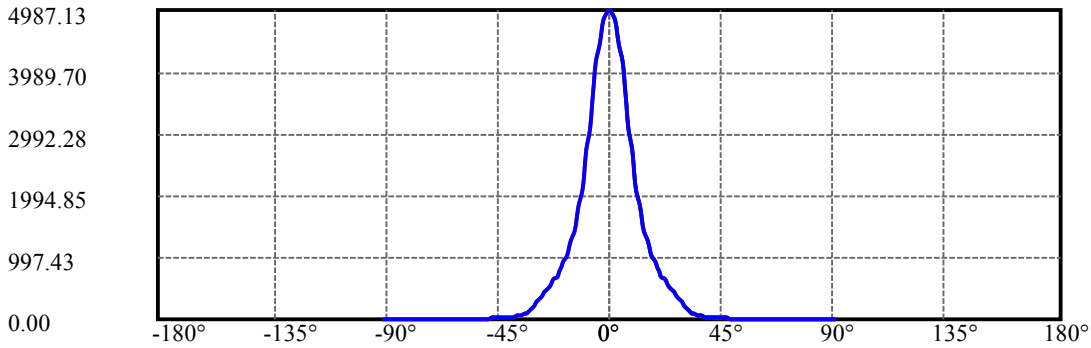
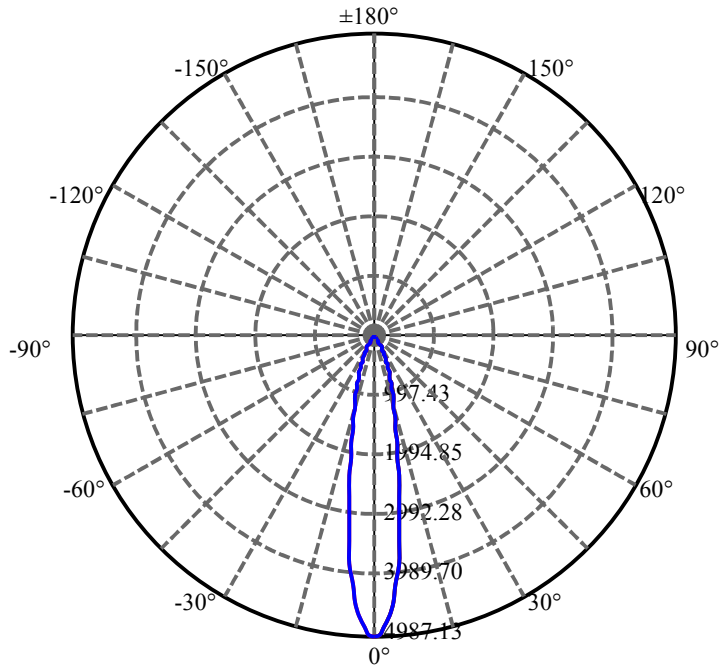
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	6.028	0.648	1004.593	.054%	99.220%
77.0	5.871	0.634	1005.227	.053%	99.282%
78.0	5.751	0.622	1005.85	.052%	99.344%
79.0	5.609	0.610	1006.46	.051%	99.404%
80.0	5.475	0.598	1007.058	.050%	99.463%
81.0	5.363	0.586	1007.644	.049%	99.521%
82.0	5.281	0.577	1008.221	.048%	99.578%
83.0	5.191	0.569	1008.79	.047%	99.634%
84.0	5.079	0.559	1009.35	.047%	99.689%
85.0	4.967	0.548	1009.898	.046%	99.743%
86.0	4.870	0.538	1010.436	.045%	99.797%
87.0	4.758	0.527	1010.962	.044%	99.849%
88.0	4.706	0.518	1011.481	.043%	99.900%
89.0	4.608	0.511	1011.991	.043%	99.950%
90.0	4.586	0.504	1012.496	.042%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	915.06	76.28%	90.38%
0-40	967.43	80.65%	95.55%
0-60	992.33	82.72%	98.01%
0-90	1011.99	84.36%	99.95%
0-120	1011.99	84.36%	99.95%
0-180	1012.50	84.40%	100.00%
60-90	20.53	1.71%	2.03%
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%
0-24.23	810.00	67.52%	80.00%

ZONAL LUMEN SUMMARY

0-10	334.68
10-20	364.92
20-30	215.45
30-40	52.37
40-50	15.25
50-60	9.65
60-70	8.14
70-80	6.58
80-90	4.93
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



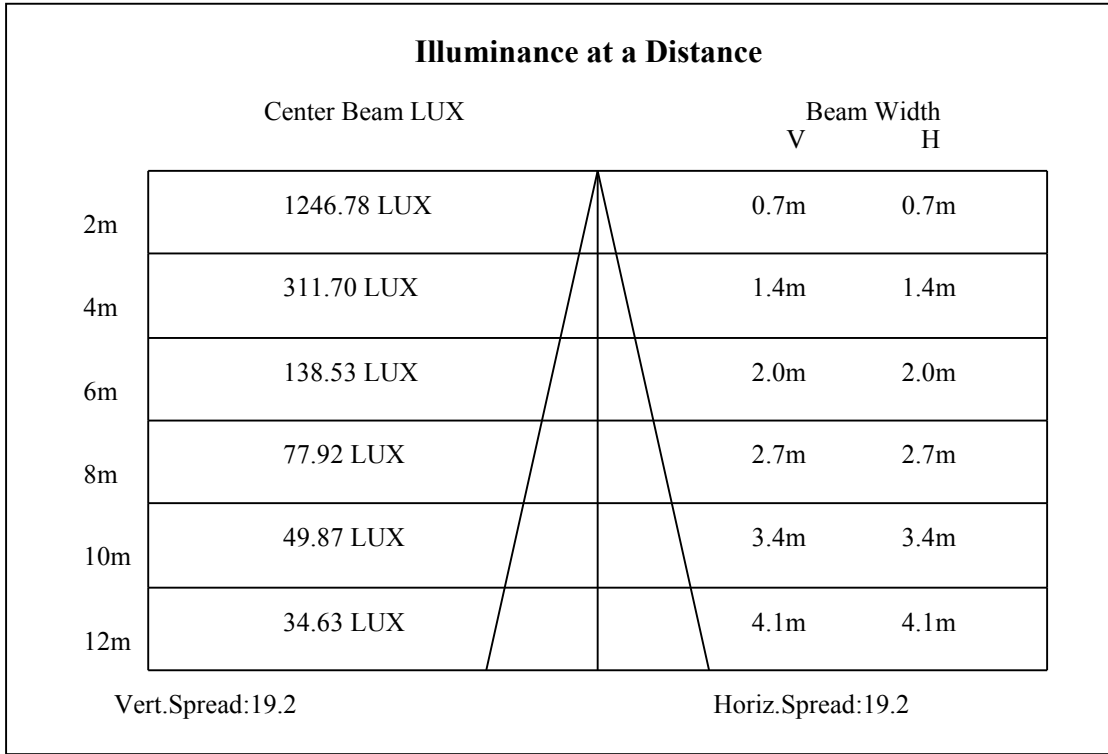
C0(Max): ———

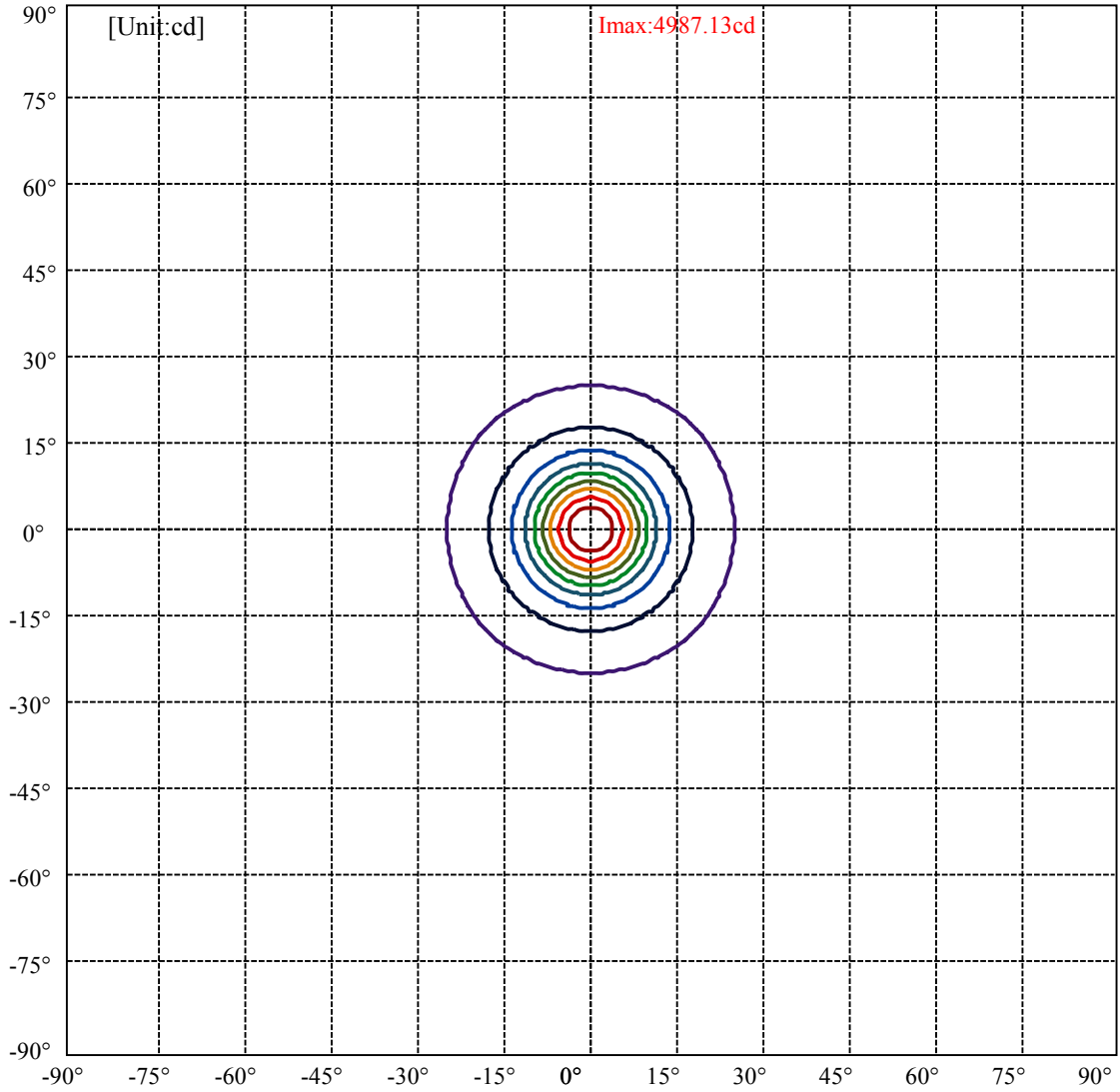
C0/C180: ———

C90/C270: ———

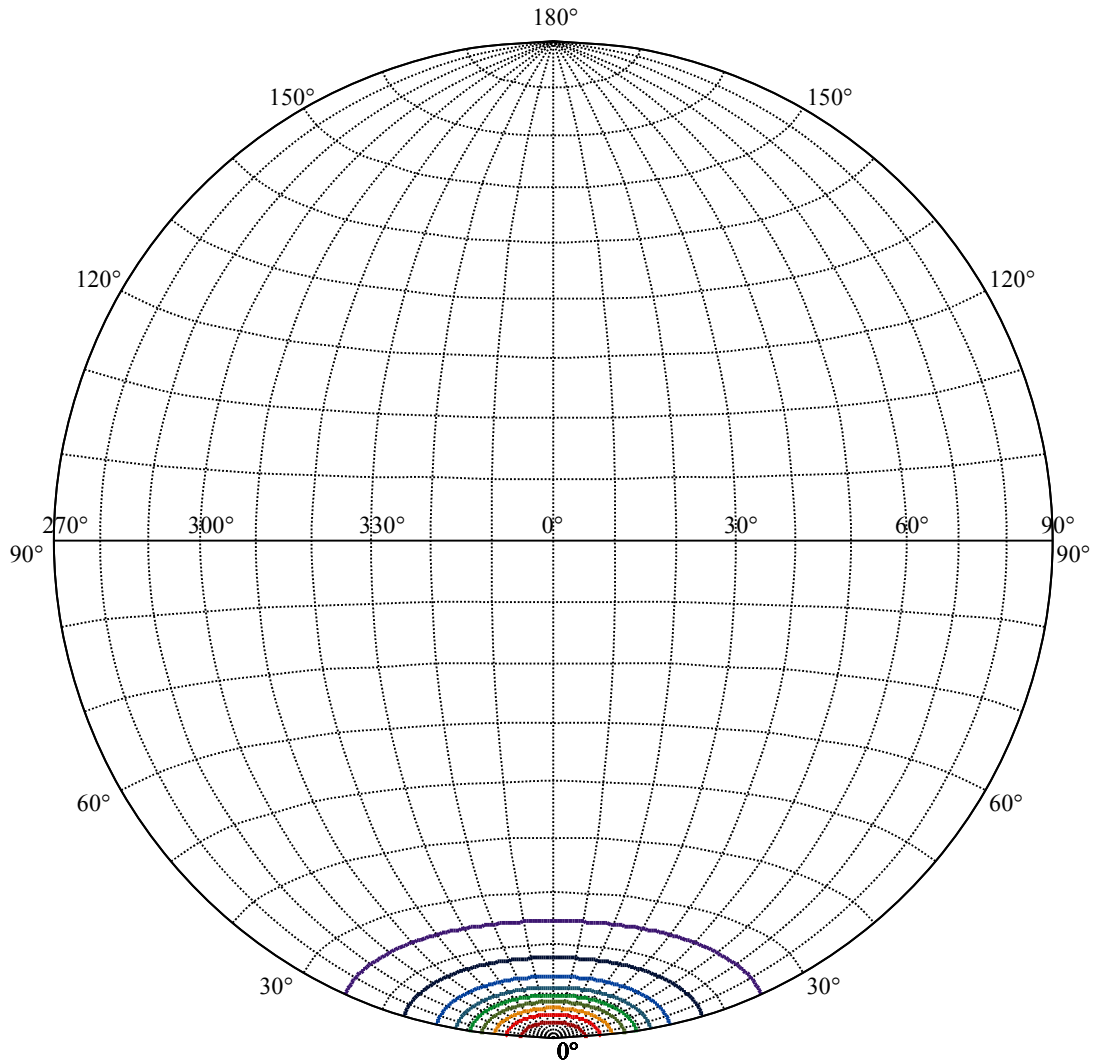
Field angle(10%Imax):C0/180Left:24.6 Right:24.6
:C90/270Left:24.6 Right:24.6

Beam Angle(50%Imax):C0/180Left:9.6 Right:9.6
:C90/270Left:9.6 Right:9.6





(10%Imax) 498.713	—
(20%Imax) 997.425	—
(30%Imax) 1496.14	—
(40%Imax) 1994.85	—
(50%Imax) 2493.56	—
(60%Imax) 2992.28	—
(70%Imax) 3490.99	—
(80%Imax) 3989.7	—
(90%Imax) 4488.41	—



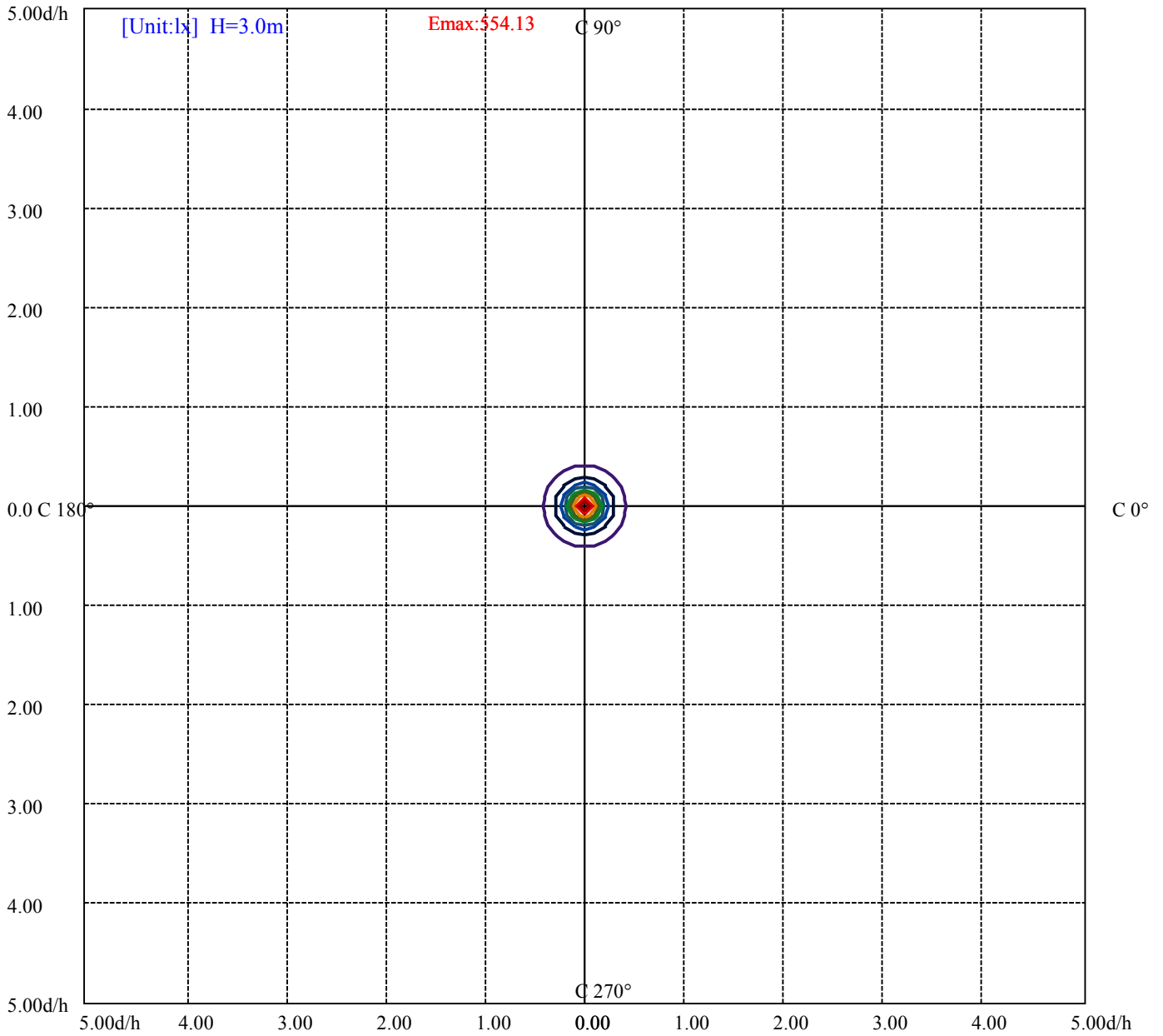
House

[Unit:cd]

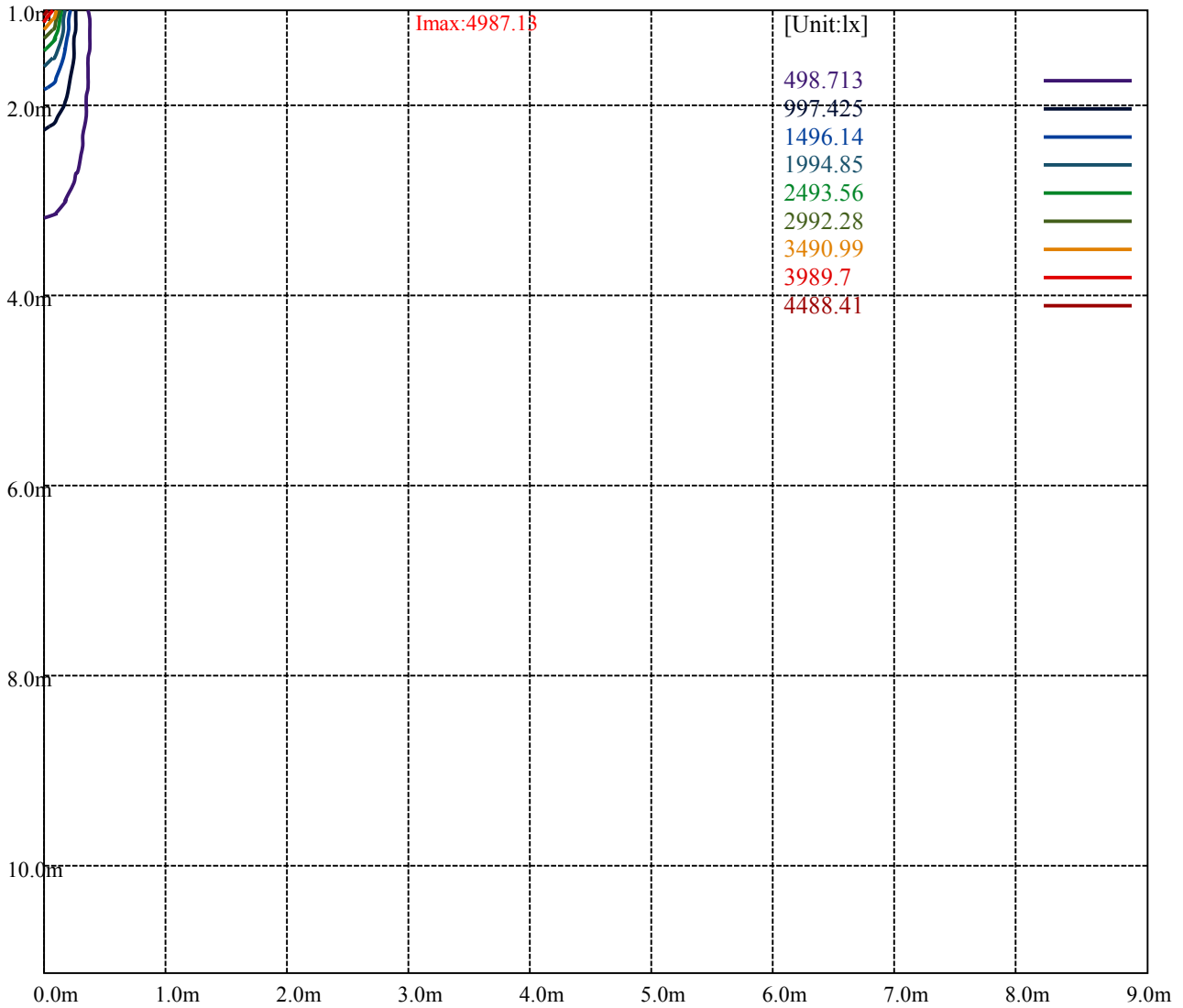
Road

Imax:4987.13

(10%Imax) 498.713	—
(20%Imax) 997.425	—
(30%Imax) 1496.14	—
(40%Imax) 1994.85	—
(50%Imax) 2493.56	—
(60%Imax) 2992.28	—
(70%Imax) 3490.99	—
(80%Imax) 3989.7	—
(90%Imax) 4488.41	—



- (10%Emax) 55.41245
- (20%Emax) 110.8249
- (30%Emax) 166.2378
- (40%Emax) 221.65
- (50%Emax) 277.0622
- (60%Emax) 332.4745
- (70%Emax) 387.8867
- (80%Emax) 443.3
- (90%Emax) 498.7122



Luminance Table

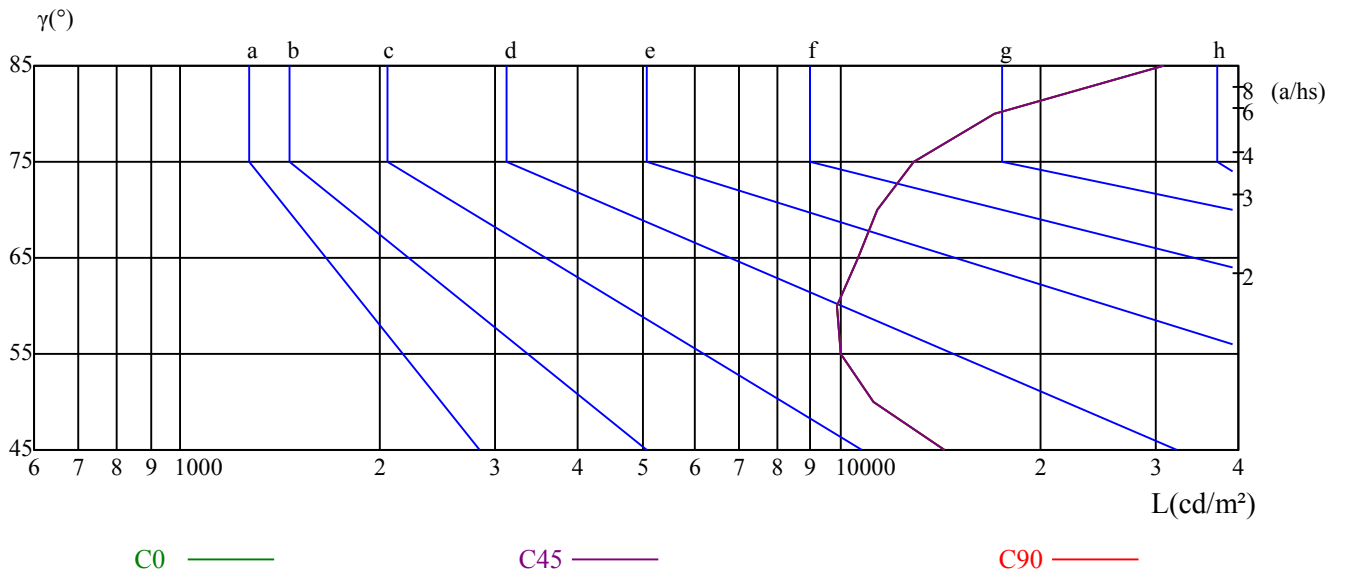
γ	45	50	55	60	65	70	75	80	85
C0	14379	11180	9972	9889	10591	11327	12923	17052	30822
C45	14379	11180	9972	9889	10591	11327	12923	17052	30822
C90	14379	11180	9972	9889	10591	11327	12923	17052	30822

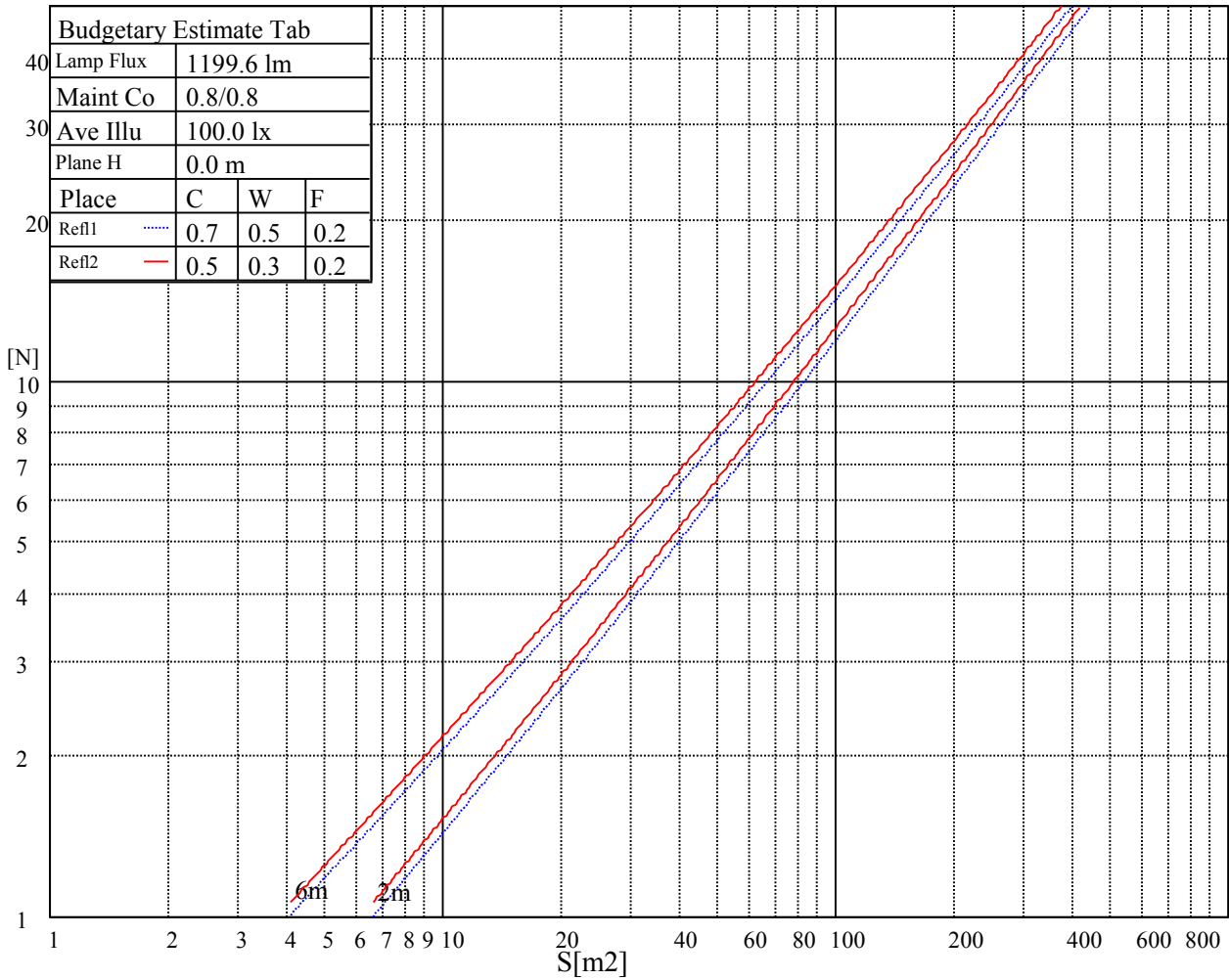
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
10591	10591	10591	12923	12923	12923	30822	30822	30822

Glare Table

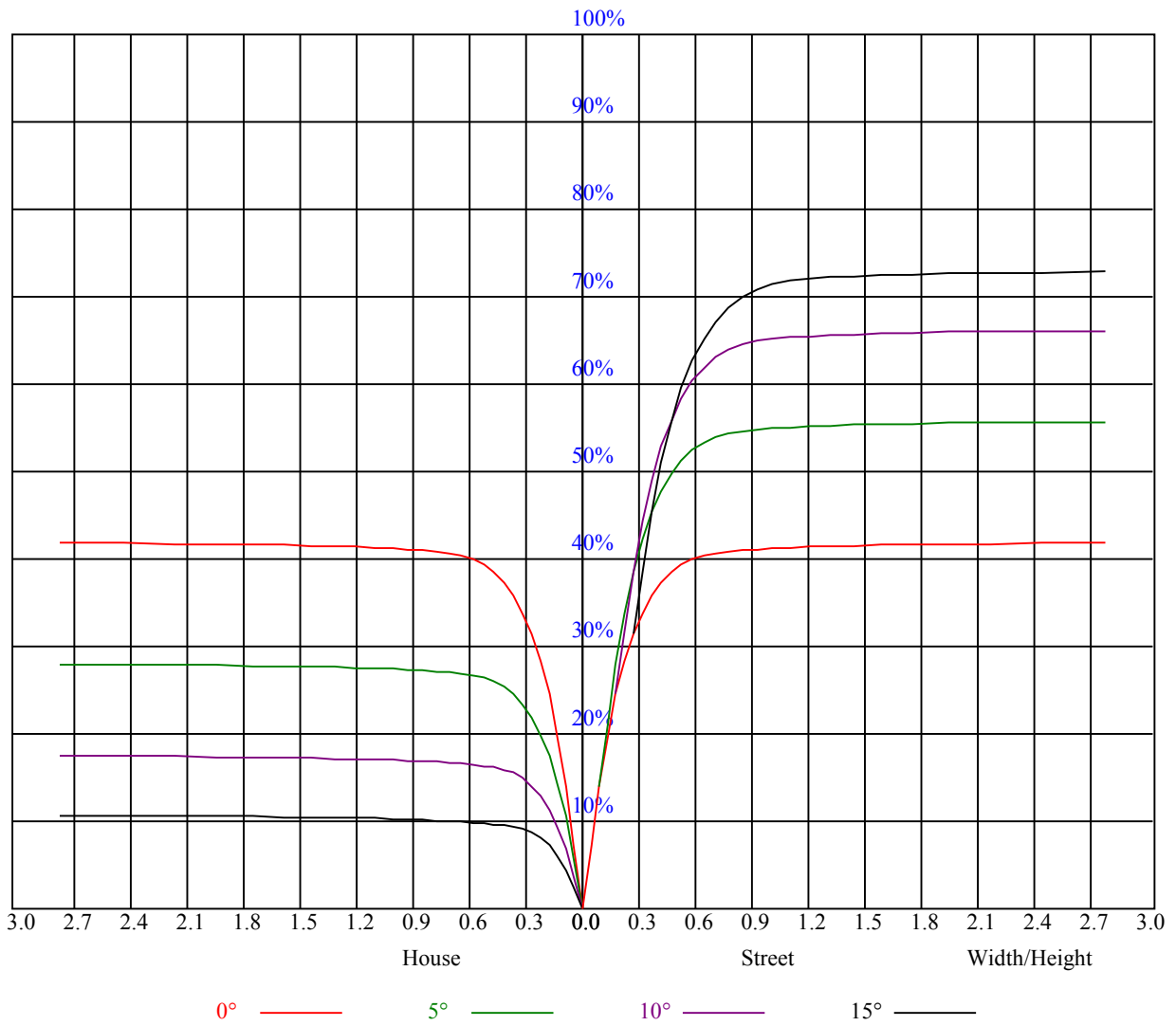
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	1.00	1.00	1.00	0.98	0.98	0.98	0.94	0.94	0.94	0.90	0.90	0.90	0.86	0.86	0.86	0.84
1	0.95	0.93	0.91	0.93	0.91	0.90	0.89	0.88	0.87	0.86	0.85	0.84	0.83	0.83	0.82	0.80
2	0.89	0.87	0.84	0.88	0.86	0.83	0.85	0.83	0.82	0.83	0.81	0.80	0.81	0.79	0.78	0.77
3	0.85	0.82	0.79	0.84	0.81	0.78	0.82	0.79	0.77	0.80	0.78	0.76	0.78	0.76	0.75	0.74
4	0.81	0.78	0.75	0.81	0.77	0.74	0.79	0.76	0.74	0.77	0.75	0.73	0.76	0.74	0.72	0.71
5	0.78	0.74	0.71	0.77	0.74	0.71	0.76	0.73	0.70	0.75	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	0.68	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
8	0.70	0.66	0.63	0.69	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.63	0.67	0.65	0.63	0.62
9	0.68	0.64	0.61	0.67	0.64	0.61	0.67	0.63	0.61	0.66	0.63	0.61	0.65	0.63	0.61	0.60
10	0.65	0.62	0.59	0.65	0.62	0.59	0.65	0.61	0.59	0.64	0.61	0.59	0.63	0.61	0.59	0.58



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	5009.68	4961.88	4829.23	4626.07	4395.42	4076.34	3714.24	3371.86	3032.46
45.0	4975.62	4926.03	4749.76	4544.81	4306.99	3943.09	3616.25	3264.30	2878.30
90.0	4983.39	4932.00	4798.76	4585.44	4349.41	4063.20	3702.29	3311.51	2957.17
135.0	4979.81	5015.66	4959.49	4854.92	4633.84	4365.55	4079.33	3713.05	3371.26
180.0	5009.68	4981.00	4891.37	4727.05	4489.24	4223.93	3876.77	3489.57	3134.04
225.0	4975.62	4973.23	4902.13	4749.76	4557.35	4302.81	3975.96	3609.67	3225.46
270.0	4983.39	4961.88	4873.45	4727.65	4485.65	4220.94	3883.34	3513.47	3166.31
315.0	4979.81	4891.37	4749.76	4458.16	4218.55	3919.19	3557.69	3167.50	2827.51
360.0	5009.68	4961.88	4829.23	4626.07	4395.42	4076.34	3714.24	3371.86	3032.46
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	2613.59	2310.64	2039.37	1811.11	1571.50	1414.95	1275.13	1127.54	1024.76
45.0	2510.22	2209.66	1922.85	1708.34	1505.77	1342.65	1217.17	1091.09	985.33
90.0	2575.95	2236.55	1974.24	1731.64	1547.00	1375.51	1181.08	1110.45	1011.74
135.0	3021.11	2588.50	2275.99	2004.11	1716.70	1541.62	1388.06	1219.56	1106.62
180.0	2778.51	2373.98	2090.16	1847.56	1625.28	1437.65	1185.98	1154.61	1051.35
225.0	2878.89	2501.26	2166.64	1910.90	1698.77	1478.88	1333.68	1188.01	1080.21
270.0	2825.71	2426.57	2141.54	1893.57	1641.41	1469.92	1325.92	1183.70	1064.20
315.0	2494.68	2135.57	1889.39	1656.95	1484.86	1281.10	1191.53	1069.70	973.67
360.0	2613.59	2310.64	2039.37	1811.11	1571.50	1414.95	1275.13	1127.54	1024.76
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	932.74	840.72	757.07	692.54	635.17	586.18	533.00	474.44	423.05
45.0	898.09	818.61	726.60	664.45	619.04	555.10	503.12	452.33	394.97
90.0	897.85	816.58	742.67	664.93	615.81	569.56	515.13	457.41	406.62
135.0	1006.84	908.24	816.82	737.35	674.01	620.24	570.64	516.86	464.28
180.0	944.45	849.21	773.14	696.54	634.58	589.04	543.09	481.91	432.01
225.0	973.79	890.20	812.34	723.61	663.79	607.51	559.65	503.72	453.29
270.0	968.00	874.18	787.54	720.02	656.68	607.69	555.70	498.94	446.95
315.0	879.20	792.44	722.47	658.42	603.92	554.27	503.60	440.02	388.75
360.0	932.74	840.72	757.07	692.54	635.17	586.18	533.00	474.44	423.05
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	365.09	308.92	302.95	216.19	167.91	133.13	103.67	76.24	62.80
45.0	342.38	304.74	236.32	194.79	154.40	117.83	89.75	68.42	57.42
90.0	351.47	297.15	250.72	202.92	164.68	125.54	93.99	74.27	61.78
135.0	407.51	351.94	304.74	270.62	202.14	161.21	126.32	92.80	71.34
180.0	382.42	327.15	273.01	228.32	182.49	141.67	110.42	82.64	66.27
225.0	395.03	344.89	291.71	242.06	200.59	157.75	120.04	92.56	73.32
270.0	394.97	331.63	307.13	235.78	184.99	148.07	116.28	89.75	68.00
315.0	338.98	279.05	235.31	193.72	151.29	114.31	87.90	67.88	57.30
360.0	365.09	308.92	302.95	216.19	167.91	133.13	103.67	76.24	62.80
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	54.26	46.43	39.56	34.60	30.41	27.31	24.44	21.99	20.14
45.0	50.13	43.50	36.69	32.27	28.74	25.39	22.65	20.61	18.70
90.0	52.28	45.83	39.97	34.24	30.65	27.67	24.50	22.35	20.50
135.0	60.23	51.87	44.40	38.90	33.94	30.59	27.43	24.74	22.65
180.0	54.97	47.20	41.23	35.61	31.25	28.20	25.57	22.71	20.79
225.0	59.10	51.75	45.11	38.12	34.00	30.65	27.37	24.56	22.53
270.0	57.66	49.12	42.48	36.27	31.73	28.44	25.34	22.95	20.67
315.0	48.70	41.29	35.85	31.13	27.55	24.74	22.41	19.96	18.28
360.0	54.26	46.43	39.56	34.60	30.41	27.31	24.44	21.99	20.14

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	18.40	16.91	15.83	14.88	13.80	13.09	12.43	11.83	11.29
45.0	17.09	15.89	14.76	13.86	13.09	12.31	11.77	11.23	10.64
90.0	18.58	17.45	16.19	14.94	14.22	13.38	12.61	12.07	11.59
135.0	20.73	19.06	17.81	16.67	15.42	14.64	13.86	13.15	12.49
180.0	19.18	17.51	16.31	15.30	14.16	13.38	12.73	11.95	11.47
225.0	20.50	18.94	17.51	16.25	15.30	14.34	13.56	12.97	12.37
270.0	19.00	17.27	16.01	15.00	14.10	13.09	12.43	11.83	11.23
315.0	16.91	15.60	14.46	13.62	12.79	12.07	11.53	10.99	10.58
360.0	18.40	16.91	15.83	14.88	13.80	13.09	12.43	11.83	11.29
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	10.88	10.46	10.16	9.86	9.56	9.32	9.14	8.96	8.78
45.0	10.34	9.98	9.62	9.38	9.20	8.96	8.72	8.60	8.48
90.0	10.99	10.64	10.34	9.98	9.68	9.44	9.14	8.96	8.78
135.0	11.89	11.41	10.93	10.64	10.22	9.92	9.68	9.38	9.14
180.0	10.93	10.46	10.16	9.86	9.44	9.20	9.02	8.78	8.60
225.0	11.77	11.35	10.93	10.52	10.22	9.92	9.68	9.44	9.20
270.0	10.82	10.46	10.04	9.74	9.44	9.20	9.02	8.84	8.66
315.0	10.16	9.86	9.56	9.32	9.08	8.84	8.72	8.54	8.43
360.0	10.88	10.46	10.16	9.86	9.56	9.32	9.14	8.96	8.78
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	8.66	8.48	8.31	8.13	7.89	7.65	7.47	7.17	6.93
45.0	8.31	8.19	8.01	7.77	7.53	7.35	7.11	6.93	6.69
90.0	8.66	8.48	8.25	8.07	7.83	7.59	7.35	7.11	6.93
135.0	8.96	8.72	8.54	8.31	8.13	7.83	7.65	7.41	7.11
180.0	8.48	8.31	8.13	8.01	7.77	7.53	7.29	7.05	6.87
225.0	9.02	8.90	8.72	8.48	8.31	8.01	7.77	7.53	7.29
270.0	8.54	8.43	8.25	8.07	7.95	7.59	7.41	7.23	6.93
315.0	8.31	8.19	8.01	7.77	7.53	7.35	7.11	6.87	6.69
360.0	8.66	8.48	8.31	8.13	7.89	7.65	7.47	7.17	6.93
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	6.75	6.57	6.39	6.21	6.04	5.86	5.74	5.56	5.44
45.0	6.51	6.33	6.15	5.98	5.86	5.74	5.62	5.50	5.38
90.0	6.69	6.51	6.33	6.15	6.04	5.86	5.74	5.62	5.50
135.0	6.93	6.69	6.51	6.33	6.15	5.98	5.86	5.74	5.56
180.0	6.63	6.45	6.27	6.15	5.98	5.80	5.68	5.56	5.44
225.0	7.05	6.81	6.63	6.45	6.27	6.09	5.98	5.80	5.68
270.0	6.75	6.57	6.33	6.21	6.04	5.92	5.80	5.68	5.50
315.0	6.45	6.27	6.15	5.98	5.86	5.74	5.62	5.44	5.32
360.0	6.75	6.57	6.39	6.21	6.04	5.86	5.74	5.56	5.44
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	5.32	5.26	5.20	5.08	4.96	4.84	4.72	4.66	4.54
45.0	5.26	5.20	5.08	5.02	4.96	4.84	4.72	4.72	4.54
90.0	5.38	5.32	5.20	5.02	4.90	4.84	4.72	4.66	4.54
135.0	5.44	5.32	5.26	5.14	5.02	4.90	4.78	4.72	4.66
180.0	5.32	5.26	5.20	5.08	4.96	4.84	4.78	4.66	4.66
225.0	5.56	5.44	5.32	5.26	5.14	5.02	4.90	4.84	4.72
270.0	5.38	5.32	5.20	5.08	4.96	4.90	4.78	4.72	4.66
315.0	5.26	5.14	5.08	4.96	4.84	4.78	4.66	4.66	4.54
360.0	5.32	5.26	5.20	5.08	4.96	4.84	4.72	4.66	4.54

Intensity data(cd)

C/ γ ($^{\circ}$)	90.0
0.0	4.54
45.0	4.66
90.0	4.66
135.0	4.54
180.0	4.54
225.0	4.66
270.0	4.54
315.0	4.54
360.0	4.54