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Nata

LumCAT: 1-1005-M
Luminaire: BJB 47.360.1020
Report No: NATA0100
Test No: GC2019102413
LampCAT: SAMSUNG LC009D
Lamp flux(lm): 1482.0
Number of Lamps: 1
Length(mm): 0
Phm Type: C

Voltage(V): 34.4300
Current(A): 0.2970
Power (W): 10.2200
PF: 0.0000
Ballast type: DC
Width(mm): 0
Height(mm): 0

Photometric Results

Lumens(lm): 1068.33
Efficiency(%): 72.09%
Lumens(lm)/Power(W): 104.53
Central intensity(cd): 6650.859
Maximum intensity(cd): 6650.859
Angle of maximum intensity: $C=0.0$ $\gamma=0.0$
Beam Angle(50%Imax): [C0/180]Total=20.4
[C90/270]Total=20.4
Field angle(10%Imax): [C0/180]Total=40.8
[C90/270]Total=40.8
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(%): 72.09%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.546%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	6650.859	0.000	0	.000%	.000%
1.0	6636.656	6.358	6.358	.429%	.595%
2.0	6536.672	18.908	25.265	1.276%	2.365%
3.0	6388.734	30.913	56.179	2.086%	5.259%
4.0	6151.570	41.976	98.155	2.832%	9.188%
5.0	5806.758	51.444	149.599	3.471%	14.003%
6.0	5354.719	58.657	208.256	3.958%	19.494%
7.0	4863.164	63.422	271.678	4.280%	25.430%
8.0	4377.234	66.132	337.81	4.462%	31.621%
9.0	3869.156	66.833	404.642	4.510%	37.876%
10.0	3396.094	65.748	470.39	4.436%	44.031%
11.0	2992.430	63.834	534.225	4.307%	50.006%
12.0	2614.781	61.295	595.519	4.136%	55.743%
13.0	2254.219	57.783	653.302	3.899%	61.152%
14.0	1954.266	53.868	707.17	3.635%	66.194%
15.0	1690.945	50.043	757.214	3.377%	70.879%
16.0	1445.625	45.960	803.173	3.101%	75.181%
17.0	1189.470	41.036	844.209	2.769%	79.022%
18.0	1053.211	36.977	881.186	2.495%	82.483%
19.0	886.141	33.741	914.926	2.277%	85.641%
20.0	721.786	29.430	944.356	1.986%	88.396%
21.0	572.210	24.847	969.203	1.677%	90.722%
22.0	443.475	20.411	989.614	1.377%	92.632%
23.0	328.395	16.196	1005.81	1.093%	94.148%
24.0	249.616	12.637	1018.447	.853%	95.331%
25.0	136.146	8.771	1027.219	.592%	96.152%
26.0	78.926	5.077	1032.295	.343%	96.627%
27.0	41.168	2.938	1035.233	.198%	96.902%
28.0	22.233	1.605	1036.839	.108%	97.053%
29.0	14.203	0.953	1037.792	.064%	97.142%
30.0	11.468	0.693	1038.485	.047%	97.207%
31.0	10.223	0.604	1039.089	.041%	97.263%
32.0	9.394	0.562	1039.651	.038%	97.316%
33.0	8.761	0.535	1040.185	.036%	97.366%
34.0	8.213	0.514	1040.699	.035%	97.414%
35.0	7.763	0.496	1041.195	.033%	97.461%
36.0	7.369	0.482	1041.677	.033%	97.506%
37.0	7.073	0.471	1042.148	.032%	97.550%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	6.813	0.464	1042.612	.031%	97.593%
39.0	6.581	0.457	1043.069	.031%	97.636%
40.0	6.391	0.452	1043.521	.031%	97.678%
41.0	6.251	0.450	1043.971	.030%	97.720%
42.0	6.103	0.449	1044.42	.030%	97.762%
43.0	5.984	0.448	1044.868	.030%	97.804%
44.0	5.878	0.448	1045.316	.030%	97.846%
45.0	5.808	0.449	1045.765	.030%	97.888%
46.0	5.723	0.451	1046.216	.030%	97.930%
47.0	5.646	0.452	1046.668	.031%	97.973%
48.0	5.590	0.454	1047.122	.031%	98.015%
49.0	5.527	0.457	1047.579	.031%	98.058%
50.0	5.477	0.459	1048.037	.031%	98.101%
51.0	5.449	0.462	1048.5	.031%	98.144%
52.0	5.414	0.466	1048.966	.031%	98.188%
53.0	5.365	0.469	1049.435	.032%	98.232%
54.0	5.316	0.471	1049.905	.032%	98.276%
55.0	5.288	0.473	1050.379	.032%	98.320%
56.0	5.259	0.477	1050.855	.032%	98.365%
57.0	5.217	0.479	1051.334	.032%	98.410%
58.0	5.203	0.482	1051.816	.033%	98.455%
59.0	5.182	0.486	1052.302	.033%	98.500%
60.0	5.147	0.488	1052.79	.033%	98.546%
61.0	5.126	0.490	1053.28	.033%	98.592%
62.0	5.105	0.493	1053.773	.033%	98.638%
63.0	5.098	0.496	1054.269	.033%	98.684%
64.0	5.077	0.499	1054.768	.034%	98.731%
65.0	5.077	0.502	1055.271	.034%	98.778%
66.0	5.048	0.505	1055.776	.034%	98.825%
67.0	5.020	0.506	1056.282	.034%	98.873%
68.0	4.999	0.508	1056.79	.034%	98.920%
69.0	4.999	0.510	1057.3	.034%	98.968%
70.0	4.978	0.512	1057.812	.035%	99.016%
71.0	4.971	0.514	1058.327	.035%	99.064%
72.0	4.971	0.517	1058.844	.035%	99.112%
73.0	4.943	0.518	1059.362	.035%	99.161%
74.0	4.943	0.520	1059.882	.035%	99.210%
75.0	4.929	0.522	1060.403	.035%	99.258%

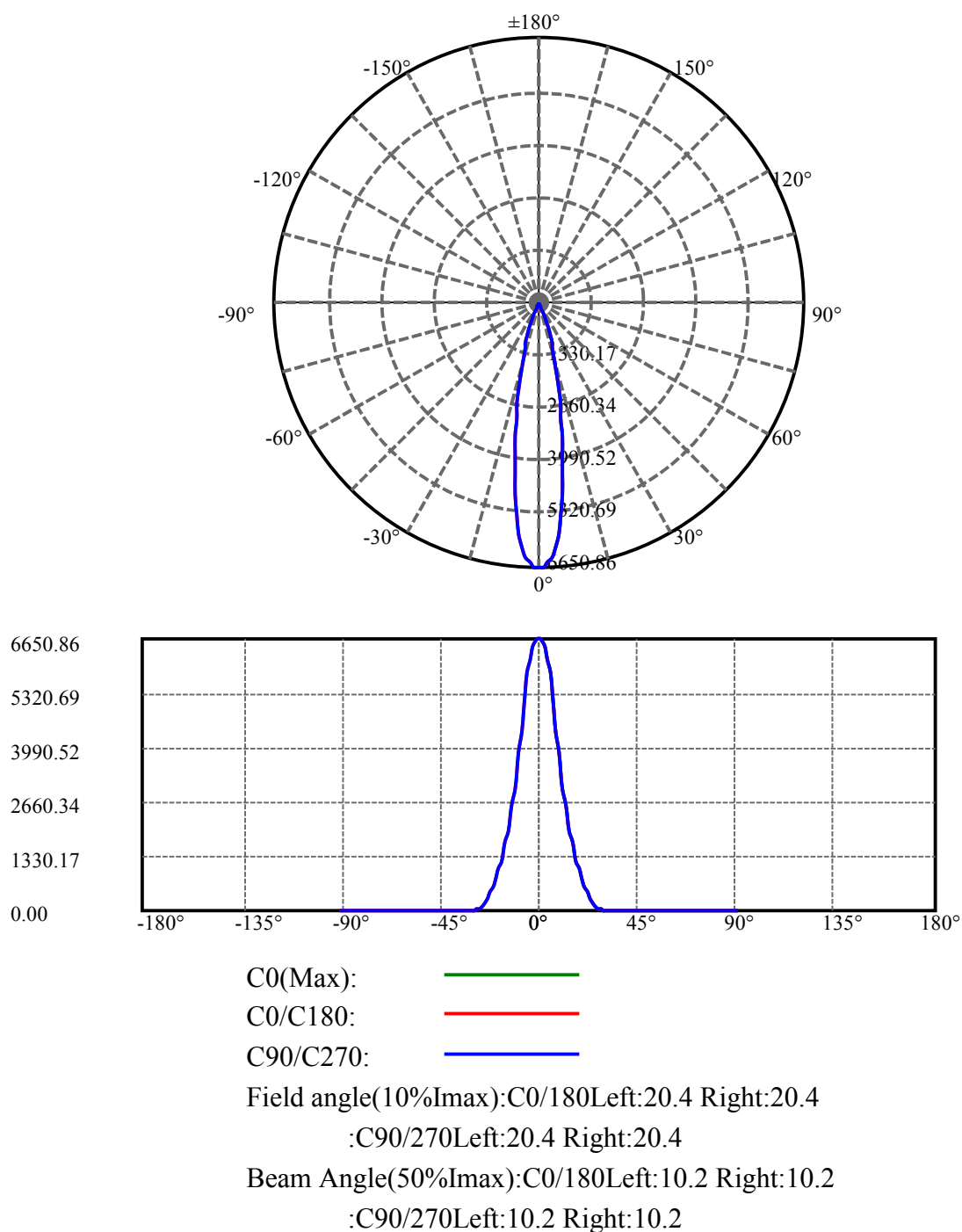
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	4.922	0.523	1060.926	.035%	99.307%
77.0	4.915	0.524	1061.451	.035%	99.357%
78.0	4.915	0.526	1061.977	.036%	99.406%
79.0	4.901	0.527	1062.504	.036%	99.455%
80.0	4.901	0.528	1063.033	.036%	99.505%
81.0	4.894	0.530	1063.562	.036%	99.554%
82.0	4.859	0.529	1064.091	.036%	99.604%
83.0	4.852	0.528	1064.619	.036%	99.653%
84.0	4.859	0.529	1065.148	.036%	99.703%
85.0	4.852	0.530	1065.678	.036%	99.752%
86.0	4.852	0.530	1066.208	.036%	99.802%
87.0	4.830	0.530	1066.738	.036%	99.851%
88.0	4.830	0.529	1067.267	.036%	99.901%
89.0	4.823	0.529	1067.797	.036%	99.951%
90.0	4.816	0.529	1068.325	.036%	100.000%

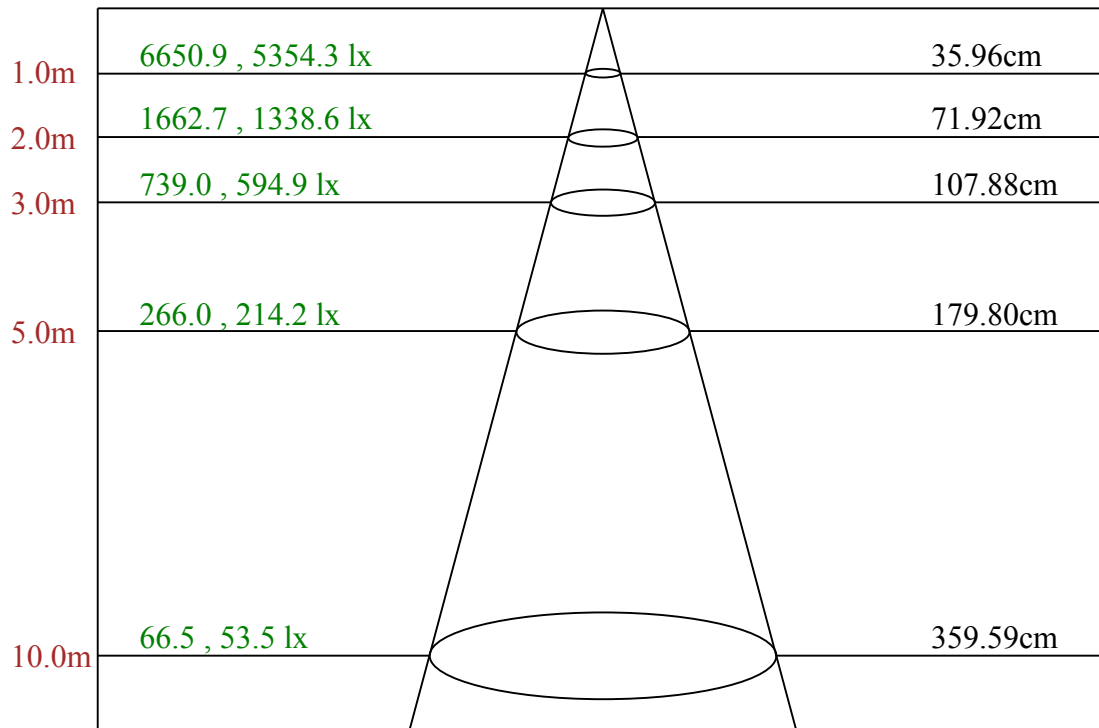
ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1038.48	70.07%	97.21%
0-40	1043.52	70.41%	97.68%
0-60	1052.79	71.04%	98.55%
0-90	1067.80	72.05%	99.95%
0-120	1067.80	72.05%	99.95%
0-180	1068.33	72.09%	100.00%
60-90	15.49	1.05%	1.45%
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%
0-17.28	854.66	57.67%	80.00%

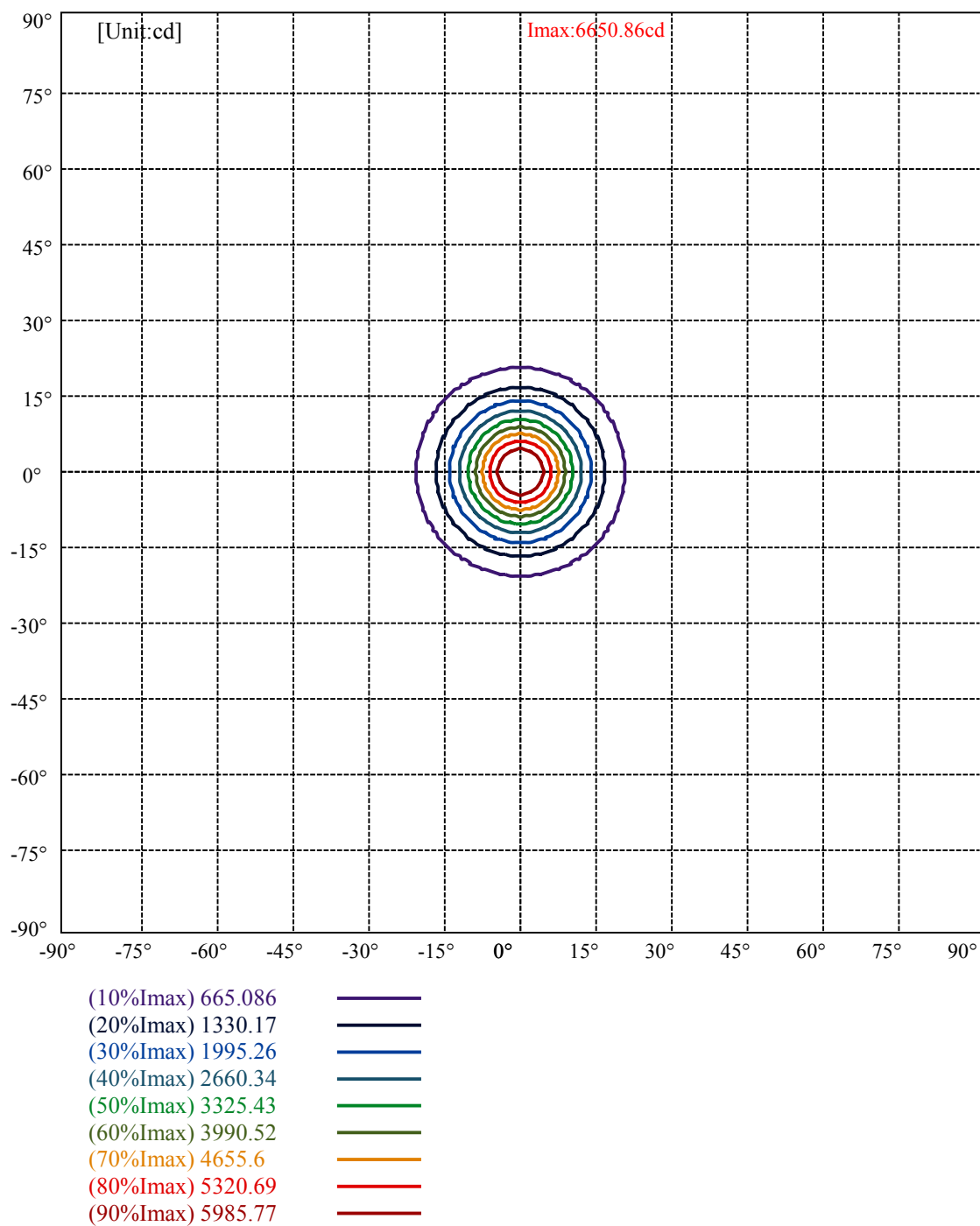
ZONAL LUMEN SUMMARY

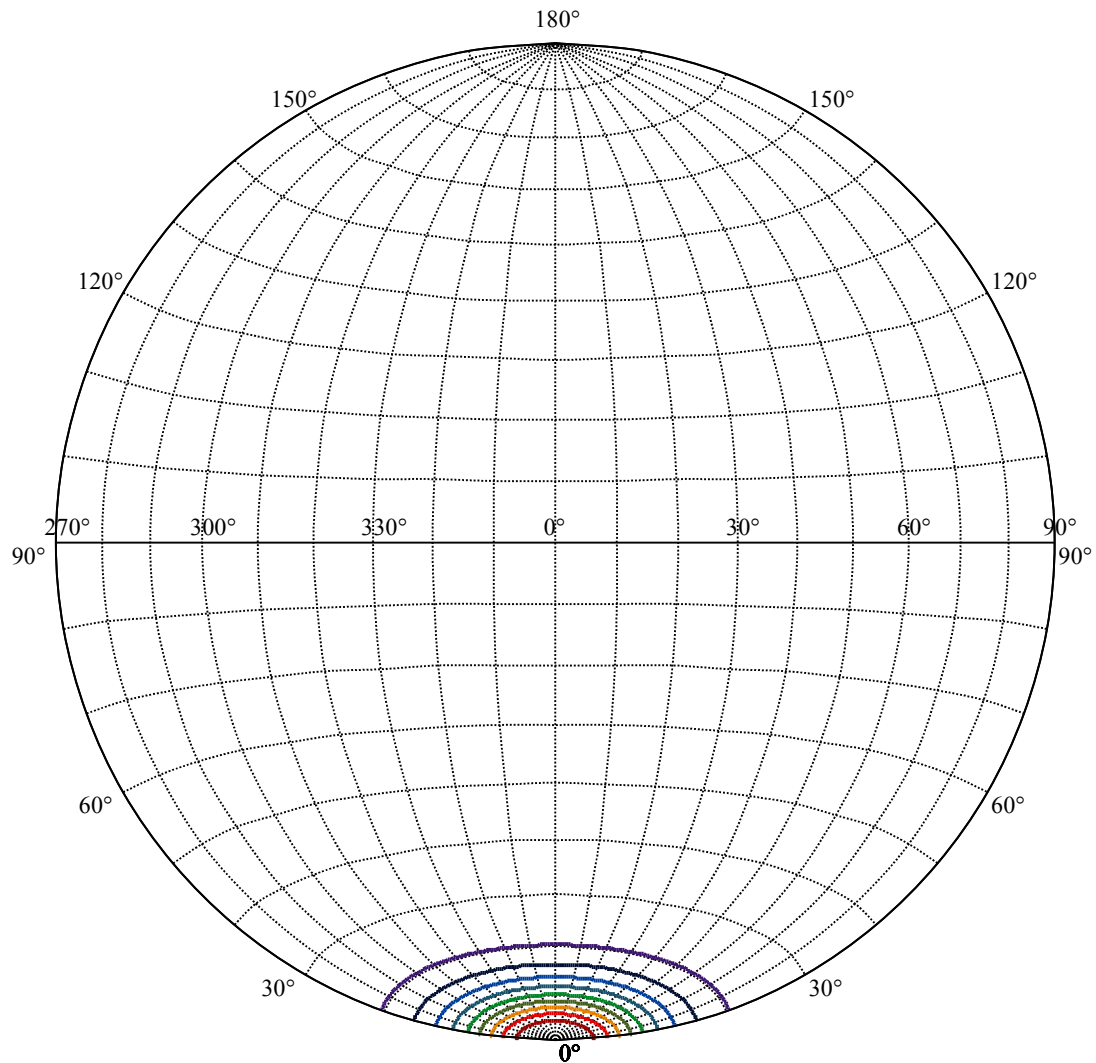
0-10	470.39
10-20	473.97
20-30	94.13
30-40	5.04
40-50	4.52
50-60	4.75
60-70	5.02
70-80	5.22
80-90	4.76
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00





Max , Ave Beam angle of C0 plane 20.39





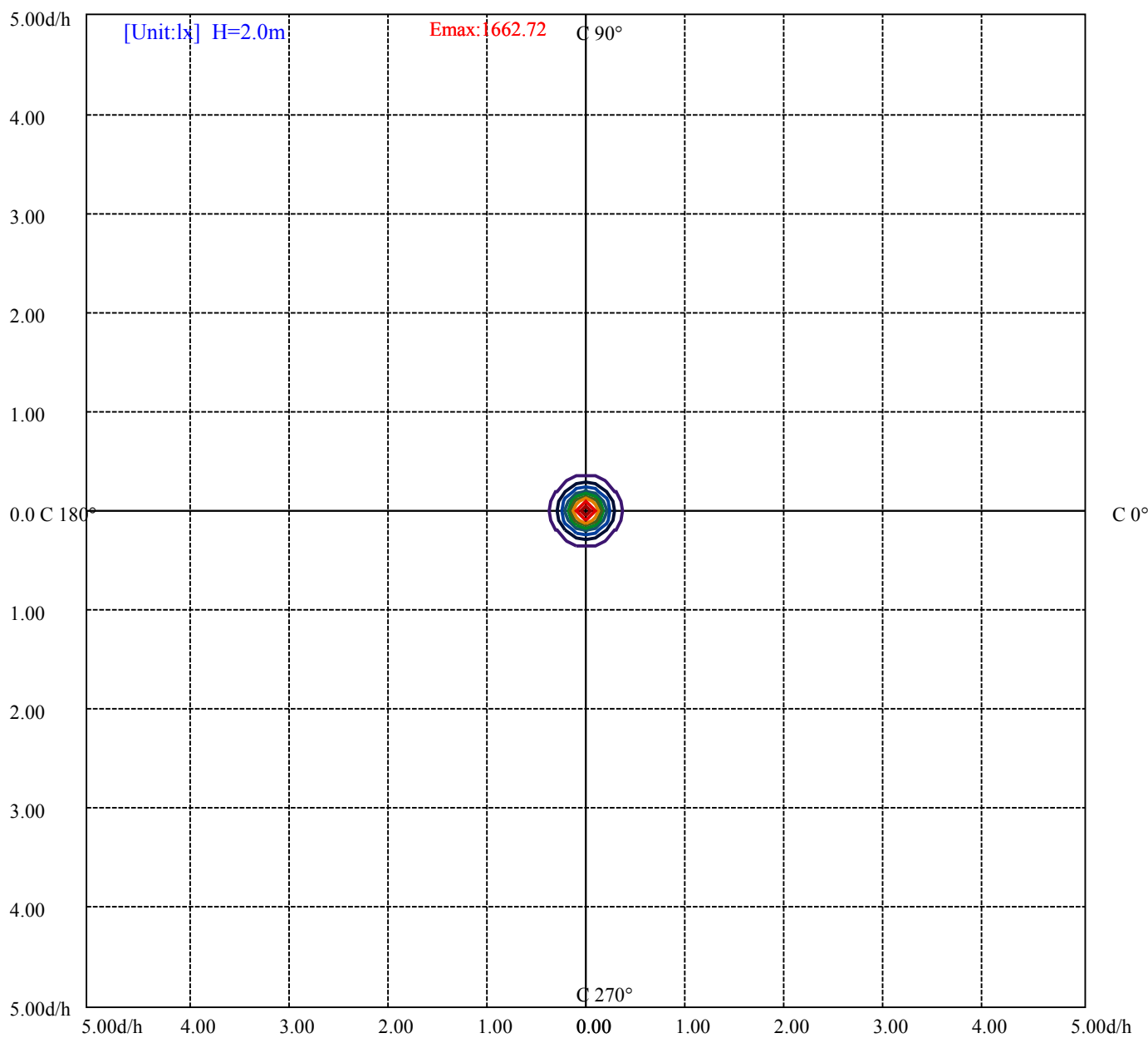
House

[Unit:cd]

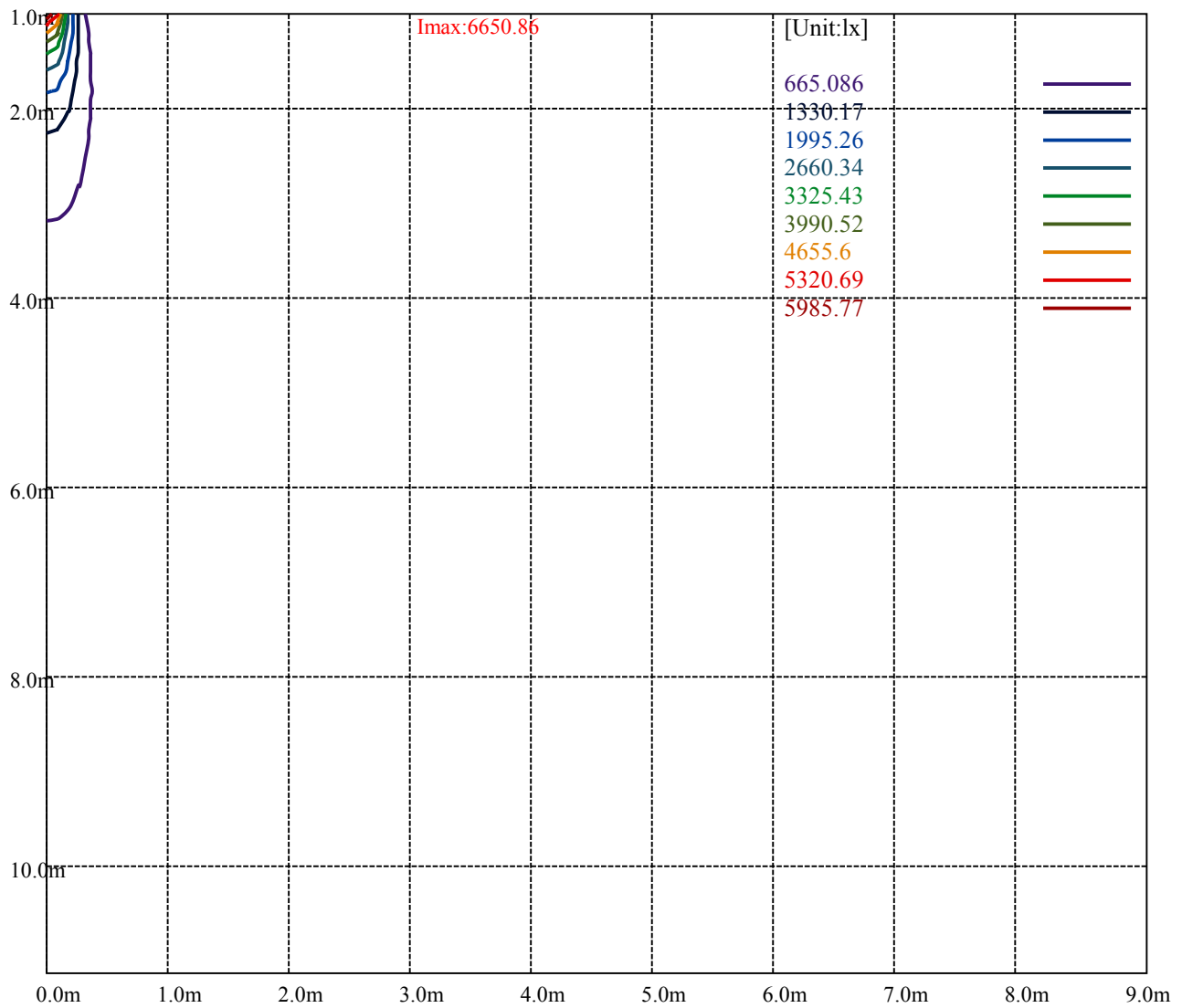
Road

Imax:6650.86

(10%Imax)	665.086	—
(20%Imax)	1330.17	—
(30%Imax)	1995.26	—
(40%Imax)	2660.34	—
(50%Imax)	3325.43	—
(60%Imax)	3990.52	—
(70%Imax)	4655.6	—
(80%Imax)	5320.69	—
(90%Imax)	5985.77	—



(10%Emax)	166.2715	—
(20%Emax)	332.5425	—
(30%Emax)	498.815	—
(40%Emax)	665.085	—
(50%Emax)	831.3575	—
(60%Emax)	997.6275	—
(70%Emax)	1163.9	—
(80%Emax)	1330.172	—
(90%Emax)	1496.443	—



Luminance Table

γ	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

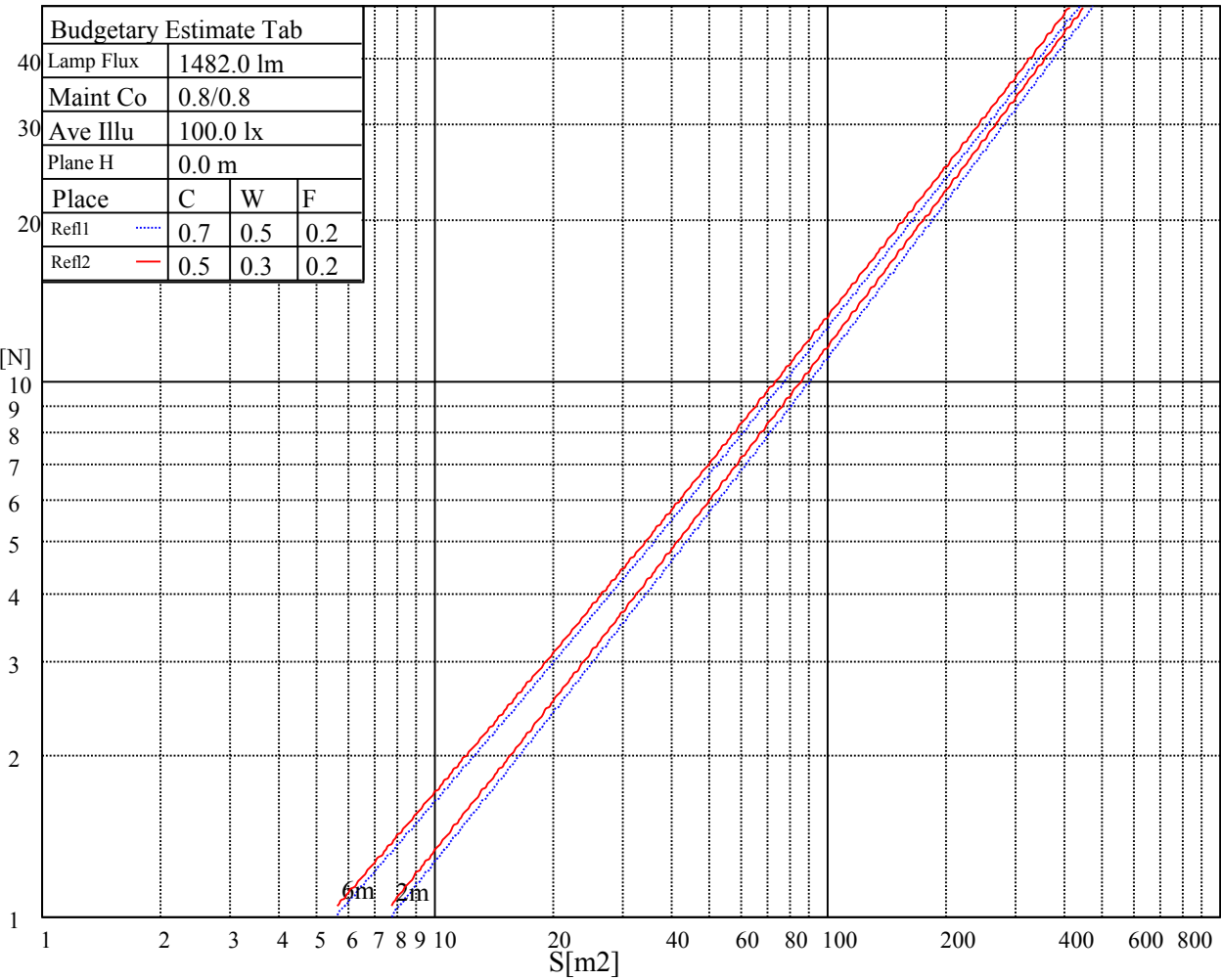
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

Glare Table

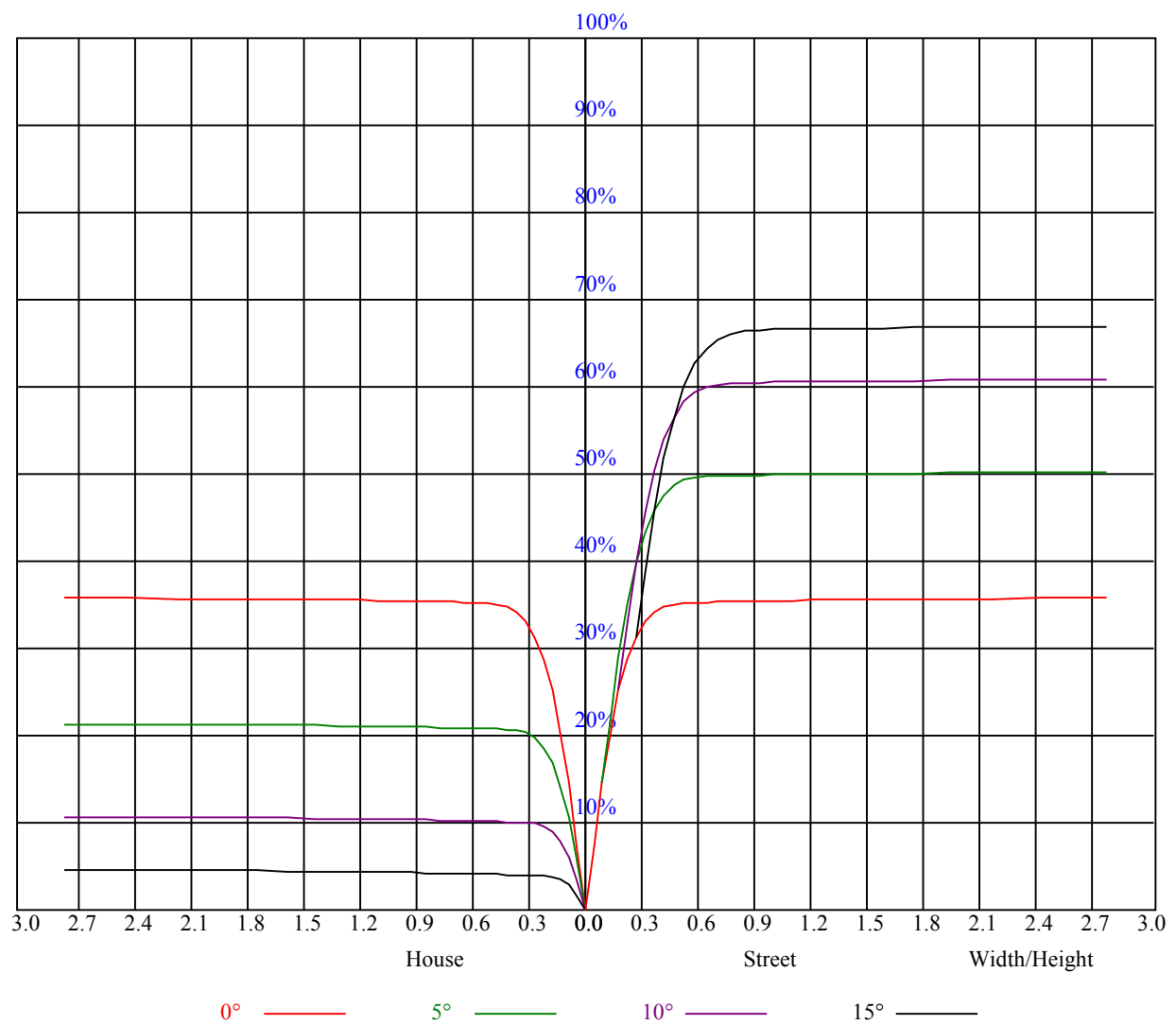
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

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



Nata 1-1005-M

Intensity data(cd)									Appendix Page: 16 Total:18
C/γ(°)	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0
0.0	6644.81	6653.81	6516.56	6392.81	6099.19	5703.19	5337.00	4770.56	4295.81
45.0	6653.25	6640.88	6519.38	6379.31	6153.75	5741.44	5332.50	4817.81	4349.25
90.0	6644.25	6617.25	6527.25	6358.50	6116.63	5784.75	5270.63	4808.81	4327.88
135.0	6661.13	6647.63	6620.06	6496.88	6348.38	6090.75	5704.31	5221.13	4748.63
180.0	6644.81	6652.13	6563.25	6419.81	6218.44	5905.69	5466.38	4946.63	4452.19
225.0	6653.25	6639.19	6561.56	6406.88	6176.81	5849.44	5353.88	4899.94	4414.50
270.0	6644.25	6647.63	6548.63	6423.75	6176.25	5845.50	5396.06	4942.69	4404.38
315.0	6661.13	6594.75	6436.69	6231.94	5923.13	5533.31	4977.00	4497.75	4025.25
360.0	6644.81	6653.81	6516.56	6392.81	6099.19	5703.19	5337.00	4770.56	4295.81
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3850.88	3332.25	2952.00	2600.44	2209.50	1929.94	1682.44	1408.50	1219.50
45.0	3849.19	3430.13	2989.69	2633.06	2270.81	1953.56	1706.06	1434.38	1240.88
90.0	3812.63	3338.44	2954.25	2564.44	2250.56	1938.94	1665.56	1448.44	1113.13
135.0	4204.69	3691.13	3270.38	2884.50	2448.56	2142.00	1873.13	1605.38	1366.88
180.0	3969.00	3418.31	3021.19	2660.63	2293.31	1968.19	1716.75	1465.31	1102.05
225.0	3892.50	3408.19	3008.81	2602.13	2279.25	1959.75	1679.06	1455.75	1122.41
270.0	3889.69	3463.88	3024.00	2664.00	2262.94	1977.19	1721.25	1440.00	1242.56
315.0	3484.69	3086.44	2719.13	2309.06	2018.81	1764.56	1483.31	1307.25	1108.35
360.0	3850.88	3332.25	2952.00	2600.44	2209.50	1929.94	1682.44	1408.50	1219.50
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1050.19	873.00	707.63	574.31	437.63	315.00	289.69	130.95	75.71
45.0	1065.38	926.44	718.31	586.69	470.25	330.75	293.06	140.23	77.18
90.0	1029.66	870.08	720.96	550.01	427.89	321.02	216.11	131.40	77.68
135.0	1168.88	983.81	810.00	665.44	508.50	403.88	294.75	177.19	112.28
180.0	1059.47	873.79	727.14	573.64	438.75	331.37	237.38	140.01	84.66
225.0	1037.93	877.67	730.63	561.21	438.47	327.66	219.04	134.10	77.74
270.0	1070.44	909.00	723.94	587.81	462.94	336.38	284.63	142.14	76.50
315.0	943.76	775.35	635.68	478.58	363.38	261.11	162.28	93.15	49.67
360.0	1050.19	873.00	707.63	574.31	437.63	315.00	289.69	130.95	75.71
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	36.62	19.52	13.28	11.31	10.07	9.34	8.72	8.04	7.65
45.0	40.22	22.84	13.61	11.31	10.18	9.34	8.78	8.33	7.82
90.0	39.99	21.38	13.56	10.97	10.13	9.28	8.55	8.16	7.76
135.0	63.62	30.43	18.34	12.77	10.58	9.73	9.11	8.44	7.93
180.0	45.34	24.36	14.57	11.59	10.24	9.39	8.72	8.21	7.76
225.0	39.32	22.11	14.51	11.70	10.63	9.73	9.00	8.44	7.99
270.0	37.86	22.16	14.01	11.53	10.35	9.51	8.89	8.33	7.82
315.0	26.38	15.08	11.76	10.58	9.62	8.83	8.33	7.76	7.37
360.0	36.62	19.52	13.28	11.31	10.07	9.34	8.72	8.04	7.65
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	7.26	6.92	6.64	6.41	6.24	6.13	5.96	5.85	5.74
45.0	7.43	7.20	6.86	6.69	6.47	6.30	6.19	6.08	5.96
90.0	7.31	7.03	6.81	6.64	6.41	6.30	6.13	6.02	5.91
135.0	7.59	7.26	6.98	6.75	6.53	6.36	6.19	6.08	5.96
180.0	7.37	7.03	6.86	6.58	6.41	6.24	6.08	5.96	5.85
225.0	7.48	7.26	6.98	6.69	6.47	6.36	6.19	6.08	5.96
270.0	7.43	7.14	6.81	6.58	6.41	6.24	6.13	6.02	5.91
315.0	7.09	6.75	6.58	6.30	6.19	6.08	5.96	5.79	5.74
360.0	7.26	6.92	6.64	6.41	6.24	6.13	5.96	5.85	5.74

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	5.68	5.57	5.51	5.46	5.40	5.34	5.34	5.29	5.23
45.0	5.85	5.79	5.74	5.68	5.57	5.51	5.46	5.46	5.40
90.0	5.85	5.79	5.68	5.63	5.57	5.51	5.51	5.46	5.40
135.0	5.91	5.79	5.68	5.63	5.57	5.57	5.46	5.46	5.40
180.0	5.79	5.68	5.63	5.57	5.51	5.46	5.46	5.40	5.34
225.0	5.91	5.79	5.74	5.68	5.63	5.57	5.51	5.46	5.46
270.0	5.85	5.79	5.68	5.63	5.57	5.51	5.51	5.46	5.40
315.0	5.63	5.57	5.51	5.46	5.40	5.34	5.34	5.34	5.29
360.0	5.68	5.57	5.51	5.46	5.40	5.34	5.34	5.29	5.23
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	5.18	5.18	5.12	5.12	5.06	5.06	5.01	5.01	4.95
45.0	5.40	5.34	5.29	5.23	5.23	5.23	5.18	5.18	5.18
90.0	5.34	5.34	5.29	5.23	5.23	5.23	5.18	5.18	5.12
135.0	5.34	5.29	5.29	5.23	5.23	5.18	5.18	5.12	5.12
180.0	5.29	5.23	5.23	5.18	5.18	5.12	5.12	5.06	5.06
225.0	5.40	5.34	5.34	5.29	5.29	5.23	5.23	5.18	5.18
270.0	5.34	5.34	5.34	5.29	5.29	5.23	5.23	5.23	5.18
315.0	5.23	5.23	5.18	5.18	5.12	5.12	5.06	5.06	5.06
360.0	5.18	5.18	5.12	5.12	5.06	5.06	5.01	5.01	4.95
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	5.01	4.95	4.95	4.95	4.89	4.89	4.89	4.89	4.84
45.0	5.12	5.12	5.12	5.06	5.06	5.06	5.01	5.01	5.01
90.0	5.12	5.12	5.12	5.06	5.06	5.01	5.01	5.01	5.01
135.0	5.12	5.06	5.06	5.06	5.01	5.01	5.01	4.95	4.95
180.0	5.01	5.01	5.01	5.01	4.95	4.95	4.95	4.89	4.95
225.0	5.18	5.18	5.18	5.12	5.12	5.06	5.06	5.06	5.06
270.0	5.18	5.18	5.18	5.12	5.12	5.06	5.12	5.06	5.06
315.0	5.06	5.01	5.01	5.01	4.95	4.95	4.95	4.95	4.89
360.0	5.01	4.95	4.95	4.95	4.89	4.89	4.89	4.89	4.84
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	4.89	4.89	4.84	4.84	4.78	4.84	4.84	4.78	4.84
45.0	5.01	4.95	5.01	4.95	5.01	4.95	4.95	4.95	4.95
90.0	5.01	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.89
135.0	4.95	4.95	4.95	4.89	4.89	4.89	4.89	4.89	4.89
180.0	4.89	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84
225.0	5.06	5.01	5.01	5.01	5.01	5.01	5.01	4.95	4.95
270.0	5.06	5.06	5.06	5.06	5.01	5.01	5.01	5.01	5.01
315.0	4.89	4.89	4.89	4.89	4.89	4.84	4.84	4.84	4.84
360.0	4.89	4.89	4.84	4.84	4.78	4.84	4.84	4.78	4.84
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	4.84	4.78	4.78	4.84	4.78	4.78	4.78	4.78	4.78
45.0	4.95	4.89	4.89	4.89	4.89	4.89	4.89	4.89	4.84
90.0	4.89	4.89	4.89	4.89	4.89	4.89	4.84	4.84	4.84
135.0	4.89	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.78
180.0	4.78	4.78	4.78	4.78	4.78	4.78	4.78	4.78	4.78
225.0	4.95	4.89	4.89	4.89	4.89	4.89	4.89	4.89	4.89
270.0	4.95	4.95	4.89	4.89	4.89	4.89	4.84	4.84	4.84
315.0	4.89	4.84	4.84	4.84	4.84	4.84	4.78	4.78	4.84
360.0	4.84	4.78	4.78	4.84	4.78	4.78	4.78	4.78	4.78

Intensity data(cd)

Appendix Page: 18 Total:18

C/γ(°)	90.0
0.0	4.78
45.0	4.84
90.0	4.84
135.0	4.78
180.0	4.78
225.0	4.84
270.0	4.84
315.0	4.84
360.0	4.78