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## Nata

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LumCAT: LN01D02817DA-N  
Luminaire: 92.70.307.00  
Report No: 211112-B008  
Test No: 211112-C008  
LampCAT: CITIZEN CLU7A2 LES4.5  
Lamp flux(lm): 573.2  
Number of Lamps: 1  
Length(mm): 111  
Phm Type: C

Voltage(V): 36.5000  
Current(A): 0.1560  
Power (W): 5.6940  
PF: 0.0000  
Ballast type: DC  
Width(mm): 111  
Height(mm): 0

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## Photometric Results

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Lumens(lm): 364.56  
Efficiency(%): 63.61%  
Lumens(lm)/Power(W): 64.03  
Central intensity(cd): 1416.741  
Maximum intensity(cd): 1416.741  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=22.2  
                                  [C90/270]Total=22.2  
Field angle(10%Imax): [C0/180]Total=47.8  
                                  [C90/270]Total=47.8  
Maximum s/h(1/2): C0\_180=0.38 C90\_270=0.38  
Maximum s/h(1/4): C0\_180=0.40 C90\_270=0.40  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 63.61%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 94.332%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1416.741	0.000	0	.000%	.000%
1.0	1410.094	1.353	1.353	.236%	.371%
2.0	1382.607	4.008	5.361	.699%	1.471%
3.0	1337.628	6.506	11.867	1.135%	3.255%
4.0	1282.872	8.772	20.639	1.530%	5.661%
5.0	1200.010	10.681	31.32	1.864%	8.591%
6.0	1139.211	12.293	43.613	2.145%	11.963%
7.0	1057.425	13.634	57.247	2.379%	15.703%
8.0	970.805	14.516	71.763	2.533%	19.685%
9.0	883.260	15.026	86.789	2.622%	23.806%
10.0	799.576	15.229	102.018	2.657%	27.984%
11.0	716.654	15.150	117.169	2.643%	32.139%
12.0	643.464	14.868	132.037	2.594%	36.218%
13.0	572.642	14.432	146.469	2.518%	40.176%
14.0	503.000	13.768	160.237	2.402%	43.953%
15.0	446.683	13.038	173.275	2.275%	47.529%
16.0	393.480	12.311	185.585	2.148%	50.906%
17.0	346.918	11.530	197.115	2.012%	54.069%
18.0	308.474	10.806	207.921	1.885%	57.033%
19.0	268.052	10.030	217.952	1.750%	59.784%
20.0	237.391	9.251	227.203	1.614%	62.322%
21.0	207.746	8.548	235.75	1.491%	64.666%
22.0	181.731	7.827	243.577	1.366%	66.813%
23.0	158.905	7.147	250.724	1.247%	68.774%
24.0	140.180	6.539	257.263	1.141%	70.567%
25.0	124.719	6.023	263.287	1.051%	72.220%
26.0	110.446	5.551	268.838	.969%	73.742%
27.0	97.472	5.087	273.924	.888%	75.138%
28.0	87.717	4.689	278.613	.818%	76.424%
29.0	77.985	4.335	282.948	.756%	77.613%
30.0	70.001	3.996	286.944	.697%	78.709%
31.0	63.346	3.711	290.655	.647%	79.727%
32.0	56.952	3.446	294.101	.601%	80.672%
33.0	51.739	3.202	297.303	.559%	81.550%
34.0	47.317	2.998	300.301	.523%	82.373%
35.0	43.284	2.814	303.115	.491%	83.144%
36.0	39.482	2.635	305.75	.460%	83.867%
37.0	36.599	2.481	308.231	.433%	84.548%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	33.656	2.345	310.576	.409%	85.191%
39.0	31.042	2.208	312.784	.385%	85.797%
40.0	28.950	2.092	314.877	.365%	86.371%
41.0	27.053	1.994	316.871	.348%	86.918%
42.0	25.178	1.898	318.769	.331%	87.438%
43.0	23.655	1.809	320.578	.316%	87.934%
44.0	22.340	1.736	322.314	.303%	88.411%
45.0	21.055	1.668	323.981	.291%	88.868%
46.0	20.077	1.609	325.59	.281%	89.309%
47.0	19.046	1.556	327.146	.271%	89.736%
48.0	18.128	1.503	328.649	.262%	90.148%
49.0	17.328	1.456	330.105	.254%	90.548%
50.0	16.574	1.414	331.518	.247%	90.935%
51.0	15.887	1.373	332.892	.240%	91.312%
52.0	15.297	1.338	334.23	.233%	91.679%
53.0	14.722	1.306	335.536	.228%	92.037%
54.0	14.176	1.274	336.809	.222%	92.387%
55.0	13.728	1.246	338.055	.217%	92.728%
56.0	13.288	1.221	339.276	.213%	93.063%
57.0	12.847	1.195	340.471	.208%	93.391%
58.0	12.444	1.170	341.64	.204%	93.712%
59.0	12.033	1.144	342.784	.200%	94.026%
60.0	11.600	1.116	343.901	.195%	94.332%
61.0	11.166	1.086	344.987	.190%	94.630%
62.0	10.681	1.053	346.04	.184%	94.919%
63.0	10.195	1.015	347.055	.177%	95.197%
64.0	9.665	0.975	348.03	.170%	95.465%
65.0	9.082	0.928	348.958	.162%	95.719%
66.0	8.537	0.879	349.837	.153%	95.960%
67.0	8.037	0.833	350.67	.145%	96.189%
68.0	7.536	0.789	351.459	.138%	96.405%
69.0	7.058	0.745	352.204	.130%	96.609%
70.0	6.655	0.704	352.908	.123%	96.803%
71.0	6.214	0.665	353.573	.116%	96.985%
72.0	5.856	0.628	354.201	.110%	97.157%
73.0	5.721	0.605	354.806	.106%	97.323%
74.0	5.901	0.611	355.417	.107%	97.491%
75.0	6.349	0.647	356.064	.113%	97.668%

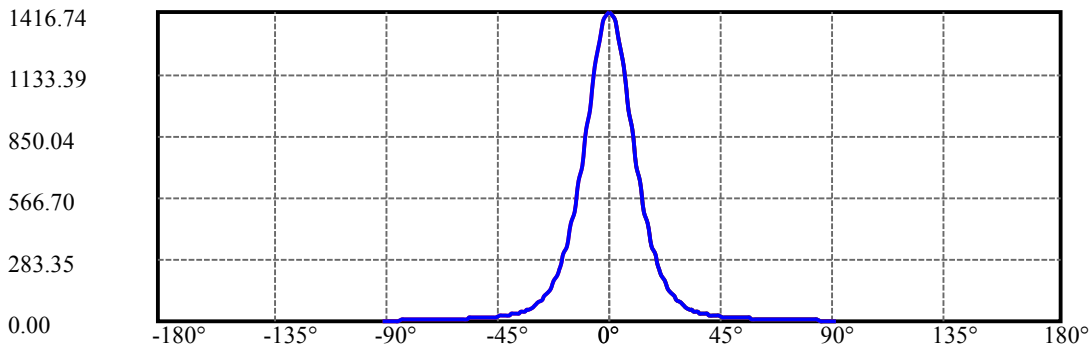
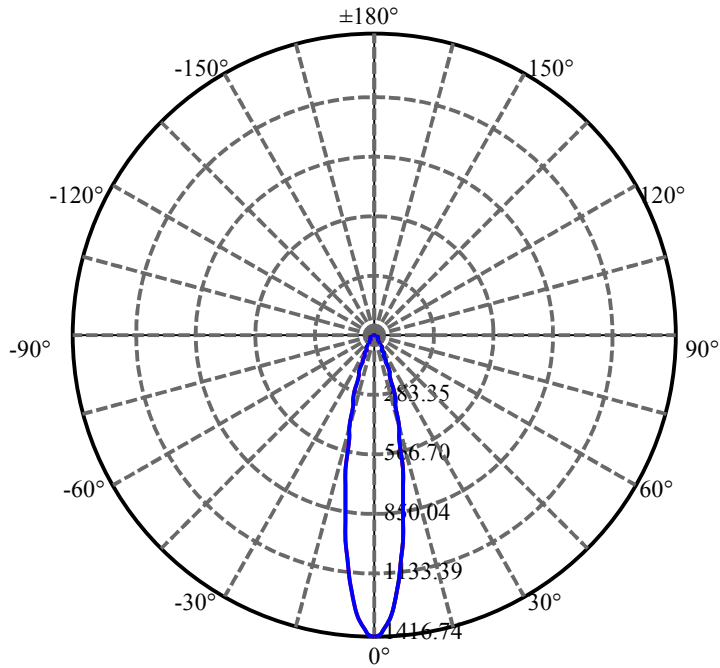
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	7.148	0.716	356.781	.125%	97.865%
77.0	8.134	0.815	357.595	.142%	98.088%
78.0	8.888	0.911	358.507	.159%	98.338%
79.0	9.351	0.980	359.487	.171%	98.607%
80.0	8.985	0.989	360.475	.172%	98.878%
81.0	7.790	0.907	361.382	.158%	99.127%
82.0	6.423	0.771	362.153	.134%	99.339%
83.0	5.034	0.623	362.776	.109%	99.510%
84.0	3.488	0.464	363.24	.081%	99.637%
85.0	2.711	0.338	363.579	.059%	99.730%
86.0	2.032	0.259	363.838	.045%	99.801%
87.0	1.748	0.207	364.045	.036%	99.858%
88.0	1.591	0.183	364.228	.032%	99.908%
89.0	1.501	0.169	364.397	.030%	99.954%
90.0	1.546	0.167	364.564	.029%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	286.94	50.06%	78.71%
0-40	314.88	54.94%	86.37%
0-60	343.90	60.00%	94.33%
0-90	364.40	63.58%	99.95%
0-120	364.40	63.58%	99.95%
0-180	364.56	63.61%	100.00%
60-90	21.61	3.77%	5.93%
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%
0-31.29	291.65	50.89%	80.00%

ZONAL LUMEN SUMMARY

0-10	102.02
10-20	125.18
20-30	59.74
30-40	27.93
40-50	16.64
50-60	12.38
60-70	9.01
70-80	7.57
80-90	3.92
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: —————

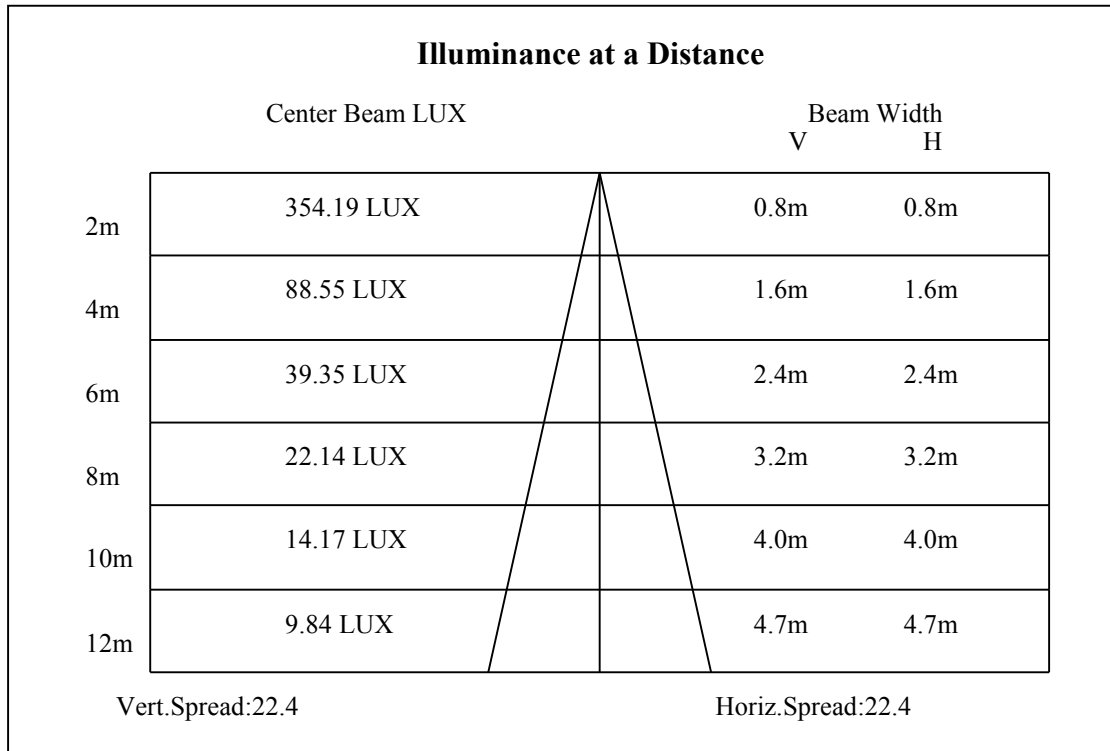
C90/C270: —————

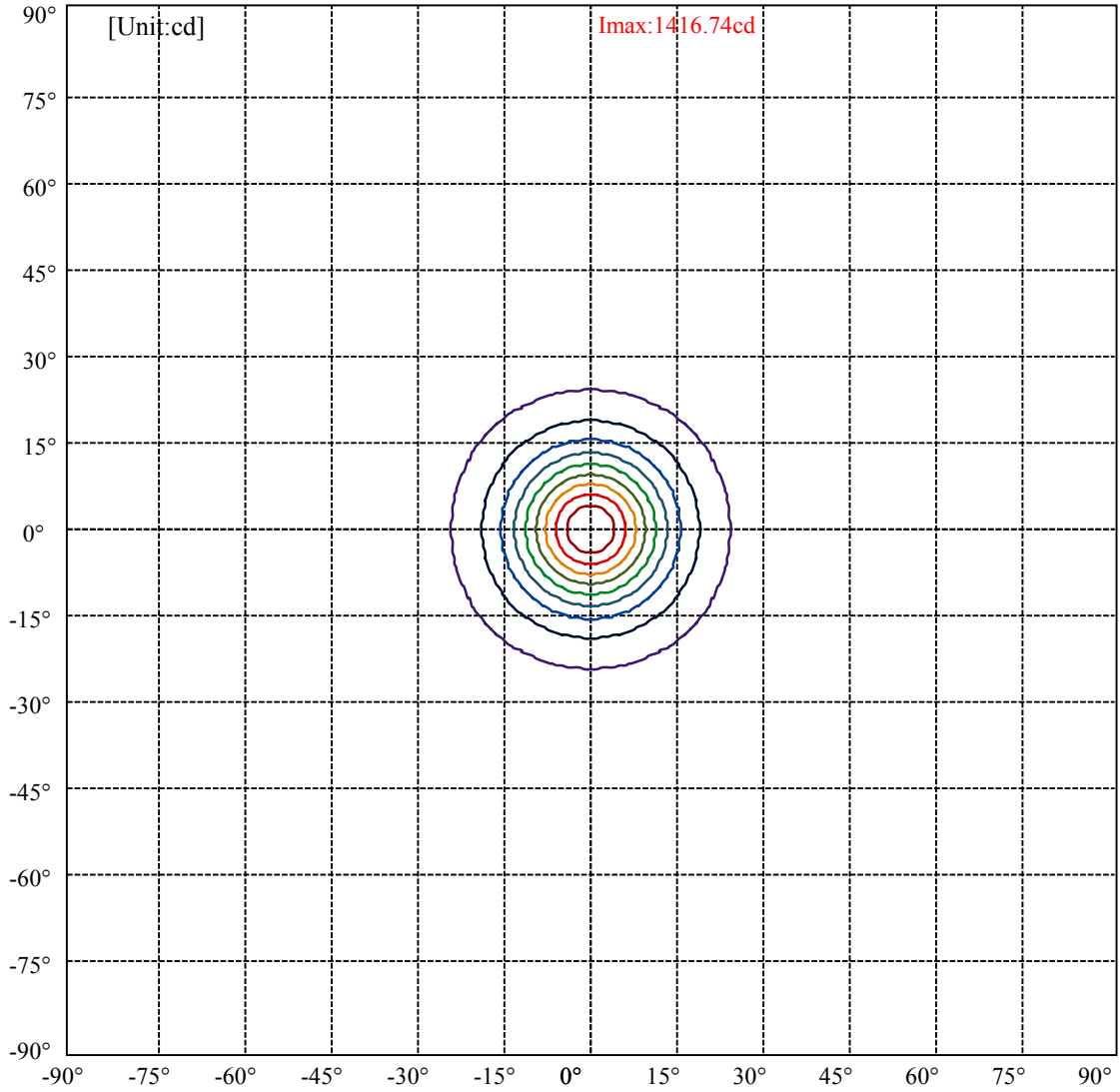
Field angle(10%Imax):C0/180Left:23.9 Right:23.9

:C90/270Left:23.9 Right:23.9

Beam Angle(50%Imax):C0/180Left:11.1 Right:11.1

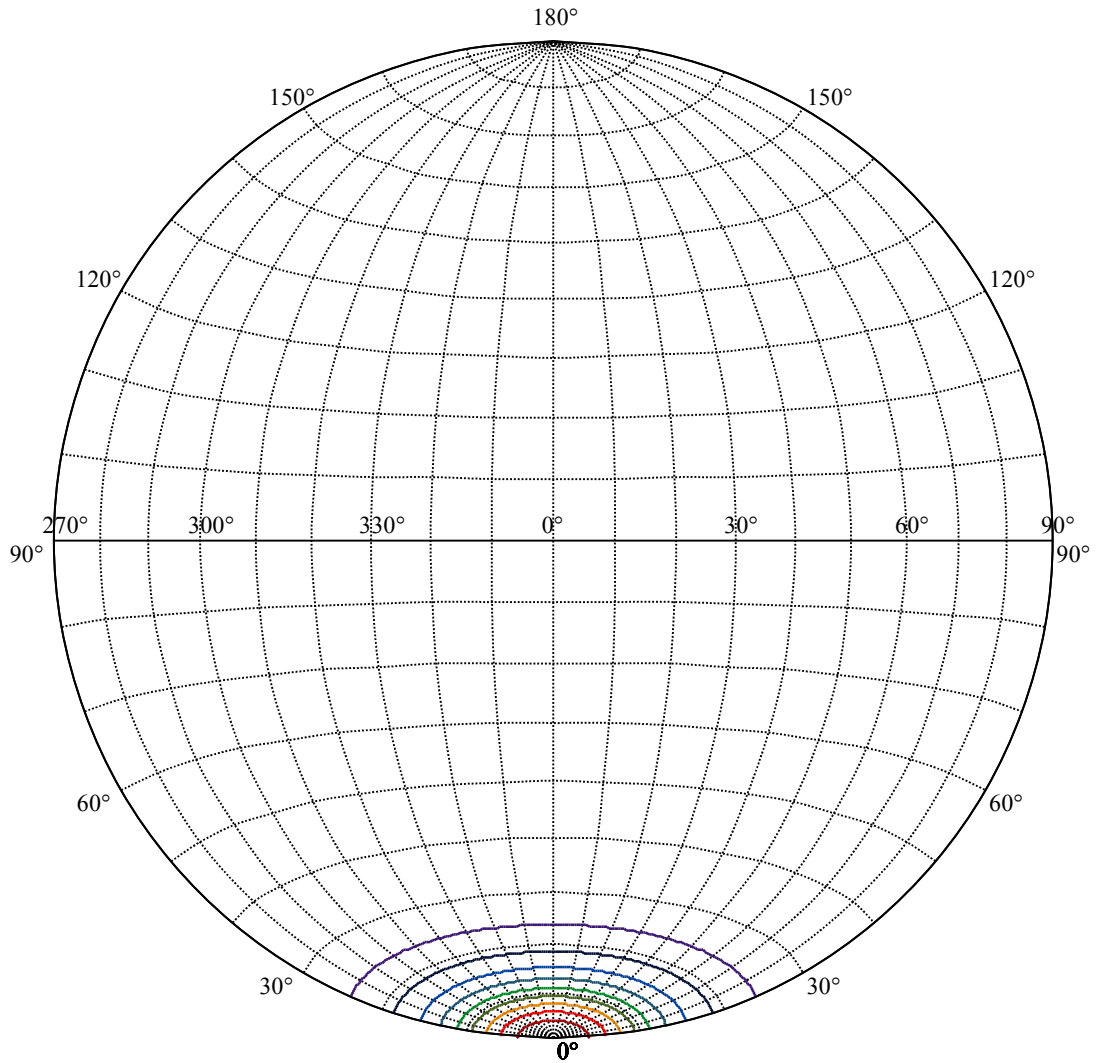
:C90/270Left:11.1 Right:11.1





(10%Imax) 141.674	—
(20%Imax) 283.348	—
(30%Imax) 425.022	—
(40%Imax) 566.697	—
(50%Imax) 708.371	—
(60%Imax) 850.045	—
(70%Imax) 991.719	—
(80%Imax) 1133.39	—
(90%Imax) 1275.07	—





House

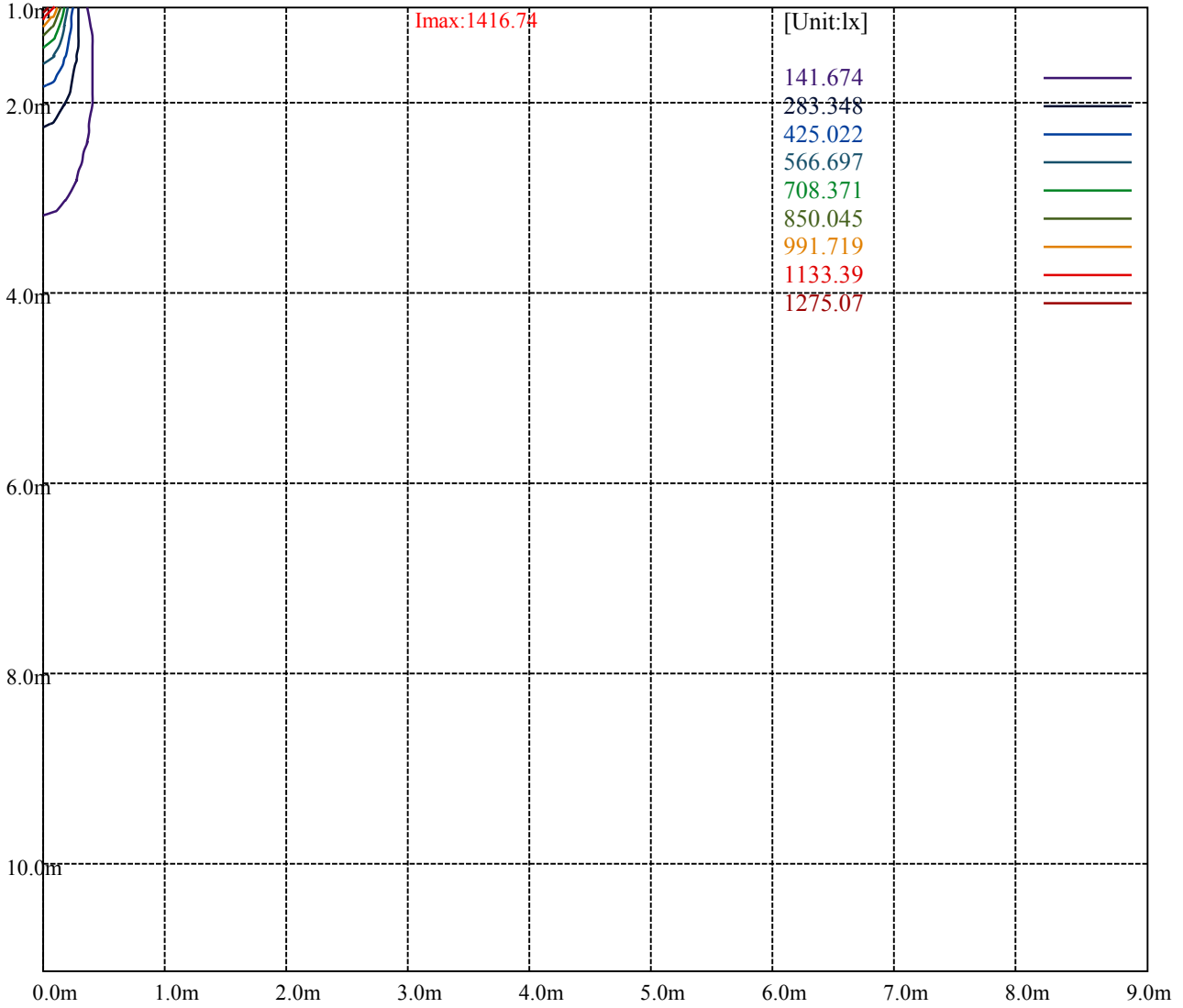
[Unit:cd]

Road

**Imax:1416.74**

(10%Imax) 141.674	—
(20%Imax) 283.348	—
(30%Imax) 425.022	—
(40%Imax) 566.697	—
(50%Imax) 708.371	—
(60%Imax) 850.045	—
(70%Imax) 991.719	—
(80%Imax) 1133.39	—
(90%Imax) 1275.07	—





Luminance Table

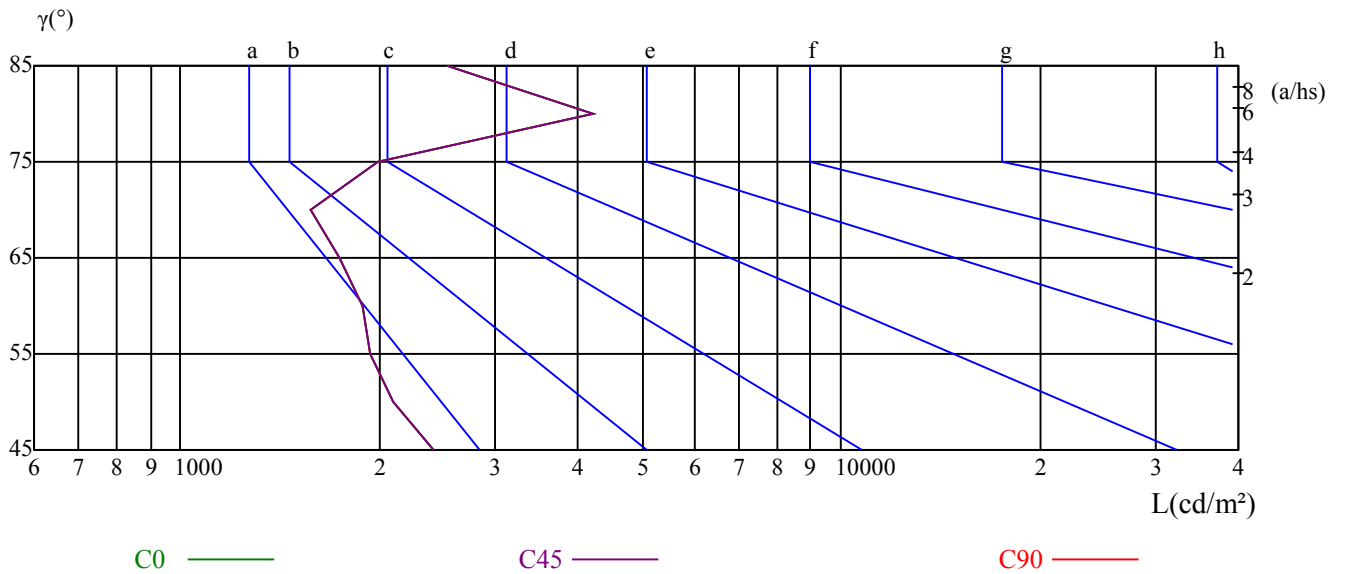
$\gamma$	45	50	55	60	65	70	75	80	85
C0	2417	2093	1943	1883	1744	1579	1991	4200	2525
C45	2417	2093	1943	1883	1744	1579	1991	4200	2525
C90	2417	2093	1943	1883	1744	1579	1991	4200	2525

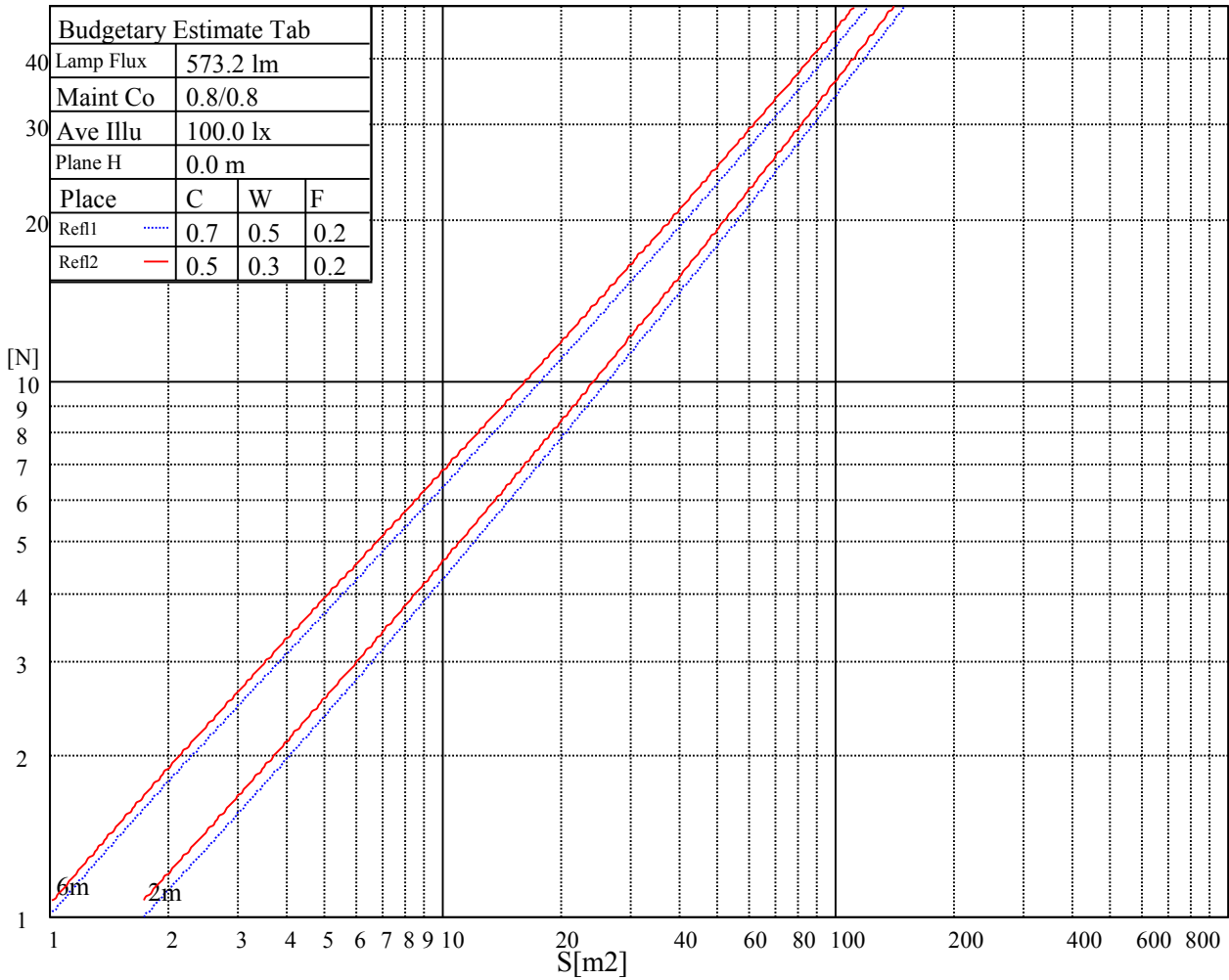
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
1744	1744	1744	1991	1991	1991	2525	2525	2525

Glare Table

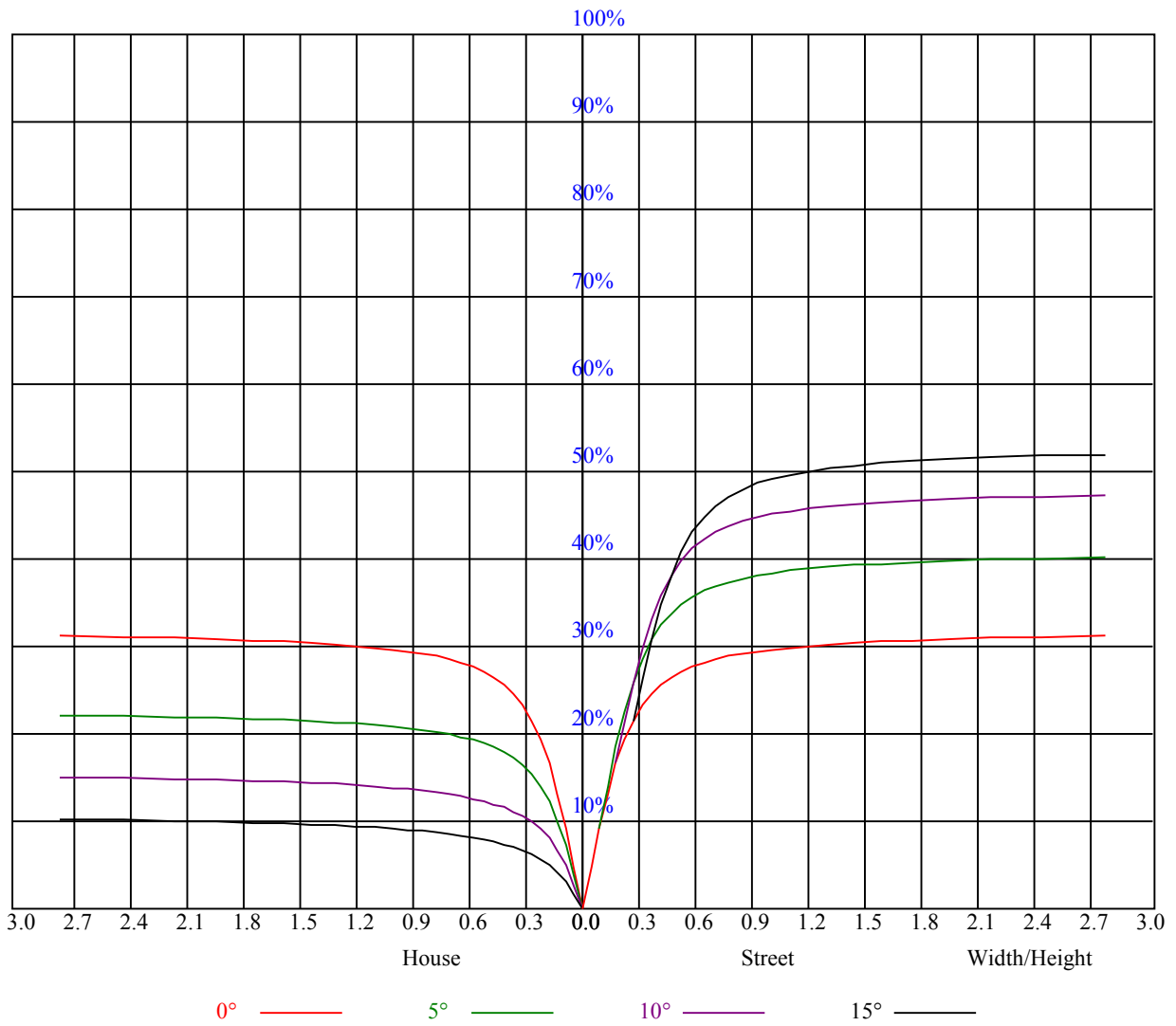
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	0.76	0.76	0.76	0.74	0.74	0.74	0.71	0.71	0.71	0.68	0.68	0.68	0.65	0.65	0.65	0.64
1	0.70	0.69	0.67	0.69	0.67	0.66	0.66	0.65	0.64	0.64	0.63	0.62	0.62	0.61	0.60	0.59
2	0.66	0.63	0.61	0.65	0.62	0.60	0.62	0.61	0.59	0.61	0.59	0.58	0.59	0.58	0.56	0.55
3	0.62	0.59	0.56	0.61	0.58	0.56	0.59	0.57	0.55	0.58	0.56	0.54	0.56	0.55	0.53	0.52
4	0.58	0.55	0.53	0.58	0.55	0.52	0.56	0.54	0.52	0.55	0.53	0.51	0.54	0.52	0.51	0.50
5	0.56	0.52	0.50	0.55	0.52	0.50	0.54	0.51	0.49	0.53	0.51	0.49	0.52	0.50	0.48	0.47
6	0.53	0.50	0.47	0.53	0.49	0.47	0.52	0.49	0.47	0.51	0.48	0.46	0.50	0.48	0.46	0.45
7	0.51	0.47	0.45	0.50	0.47	0.45	0.50	0.47	0.45	0.49	0.46	0.45	0.48	0.46	0.44	0.44
8	0.49	0.46	0.43	0.49	0.45	0.43	0.48	0.45	0.43	0.47	0.45	0.43	0.47	0.44	0.43	0.42
9	0.47	0.44	0.42	0.47	0.44	0.42	0.46	0.43	0.41	0.46	0.43	0.41	0.45	0.43	0.41	0.40
10	0.45	0.42	0.40	0.45	0.42	0.40	0.45	0.42	0.40	0.44	0.42	0.40	0.44	0.41	0.40	0.39



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	1386.27	1421.52	1432.87	1428.09	1403.60	1359.98	1306.80	1235.09	1165.18
45.0	1429.29	1440.64	1432.87	1408.97	1370.73	1305.60	1238.68	1165.18	1087.50
90.0	1432.87	1426.90	1402.40	1359.38	1307.99	1187.71	1159.51	1070.89	979.17
135.0	1418.53	1405.39	1361.77	1314.56	1263.77	1171.75	1094.08	1022.97	920.79
180.0	1386.27	1342.65	1287.08	1190.16	1124.67	1044.90	950.61	856.14	774.70
225.0	1429.29	1402.40	1354.60	1291.26	1185.20	1137.46	1056.31	964.59	872.57
270.0	1432.87	1422.72	1389.25	1345.64	1290.07	1207.01	1131.12	1051.05	960.83
315.0	1418.53	1418.53	1400.01	1362.96	1316.95	1185.68	1176.59	1093.48	1005.70
360.0	1386.27	1421.52	1432.87	1428.09	1403.60	1359.98	1306.80	1235.09	1165.18
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1077.94	988.31	907.05	828.18	732.57	660.87	594.54	517.46	461.89
45.0	985.92	903.46	822.20	734.96	654.29	589.16	520.45	457.71	409.31
90.0	897.55	807.86	713.39	651.61	585.40	502.34	454.54	404.95	354.45
135.0	829.97	760.06	664.45	595.14	530.01	457.11	405.12	356.72	306.53
180.0	687.58	606.85	541.00	474.08	420.48	366.35	318.78	281.62	248.45
225.0	791.85	704.31	622.45	555.16	493.20	423.83	375.49	332.23	288.73
270.0	870.00	790.53	705.08	633.98	559.88	491.17	435.60	380.03	336.41
315.0	925.27	835.23	757.61	674.61	605.30	533.18	468.94	417.13	369.57
360.0	1077.94	988.31	907.05	828.18	732.57	660.87	594.54	517.46	461.89
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	411.70	366.88	317.89	304.74	252.81	215.05	191.21	172.45	148.67
45.0	357.92	319.08	304.74	241.76	213.98	187.98	163.66	145.56	129.60
90.0	309.28	274.21	239.61	212.72	186.19	163.42	145.74	128.35	113.35
135.0	301.75	236.08	202.74	179.80	159.36	138.45	122.97	110.18	97.76
180.0	212.18	187.33	165.81	142.75	126.97	113.35	98.71	88.67	79.89
225.0	251.26	222.58	194.50	170.06	151.00	132.47	118.25	104.27	92.44
270.0	305.93	256.46	223.95	195.33	173.22	151.65	133.13	118.67	106.06
315.0	317.77	281.79	249.89	214.81	190.31	168.86	147.77	129.60	115.80
360.0	411.70	366.88	317.89	304.74	252.81	215.05	191.21	172.45	148.67
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	130.14	117.65	102.06	91.48	82.28	72.30	65.37	59.39	52.82
45.0	112.45	100.50	89.93	79.47	70.57	63.76	57.18	51.45	46.97
90.0	101.64	91.30	80.07	72.30	65.49	58.26	53.24	48.82	44.81
135.0	87.12	78.81	70.63	64.17	58.02	52.58	48.40	44.22	40.57
180.0	70.45	64.65	58.20	51.93	48.16	43.80	39.68	37.11	34.48
225.0	83.30	75.17	66.56	60.65	55.57	49.95	46.01	42.48	39.08
270.0	92.32	83.06	74.93	67.22	60.65	55.57	50.49	46.07	42.60
315.0	102.36	90.59	81.50	72.78	66.03	59.39	53.54	49.00	44.93
360.0	130.14	117.65	102.06	91.48	82.28	72.30	65.37	59.39	52.82
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	48.22	44.16	39.74	36.75	34.12	31.67	29.64	28.20	27.01
45.0	42.54	39.20	35.67	32.45	30.00	27.79	25.45	23.66	22.11
90.0	40.45	37.41	34.60	31.43	29.22	27.19	25.10	23.24	21.75
135.0	37.64	35.07	32.15	30.00	27.96	25.99	24.26	22.77	21.21
180.0	31.43	29.70	27.90	26.23	24.80	23.72	22.65	21.87	21.39
225.0	35.97	33.58	31.13	28.98	27.25	25.45	24.02	22.47	21.09
270.0	39.14	36.39	33.52	31.07	29.04	27.43	25.16	23.66	22.29
315.0	40.45	37.29	34.54	31.43	29.22	27.19	25.16	23.36	21.87
360.0	48.22	44.16	39.74	36.75	34.12	31.67	29.64	28.20	27.01



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	26.35	26.11	25.22	24.62	24.14	23.90	23.72	23.60	23.42
45.0	20.32	19.18	18.05	16.85	15.77	14.94	14.04	13.27	12.49
90.0	20.26	19.00	17.75	16.67	15.72	14.70	13.80	13.03	12.37
135.0	19.84	18.64	17.51	16.61	15.66	14.70	13.98	13.27	12.43
180.0	20.61	20.08	19.72	19.48	19.30	19.12	18.94	18.76	18.64
225.0	19.90	18.82	17.57	16.61	15.77	14.76	13.98	13.32	12.55
270.0	20.73	19.54	18.58	17.33	16.31	15.48	14.46	13.68	13.03
315.0	20.44	19.24	17.99	16.85	15.95	15.00	14.16	13.44	12.85
360.0	26.35	26.11	25.22	24.62	24.14	23.90	23.72	23.60	23.42
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	23.42	23.36	23.42	23.42	23.42	23.30	23.12	22.77	22.11
45.0	11.77	11.17	10.58	9.98	9.44	9.02	8.48	8.13	7.65
90.0	11.53	10.93	10.40	9.74	9.14	8.66	8.19	7.71	7.29
135.0	11.83	11.29	10.64	10.16	9.74	9.32	8.84	8.48	8.07
180.0	18.64	18.58	18.52	18.40	18.22	17.93	17.51	16.91	16.25
225.0	11.95	11.41	10.76	10.34	9.80	9.26	8.90	8.48	8.01
270.0	12.19	11.59	10.99	10.34	9.86	9.32	8.72	8.25	7.83
315.0	12.07	11.47	10.99	10.40	9.92	9.44	9.02	8.60	8.25
360.0	23.42	23.36	23.42	23.42	23.42	23.30	23.12	22.77	22.11
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	21.45	20.38	19.06	17.81	16.37	15.00	13.68	12.49	11.11
45.0	7.23	6.87	6.57	6.21	5.92	5.62	5.38	5.20	4.90
90.0	6.87	6.51	6.15	5.80	5.56	5.26	4.90	4.72	4.48
135.0	7.71	7.35	6.99	6.69	6.45	6.15	5.92	5.68	5.38
180.0	15.30	14.28	13.15	12.01	11.05	10.22	9.38	8.78	8.31
225.0	7.71	7.41	6.93	6.69	6.39	6.09	5.86	5.62	5.32
270.0	7.47	7.05	6.69	6.33	6.04	5.74	5.44	5.14	4.84
315.0	7.83	7.47	7.11	6.75	6.51	6.21	5.92	5.62	5.38
360.0	21.45	20.38	19.06	17.81	16.37	15.00	13.68	12.49	11.11
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	10.10	9.26	8.96	10.22	12.37	15.66	19.00	21.75	22.65
45.0	4.66	4.48	4.24	4.06	4.00	5.80	7.05	7.35	6.57
90.0	4.18	4.00	3.82	3.59	3.35	3.17	2.99	2.81	2.63
135.0	5.14	4.96	4.72	4.48	4.30	4.12	3.88	3.70	3.47
180.0	7.95	8.90	11.95	15.60	20.97	24.68	26.77	26.53	23.30
225.0	5.08	4.90	4.66	4.48	4.24	4.06	4.24	5.86	6.81
270.0	4.60	4.36	4.12	3.88	3.70	3.53	3.29	3.11	2.93
315.0	5.14	4.90	4.72	4.48	4.24	4.06	3.88	3.70	3.53
360.0	10.10	9.26	8.96	10.22	12.37	15.66	19.00	21.75	22.65
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	21.57	18.34	14.10	9.44	4.84	3.35	2.51	2.03	1.73
45.0	3.23	2.93	2.69	2.51	1.91	1.79	1.67	1.49	1.43
90.0	2.45	2.33	2.15	1.91	1.73	1.61	1.49	1.43	1.43
135.0	3.29	3.17	2.99	2.69	2.03	1.85	1.61	1.49	1.49
180.0	18.82	14.46	10.10	3.41	2.63	2.09	1.61	1.55	1.49
225.0	6.87	4.42	2.81	2.69	2.63	1.79	1.67	1.55	1.49
270.0	2.75	2.51	2.33	2.15	2.03	1.79	1.61	1.49	1.43
315.0	3.35	3.23	3.11	3.11	3.88	1.97	1.79	1.67	1.49
360.0	21.57	18.34	14.10	9.44	4.84	3.35	2.51	2.03	1.73

Intensity data(cd)

C/ $\gamma$ (°)	90.0
0.0	1.61
45.0	1.43
90.0	1.43
135.0	1.49
180.0	1.97
225.0	1.49
270.0	1.43
315.0	1.49
360.0	1.61