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## Nata

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LumCAT: LN01D05015DA-N

Luminaire: 97.70.234.00

Report No: 210701-B012

Test No: 210701-C012

LampCAT: Fortimo LED SLM 1202 G7N

Lamp flux(lm): 1511.8

Number of Lamps: 1

Length(mm): 570

Phm Type: C

Voltage(V): 37.0600

Current(A): 0.3040

Power (W): 11.2660

PF: 0.0000

Ballast type: DC

Width(mm): 45

Height(mm): 20

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## Photometric Results

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Lumens(lm): 1344.83

Efficiency(%): 88.95%

Lumens(lm)/Power(W): 119.37

Central intensity(cd): 7309.266

Maximum intensity(cd): 7309.266

Angle of maximum intensity: C=0.0  $\gamma$ =0.0

Beam Angle(50%Imax): [C0/180]Total=20.7

[C90/270]Total=20.7

Field angle(10%Imax): [C0/180]Total=40.7

[C90/270]Total=40.7

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(%): 88.95%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 96.708%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	7309.266	0.000	0	.000%	.000%
1.0	7254.844	6.969	6.969	.461%	.518%
2.0	7093.336	20.594	27.563	1.362%	2.050%
3.0	6841.477	33.327	60.89	2.204%	4.528%
4.0	6527.813	44.751	105.641	2.960%	7.855%
5.0	6143.695	54.512	160.153	3.606%	11.909%
6.0	5705.508	62.271	222.424	4.119%	16.539%
7.0	5231.883	67.888	290.312	4.491%	21.587%
8.0	4785.891	71.695	362.008	4.742%	26.919%
9.0	4288.219	73.541	435.548	4.864%	32.387%
10.0	3807.563	73.264	508.812	4.846%	37.835%
11.0	3369.516	71.714	580.526	4.744%	43.167%
12.0	2944.195	69.018	649.544	4.565%	48.299%
13.0	2519.789	64.844	714.388	4.289%	53.121%
14.0	2155.570	59.844	774.232	3.958%	57.571%
15.0	1832.484	54.750	828.982	3.621%	61.642%
16.0	1539.394	49.407	878.389	3.268%	65.316%
17.0	1278.478	43.882	922.271	2.903%	68.579%
18.0	1094.238	39.121	961.392	2.588%	71.488%
19.0	912.860	34.919	996.311	2.310%	74.085%
20.0	775.308	30.898	1027.209	2.044%	76.382%
21.0	643.669	27.247	1054.457	1.802%	78.408%
22.0	543.952	23.866	1078.322	1.579%	80.183%
23.0	458.536	21.035	1099.357	1.391%	81.747%
24.0	385.664	18.457	1117.815	1.221%	83.119%
25.0	329.864	16.270	1134.084	1.076%	84.329%
26.0	281.827	14.439	1148.523	.955%	85.403%
27.0	237.853	12.714	1161.237	.841%	86.348%
28.0	207.267	11.270	1172.507	.745%	87.186%
29.0	177.490	10.066	1182.573	.666%	87.935%
30.0	156.459	9.017	1191.59	.596%	88.605%
31.0	136.983	8.166	1199.756	.540%	89.213%
32.0	122.140	7.424	1207.179	.491%	89.765%
33.0	109.941	6.837	1214.016	.452%	90.273%
34.0	99.021	6.324	1220.34	.418%	90.743%
35.0	89.852	5.866	1226.206	.388%	91.179%
36.0	81.928	5.470	1231.675	.362%	91.586%
37.0	74.834	5.113	1236.788	.338%	91.966%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	68.667	4.790	1241.578	.317%	92.322%
39.0	62.817	4.488	1246.066	.297%	92.656%
40.0	57.952	4.212	1250.278	.279%	92.969%
41.0	53.641	3.974	1254.252	.263%	93.265%
42.0	49.486	3.747	1257.998	.248%	93.543%
43.0	45.499	3.519	1261.517	.233%	93.805%
44.0	42.216	3.311	1264.828	.219%	94.051%
45.0	39.002	3.121	1267.949	.206%	94.283%
46.0	36.155	2.939	1270.888	.194%	94.502%
47.0	33.560	2.773	1273.661	.183%	94.708%
48.0	31.373	2.625	1276.286	.174%	94.903%
49.0	29.306	2.492	1278.778	.165%	95.089%
50.0	27.450	2.366	1281.144	.157%	95.264%
51.0	26.009	2.262	1283.406	.150%	95.433%
52.0	24.687	2.175	1285.581	.144%	95.594%
53.0	23.470	2.095	1287.676	.139%	95.750%
54.0	22.380	2.021	1289.697	.134%	95.900%
55.0	21.396	1.954	1291.651	.129%	96.046%
56.0	20.447	1.891	1293.542	.125%	96.186%
57.0	19.610	1.832	1295.373	.121%	96.323%
58.0	18.795	1.776	1297.149	.117%	96.455%
59.0	18.084	1.724	1298.873	.114%	96.583%
60.0	17.430	1.678	1300.551	.111%	96.708%
61.0	16.777	1.632	1302.184	.108%	96.829%
62.0	16.221	1.590	1303.774	.105%	96.947%
63.0	15.715	1.553	1305.327	.103%	97.063%
64.0	15.286	1.521	1306.848	.101%	97.176%
65.0	15.040	1.501	1308.349	.099%	97.287%
66.0	14.998	1.499	1309.848	.099%	97.399%
67.0	15.103	1.514	1311.361	.100%	97.511%
68.0	15.293	1.540	1312.901	.102%	97.626%
69.0	15.497	1.571	1314.472	.104%	97.743%
70.0	16.003	1.618	1316.089	.107%	97.863%
71.0	16.552	1.683	1317.772	.111%	97.988%
72.0	16.931	1.741	1319.513	.115%	98.118%
73.0	17.402	1.795	1321.308	.119%	98.251%
74.0	17.747	1.848	1323.156	.122%	98.388%
75.0	18.105	1.894	1325.051	.125%	98.529%

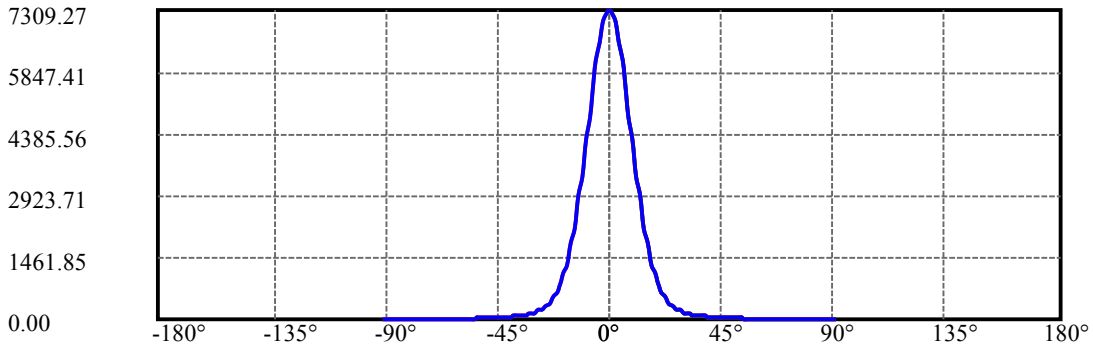
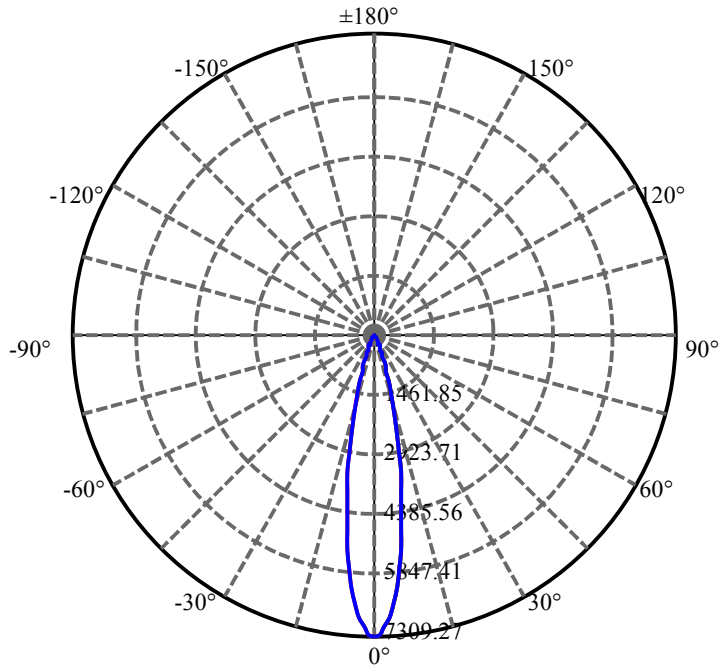
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	18.457	1.941	1326.991	.128%	98.674%
77.0	18.563	1.974	1328.965	.131%	98.820%
78.0	18.246	1.970	1330.936	.130%	98.967%
79.0	17.550	1.923	1332.859	.127%	99.110%
80.0	16.270	1.823	1334.682	.121%	99.246%
81.0	14.801	1.680	1336.362	.111%	99.370%
82.0	12.938	1.504	1337.867	.099%	99.482%
83.0	10.962	1.299	1339.166	.086%	99.579%
84.0	9.492	1.114	1340.28	.074%	99.662%
85.0	8.191	0.965	1341.245	.064%	99.734%
86.0	7.123	0.837	1342.082	.055%	99.796%
87.0	6.434	0.742	1342.824	.049%	99.851%
88.0	6.152	0.689	1343.514	.046%	99.902%
89.0	5.963	0.664	1344.178	.044%	99.952%
90.0	5.906	0.651	1344.828	.043%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1191.59	78.82%	88.61%
0-40	1250.28	82.70%	92.97%
0-60	1300.55	86.03%	96.71%
0-90	1344.18	88.91%	99.95%
0-120	1344.18	88.91%	99.95%
0-180	1344.83	88.95%	100.00%
60-90	45.30	3.00%	3.37%
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%
0-21.90	1075.86	71.16%	80.00%

ZONAL LUMEN SUMMARY

0-10	508.81
10-20	518.40
20-30	164.38
30-40	58.69
40-50	30.87
50-60	19.41
60-70	15.54
70-80	18.59
80-90	9.50
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: —————

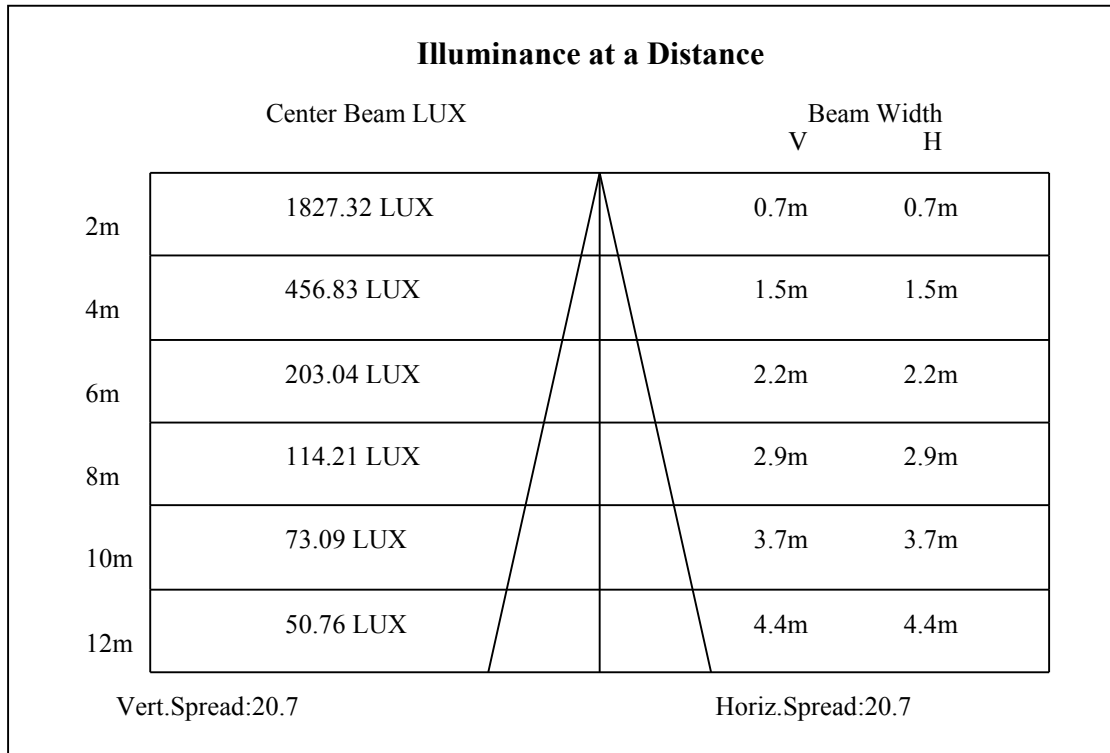
C90/C270: —————

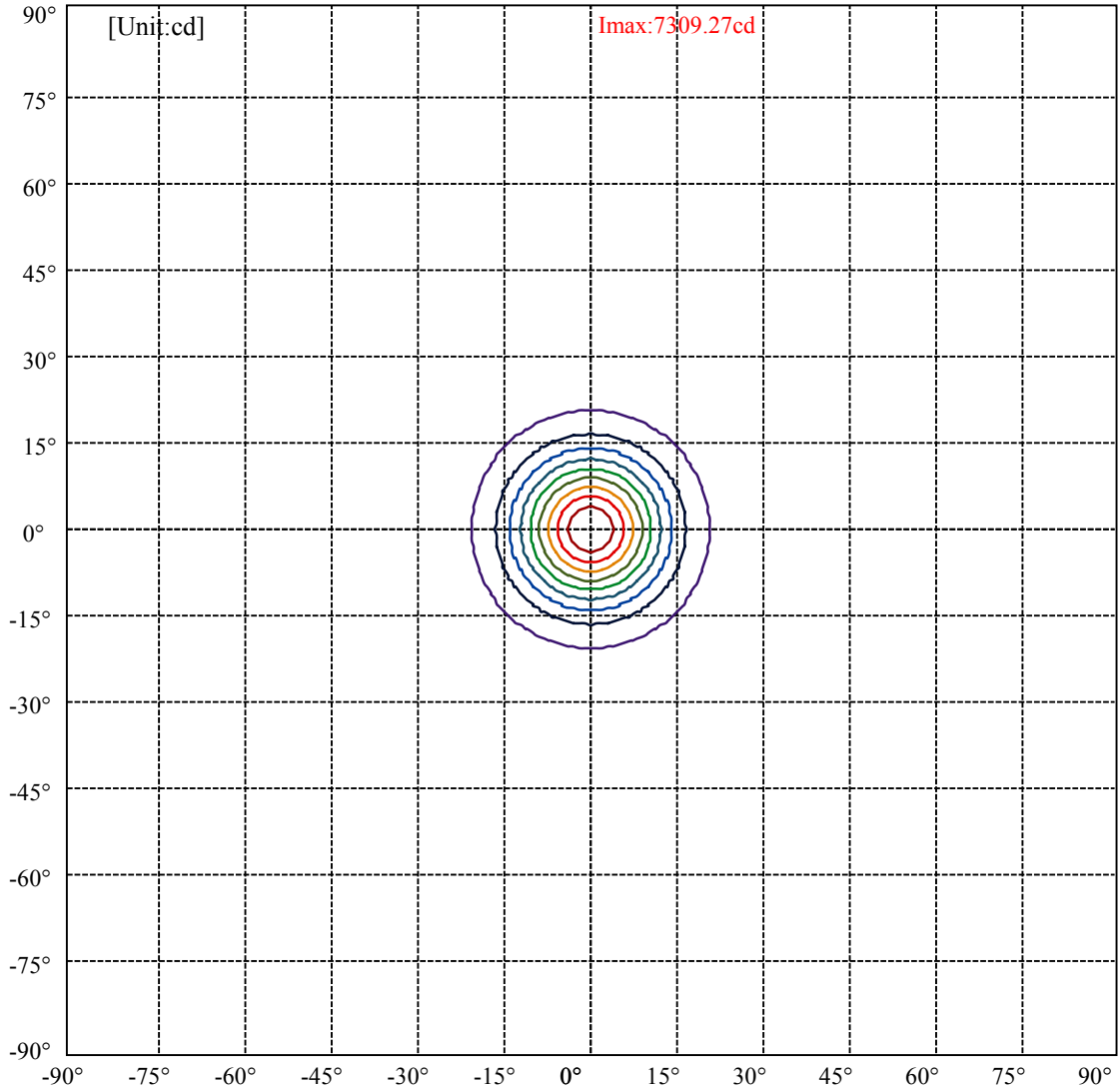
Field angle(10%Imax):C0/180Left:20.3 Right:20.3

:C90/270Left:20.3 Right:20.3

Beam Angle(50%Imax):C0/180Left:10.3 Right:10.3

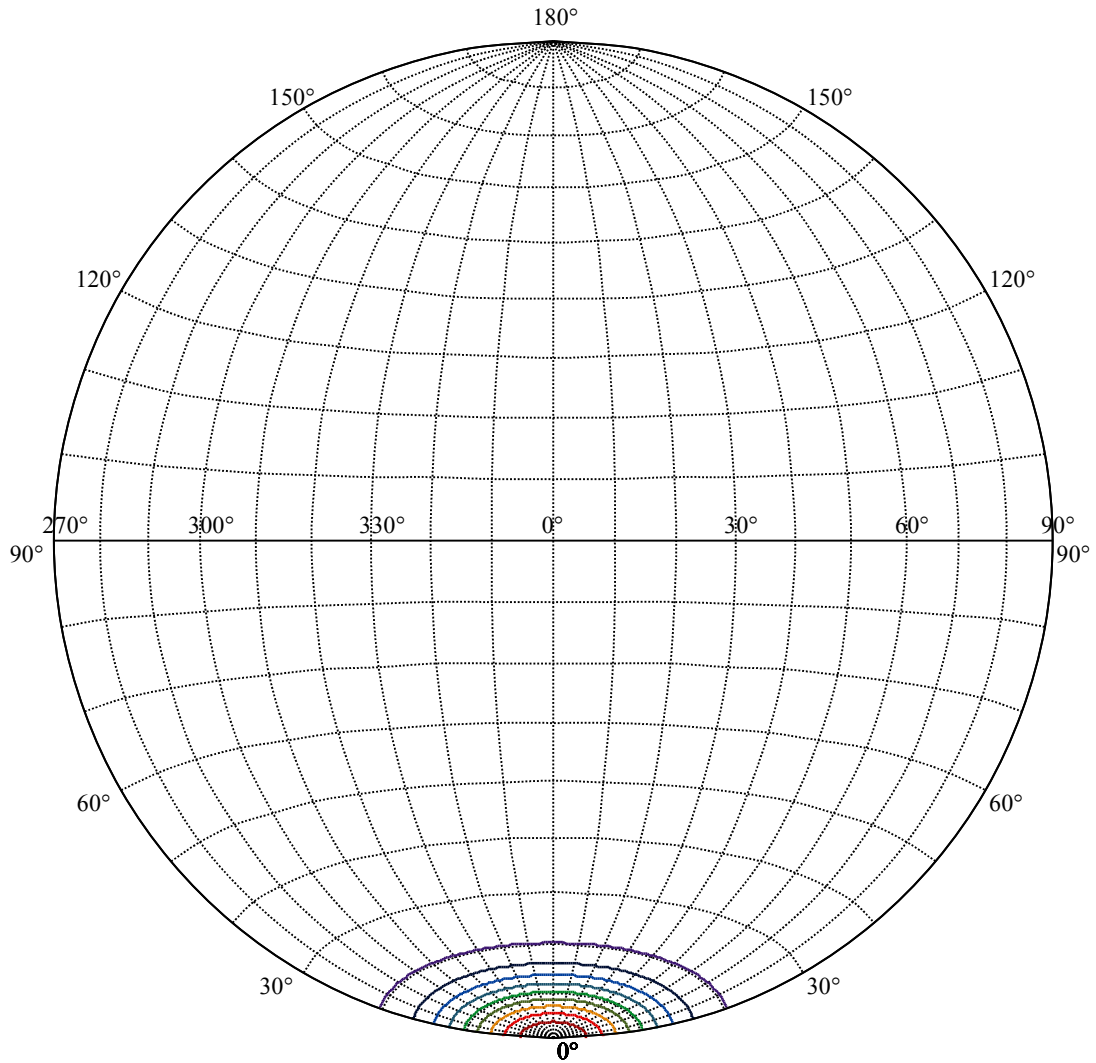
:C90/270Left:10.3 Right:10.3





(10%Imax) 730.927	—
(20%Imax) 1461.85	—
(30%Imax) 2192.78	—
(40%Imax) 2923.71	—
(50%Imax) 3654.63	—
(60%Imax) 4385.56	—
(70%Imax) 5116.49	—
(80%Imax) 5847.41	—
(90%Imax) 6578.34	—





House

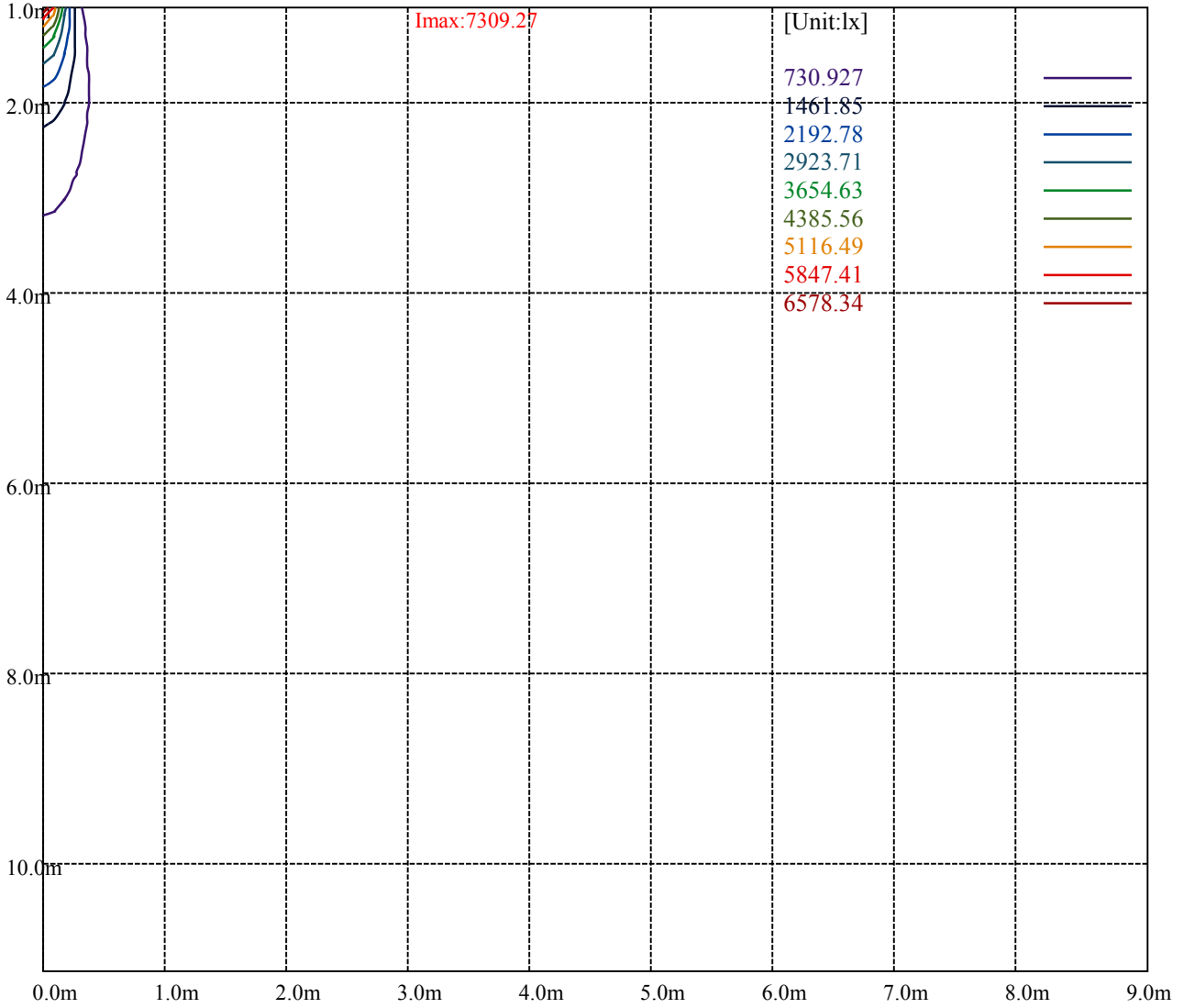
[Unit:cd]

Road

**Imax:7309.27**

(10%Imax) 730.927	—
(20%Imax) 1461.85	—
(30%Imax) 2192.78	—
(40%Imax) 2923.71	—
(50%Imax) 3654.63	—
(60%Imax) 4385.56	—
(70%Imax) 5116.49	—
(80%Imax) 5847.41	—
(90%Imax) 6578.34	—





Luminance Table

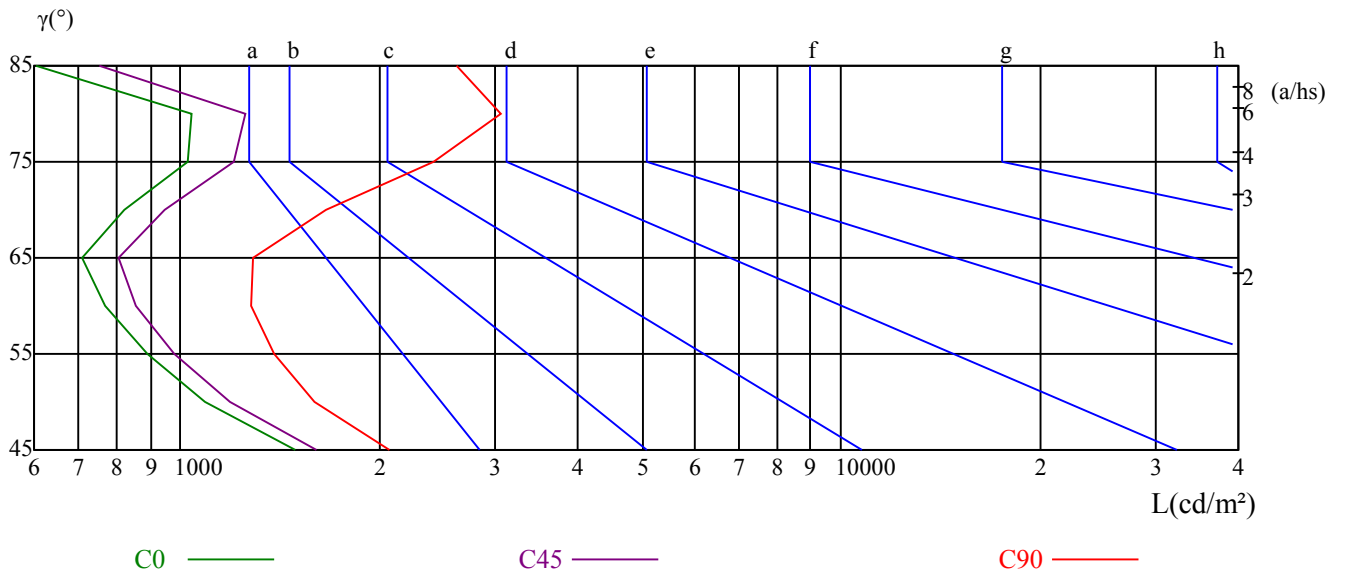
$\gamma$	45	50	55	60	65	70	75	80	85
C0	1489	1088	890	768	710	821	1026	1038	603
C45	1606	1186	980	856	803	944	1204	1250	752
C90	2078	1598	1385	1281	1290	1664	2411	3047	2615

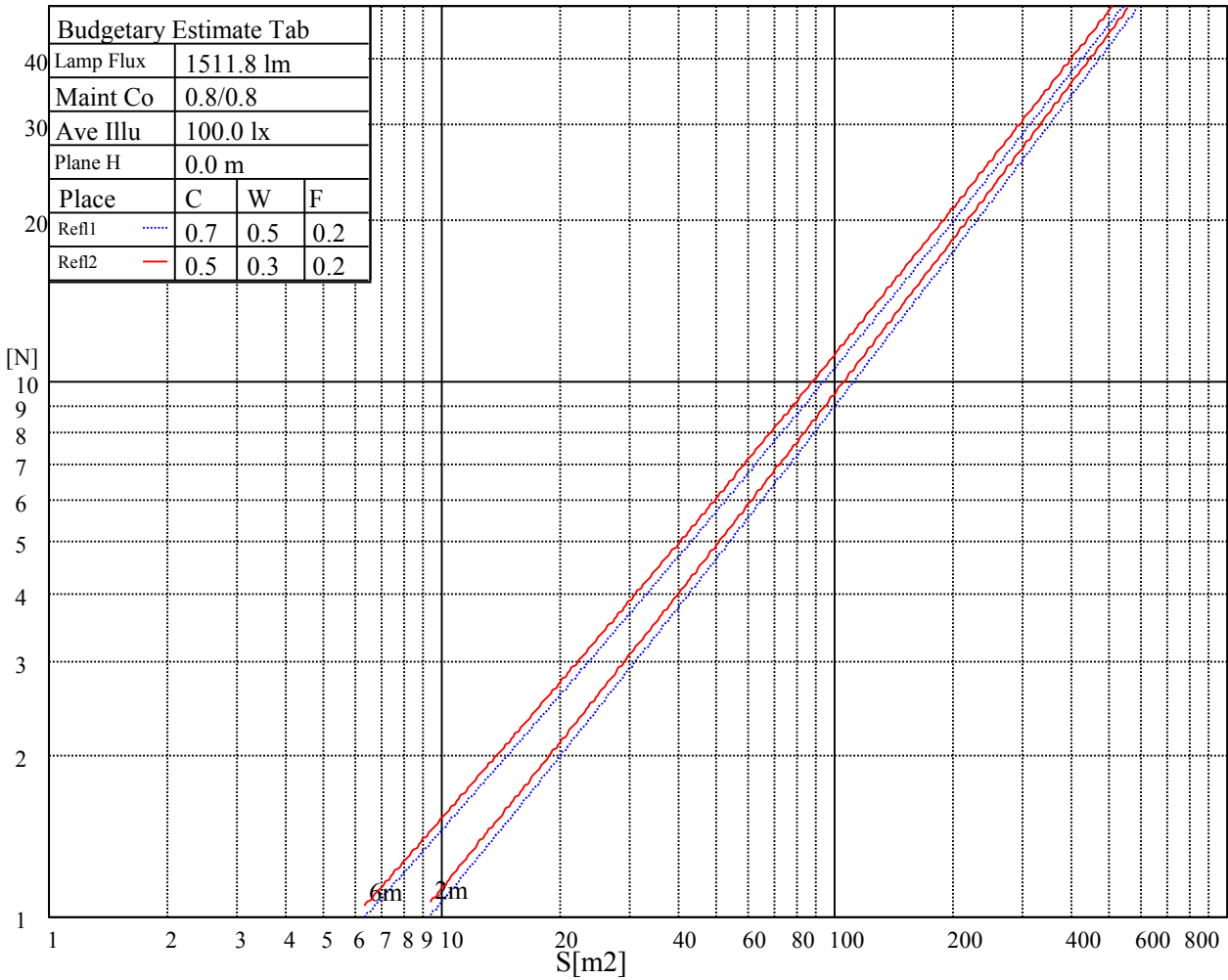
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
1387	1387	1387	2727	2727	2727	3664	3664	3664

Glare Table

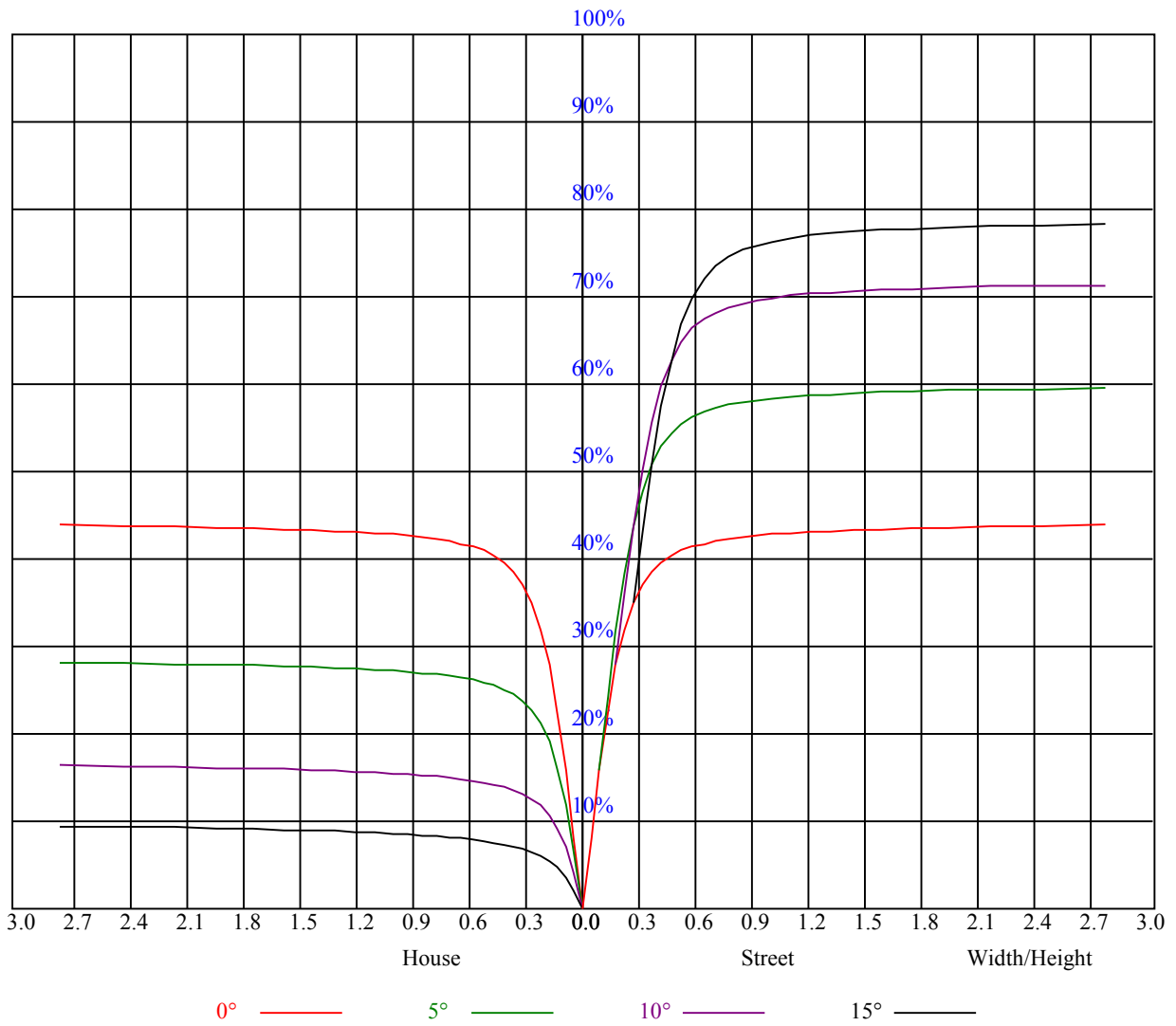
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	0.98	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	0.70	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	0.66
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	7382.81	7314.75	7117.88	6877.69	6563.25	6070.50	5646.38	5204.25	4762.13
45.0	7290.00	7088.63	6789.94	6411.38	6019.31	5528.81	5013.00	4550.63	4104.56
90.0	7229.81	6994.69	6715.69	6323.63	5869.13	5443.88	5007.38	4437.56	3983.06
135.0	7334.44	7269.75	7056.56	6741.56	6424.88	6067.13	5538.38	5090.63	4650.19
180.0	7382.81	7349.63	7179.19	6902.44	6602.06	6203.81	5782.50	5279.06	4772.25
225.0	7290.00	7403.06	7397.44	7281.00	7066.13	6810.19	6460.88	5964.75	5533.88
270.0	7229.81	7340.63	7356.94	7264.69	7081.31	6781.50	6404.06	6019.31	5601.94
315.0	7334.44	7277.63	7133.06	6929.44	6596.44	6243.75	5791.50	5308.88	4879.13
360.0	7382.81	7314.75	7117.88	6877.69	6563.25	6070.50	5646.38	5204.25	4762.13
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	4201.88	3755.81	3320.44	2867.63	2441.25	2086.31	1734.75	1442.81	1218.94
45.0	3558.38	3139.88	2744.44	2341.69	1978.31	1695.38	1425.38	1196.44	1022.06
90.0	3547.13	3034.69	2652.75	2296.13	1941.19	1639.13	1405.13	1109.03	1003.78
135.0	4099.50	3659.06	3232.13	2791.69	2384.44	2050.31	1720.13	1469.81	1230.75
180.0	4322.25	3815.44	3332.81	2925.00	2549.25	2112.75	1800.56	1532.25	1116.17
225.0	5080.50	4510.69	4056.19	3615.75	3134.81	2694.94	2341.13	1979.44	1693.13
270.0	5056.88	4611.38	4168.69	3674.81	3191.63	2796.19	2372.06	1991.81	1706.06
315.0	4439.25	3933.56	3448.69	3040.88	2537.44	2169.56	1860.75	1593.56	1236.94
360.0	4201.88	3755.81	3320.44	2867.63	2441.25	2086.31	1734.75	1442.81	1218.94
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1006.88	847.13	711.56	570.94	479.25	394.31	325.13	286.88	231.86
45.0	867.94	723.38	605.25	509.06	435.38	369.56	315.56	288.00	231.13
90.0	836.66	699.58	596.81	501.64	421.99	363.49	313.76	261.17	226.52
135.0	1023.75	869.63	723.38	601.88	510.75	429.19	354.38	305.44	289.13
180.0	1044.84	876.83	719.27	588.99	493.82	406.41	342.17	283.84	236.64
225.0	1424.81	1105.93	1019.31	851.23	710.04	605.81	518.74	428.68	369.28
270.0	1433.25	1229.06	1032.75	862.31	735.19	626.63	517.50	442.69	379.69
315.0	1115.78	951.36	794.14	663.30	565.20	472.89	398.08	342.23	290.36
360.0	1006.88	847.13	711.56	570.94	479.25	394.31	325.13	286.88	231.86
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	192.04	167.18	146.87	128.76	114.02	103.61	93.83	85.78	79.54
45.0	200.76	174.66	152.83	136.41	118.63	107.21	97.26	87.58	79.26
90.0	198.00	173.53	147.60	131.63	116.49	104.06	94.89	86.79	78.81
135.0	220.95	190.41	167.34	145.86	128.76	116.10	102.77	94.44	84.83
180.0	203.57	176.74	149.57	132.36	118.35	104.74	95.85	88.37	81.23
225.0	319.95	272.03	233.66	205.26	175.89	156.21	139.22	121.89	111.49
270.0	315.00	287.44	234.79	205.71	176.29	156.94	140.01	122.74	110.81
315.0	252.56	216.17	187.26	165.71	147.43	128.25	115.71	104.57	92.87
360.0	192.04	167.18	146.87	128.76	114.02	103.61	93.83	85.78	79.54
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	73.24	68.12	63.00	58.28	54.56	51.19	47.25	44.27	41.29
45.0	72.79	66.43	60.69	56.19	51.58	47.81	43.93	40.33	37.46
90.0	71.94	65.64	60.64	55.41	51.08	46.63	43.09	39.04	36.17
135.0	77.46	71.61	65.93	60.13	55.74	51.75	47.19	44.04	41.01
180.0	74.81	69.98	64.80	60.13	56.31	52.31	48.94	45.39	42.08
225.0	99.84	88.93	82.18	74.42	67.16	62.49	57.77	52.09	48.60
270.0	100.52	90.17	81.28	73.52	67.56	62.21	56.93	52.14	48.15
315.0	84.83	77.79	70.82	64.46	59.63	54.73	50.79	46.69	42.98
360.0	73.24	68.12	63.00	58.28	54.56	51.19	47.25	44.27	41.29



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	37.97	35.61	33.41	31.11	29.08	27.45	25.88	24.64	23.40
45.0	34.71	32.12	30.09	28.41	26.55	25.20	24.08	22.84	21.77
90.0	33.53	31.22	28.74	27.00	25.48	23.85	22.61	21.60	20.53
135.0	37.97	35.16	32.91	30.77	28.97	27.28	25.88	24.64	23.51
180.0	39.38	36.90	34.09	31.95	30.15	28.13	26.72	25.37	23.96
225.0	44.94	41.12	37.80	35.16	32.57	30.21	28.52	26.94	25.59
270.0	43.59	40.33	37.35	34.65	31.61	29.48	27.84	26.10	24.92
315.0	39.94	36.79	34.09	31.95	30.04	28.01	26.55	25.37	24.08
360.0	37.97	35.61	33.41	31.11	29.08	27.45	25.88	24.64	23.40
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	22.28	21.38	20.42	19.52	18.79	18.11	17.33	16.71	16.14
45.0	20.87	19.97	19.18	18.45	17.78	17.16	16.54	15.92	15.36
90.0	19.58	18.90	18.06	17.44	16.88	16.37	16.03	15.69	15.41
135.0	22.33	21.43	20.59	19.58	18.84	18.17	17.33	16.76	16.20
180.0	22.84	21.88	20.76	20.08	19.18	18.34	17.83	17.04	16.43
225.0	24.24	23.01	22.05	21.09	20.03	19.24	18.56	17.72	17.10
270.0	23.96	22.61	21.54	20.64	19.63	18.90	18.11	17.38	16.82
315.0	22.95	21.99	20.98	20.08	19.24	18.39	17.72	16.99	16.31
360.0	22.28	21.38	20.42	19.52	18.79	18.11	17.33	16.71	16.14
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	15.58	15.08	14.63	14.18	13.73	13.33	12.88	12.54	12.15
45.0	14.85	14.40	14.01	13.61	13.11	12.83	12.49	12.15	11.93
90.0	15.24	15.41	16.82	19.29	22.95	26.49	29.31	31.89	34.31
135.0	15.58	15.02	14.63	14.23	13.73	13.33	12.94	12.54	12.15
180.0	15.92	15.41	14.85	14.40	14.01	13.56	13.16	12.71	12.32
225.0	16.48	15.98	15.24	14.79	14.40	13.95	13.50	13.05	12.71
270.0	16.31	15.75	15.41	15.13	14.91	15.36	16.54	20.36	24.53
315.0	15.75	15.24	14.74	14.34	14.01	13.50	13.16	12.77	12.32
360.0	15.58	15.08	14.63	14.18	13.73	13.33	12.88	12.54	12.15
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	11.76	11.31	10.97	10.63	10.29	10.07	9.73	9.45	9.17
45.0	11.87	11.87	11.93	12.04	12.04	11.87	10.80	10.01	9.28
90.0	37.07	39.09	41.06	42.75	44.38	45.28	42.81	38.03	29.31
135.0	11.64	11.25	10.97	10.52	10.24	9.96	9.68	9.34	9.00
180.0	11.93	11.53	11.14	10.80	10.46	10.18	9.90	9.56	9.28
225.0	12.32	11.98	11.59	11.31	11.08	10.97	10.91	10.74	10.41
270.0	27.00	30.71	33.24	36.06	38.70	40.05	42.24	43.71	44.49
315.0	11.87	11.48	11.08	10.74	10.46	10.13	9.90	9.56	9.23
360.0	11.76	11.31	10.97	10.63	10.29	10.07	9.73	9.45	9.17
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	8.83	8.55	8.27	8.04	7.82	7.43	6.75	6.41	6.30
45.0	8.49	8.04	7.65	7.31	6.58	6.13	5.91	5.79	5.74
90.0	22.73	15.86	9.51	7.48	6.41	6.08	5.85	5.74	5.74
135.0	8.72	8.33	7.99	7.59	6.86	6.47	6.13	5.91	5.74
180.0	9.00	8.66	8.33	8.04	7.88	7.03	6.58	6.36	6.19
225.0	10.01	9.39	8.83	8.44	8.04	7.65	6.86	6.47	6.02
270.0	41.74	36.11	28.97	21.21	14.46	9.11	7.03	6.53	6.19
315.0	8.89	8.55	8.16	7.82	7.48	7.09	6.36	6.02	5.79
360.0	8.83	8.55	8.27	8.04	7.82	7.43	6.75	6.41	6.30

Intensity data(cd)

<b>C/γ(°)</b>	<b>90.0</b>
<b>0.0</b>	<b>6.36</b>
<b>45.0</b>	<b>5.74</b>
<b>90.0</b>	<b>5.68</b>
<b>135.0</b>	<b>5.68</b>
<b>180.0</b>	<b>6.36</b>
<b>225.0</b>	<b>5.85</b>
<b>270.0</b>	<b>5.91</b>
<b>315.0</b>	<b>5.68</b>
<b>360.0</b>	<b>6.36</b>