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Nata

LumCAT: 1-1006-M	
Luminaire: BJB 47.360.1020	
Report No: NATA0100	Voltage(V): 34.5300
Test No: GC2019102414	Current(A): 0.2970
LampCAT: SAMSUNG LC009D	Power (W): 10.2500
Lamp flux(lm): 1482.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 0	Width(mm): 0
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1081.69
Efficiency(%): 72.99%
Lumens(lm)/Power(W): 105.53
Central intensity(cd): 5319.984
Maximum intensity(cd): 5319.984
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=25.3
[C90/270]Total=25.3
Field angle(10%Imax): [C0/180]Total=43.3
[C90/270]Total=43.3
Maximum s/h(1/2): C0_180=0.43 C90_270=0.43
Maximum s/h(1/4): C0_180=0.42 C90_270=0.42
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 72.99%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.547%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5319.984	0.000	0	.000%	.000%
1.0	5304.234	5.083	5.083	.343%	.470%
2.0	5242.008	15.137	20.22	1.021%	1.869%
3.0	5136.891	24.823	45.043	1.675%	4.164%
4.0	5005.336	33.949	78.993	2.291%	7.303%
5.0	4837.430	42.343	121.336	2.857%	11.217%
6.0	4636.898	49.790	171.126	3.360%	15.820%
7.0	4408.172	56.143	227.268	3.788%	21.011%
8.0	4153.359	61.273	288.542	4.134%	26.675%
9.0	3863.391	64.971	353.513	4.384%	32.682%
10.0	3538.195	66.982	420.495	4.520%	38.874%
11.0	3215.391	67.482	487.977	4.553%	45.112%
12.0	2885.836	66.695	554.672	4.500%	51.278%
13.0	2534.273	64.323	618.995	4.340%	57.225%
14.0	2212.875	60.763	679.758	4.100%	62.842%
15.0	1921.852	56.763	736.522	3.830%	68.090%
16.0	1646.578	52.287	788.809	3.528%	72.924%
17.0	1353.628	46.721	835.53	3.153%	77.243%
18.0	1149.342	41.269	876.799	2.785%	81.058%
19.0	977.688	37.006	913.805	2.497%	84.479%
20.0	791.937	32.389	946.194	2.185%	87.474%
21.0	623.658	27.182	973.376	1.834%	89.987%
22.0	487.582	22.331	995.707	1.507%	92.051%
23.0	361.793	17.822	1013.529	1.203%	93.699%
24.0	255.185	13.489	1027.019	.910%	94.946%
25.0	176.266	9.810	1036.829	.662%	95.853%
26.0	93.797	6.375	1043.204	.430%	96.442%
27.0	51.574	3.557	1046.76	.240%	96.771%
28.0	29.588	2.055	1048.815	.139%	96.961%
29.0	18.682	1.263	1050.078	.085%	97.078%
30.0	13.605	0.872	1050.95	.059%	97.158%
31.0	11.412	0.696	1051.646	.047%	97.223%
32.0	10.315	0.622	1052.268	.042%	97.280%
33.0	9.584	0.586	1052.855	.040%	97.334%
34.0	8.972	0.562	1053.416	.038%	97.386%
35.0	8.409	0.540	1053.956	.036%	97.436%
36.0	7.980	0.522	1054.478	.035%	97.484%
37.0	7.622	0.509	1054.987	.034%	97.531%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	7.284	0.498	1055.484	.034%	97.577%
39.0	7.010	0.488	1055.972	.033%	97.622%
40.0	6.799	0.482	1056.454	.032%	97.667%
41.0	6.609	0.477	1056.931	.032%	97.711%
42.0	6.413	0.473	1057.404	.032%	97.755%
43.0	6.265	0.470	1057.874	.032%	97.798%
44.0	6.138	0.468	1058.342	.032%	97.842%
45.0	6.040	0.468	1058.81	.032%	97.885%
46.0	5.934	0.468	1059.278	.032%	97.928%
47.0	5.843	0.468	1059.747	.032%	97.971%
48.0	5.752	0.469	1060.215	.032%	98.015%
49.0	5.667	0.469	1060.684	.032%	98.058%
50.0	5.604	0.470	1061.154	.032%	98.102%
51.0	5.555	0.472	1061.626	.032%	98.145%
52.0	5.491	0.474	1062.1	.032%	98.189%
53.0	5.435	0.475	1062.576	.032%	98.233%
54.0	5.386	0.477	1063.053	.032%	98.277%
55.0	5.351	0.479	1063.532	.032%	98.321%
56.0	5.323	0.482	1064.014	.033%	98.366%
57.0	5.273	0.484	1064.499	.033%	98.411%
58.0	5.266	0.487	1064.986	.033%	98.456%
59.0	5.238	0.491	1065.477	.033%	98.501%
60.0	5.189	0.493	1065.97	.033%	98.547%
61.0	5.182	0.495	1066.465	.033%	98.593%
62.0	5.161	0.498	1066.963	.034%	98.639%
63.0	5.140	0.501	1067.464	.034%	98.685%
64.0	5.133	0.504	1067.968	.034%	98.731%
65.0	5.126	0.508	1068.476	.034%	98.778%
66.0	5.105	0.510	1068.986	.034%	98.826%
67.0	5.084	0.512	1069.499	.035%	98.873%
68.0	5.077	0.515	1070.013	.035%	98.921%
69.0	5.055	0.517	1070.53	.035%	98.968%
70.0	5.041	0.519	1071.049	.035%	99.016%
71.0	5.034	0.521	1071.569	.035%	99.064%
72.0	5.020	0.523	1072.092	.035%	99.113%
73.0	5.013	0.525	1072.617	.035%	99.161%
74.0	5.006	0.527	1073.144	.036%	99.210%
75.0	4.999	0.529	1073.672	.036%	99.259%

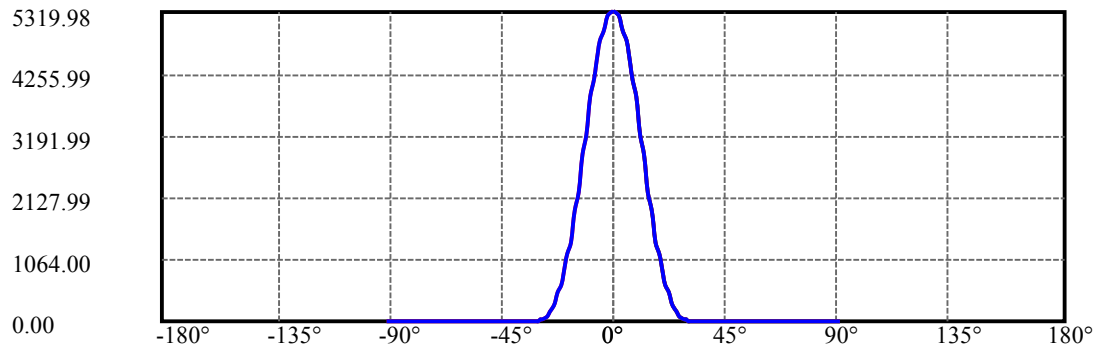
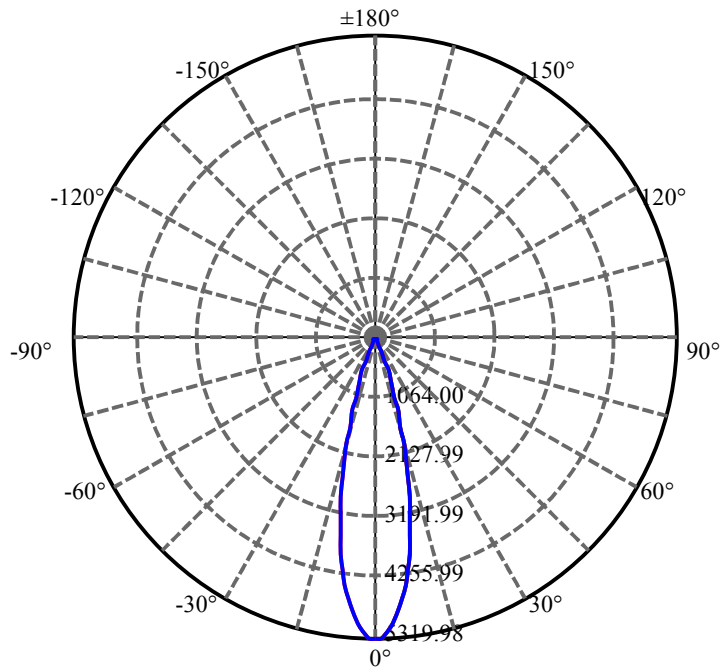
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	4.992	0.530	1074.203	.036%	99.308%
77.0	4.985	0.532	1074.735	.036%	99.357%
78.0	4.985	0.534	1075.268	.036%	99.406%
79.0	4.957	0.534	1075.803	.036%	99.456%
80.0	4.943	0.534	1076.336	.036%	99.505%
81.0	4.936	0.534	1076.871	.036%	99.555%
82.0	4.922	0.535	1077.405	.036%	99.604%
83.0	4.922	0.535	1077.94	.036%	99.653%
84.0	4.922	0.536	1078.477	.036%	99.703%
85.0	4.908	0.536	1079.013	.036%	99.753%
86.0	4.901	0.536	1079.549	.036%	99.802%
87.0	4.894	0.536	1080.085	.036%	99.852%
88.0	4.873	0.535	1080.62	.036%	99.901%
89.0	4.880	0.535	1081.155	.036%	99.951%
90.0	4.873	0.535	1081.689	.036%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1050.95	70.91%	97.16%
0-40	1056.45	71.29%	97.67%
0-60	1065.97	71.93%	98.55%
0-90	1081.15	72.95%	99.95%
0-120	1081.15	72.95%	99.95%
0-180	1081.69	72.99%	100.00%
60-90	15.68	1.06%	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%
0-17.72	865.35	58.39%	80.00%

ZONAL LUMEN SUMMARY

0-10	420.49
10-20	525.70
20-30	104.76
30-40	5.50
40-50	4.70
50-60	4.82
60-70	5.08
70-80	5.29
80-90	4.82
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: —————

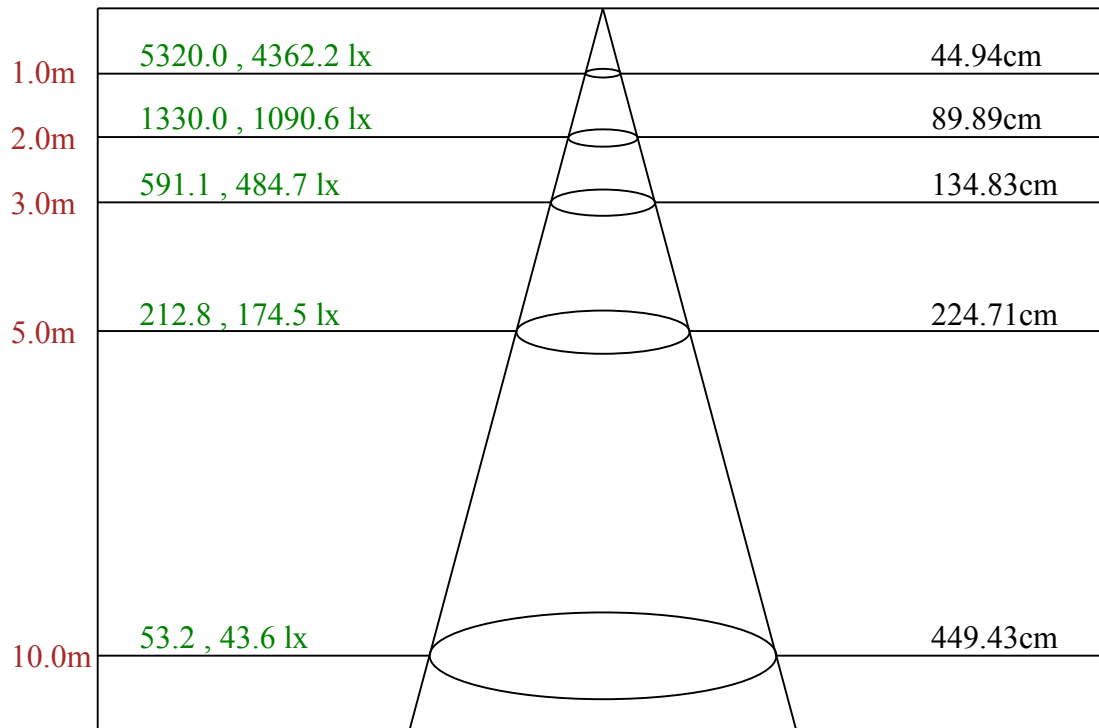
C90/C270: —————

Field angle(10%Imax):C0/180Left:21.7 Right:21.7

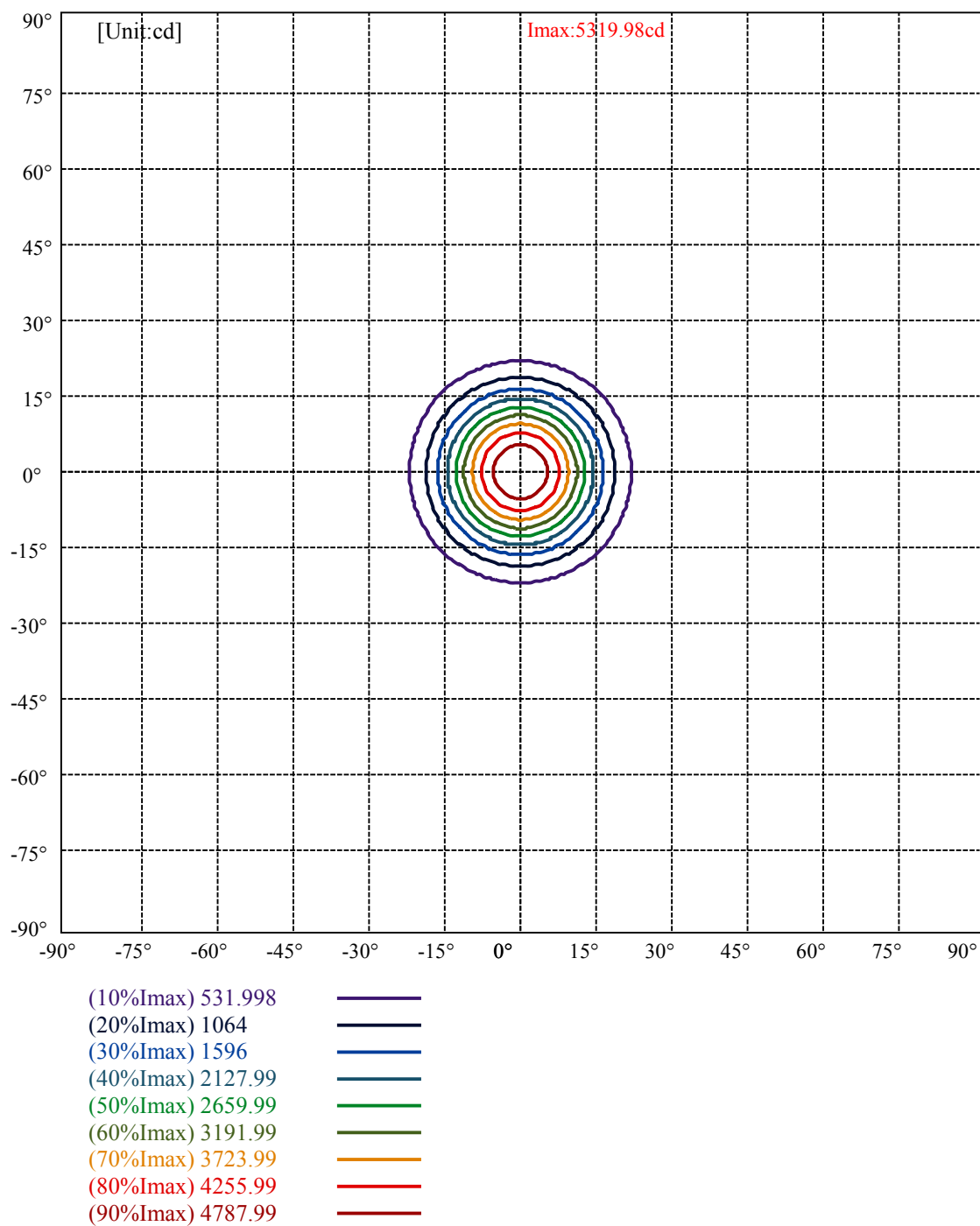
:C90/270Left:21.7 Right:21.7

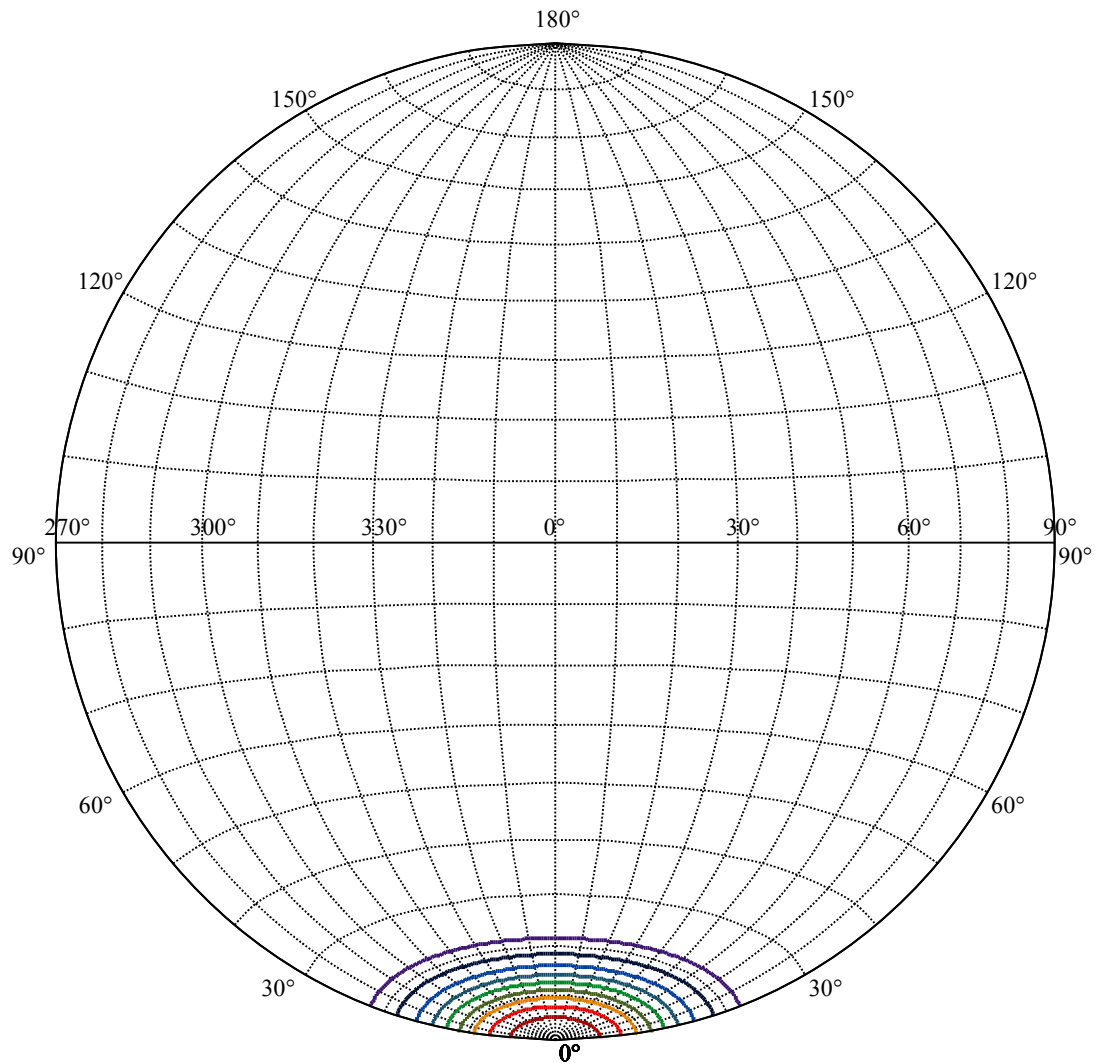
Beam Angle(50%Imax):C0/180Left:12.6 Right:12.6

:C90/270Left:12.6 Right:12.6



Max , Ave Beam angle of C0 plane 25.33





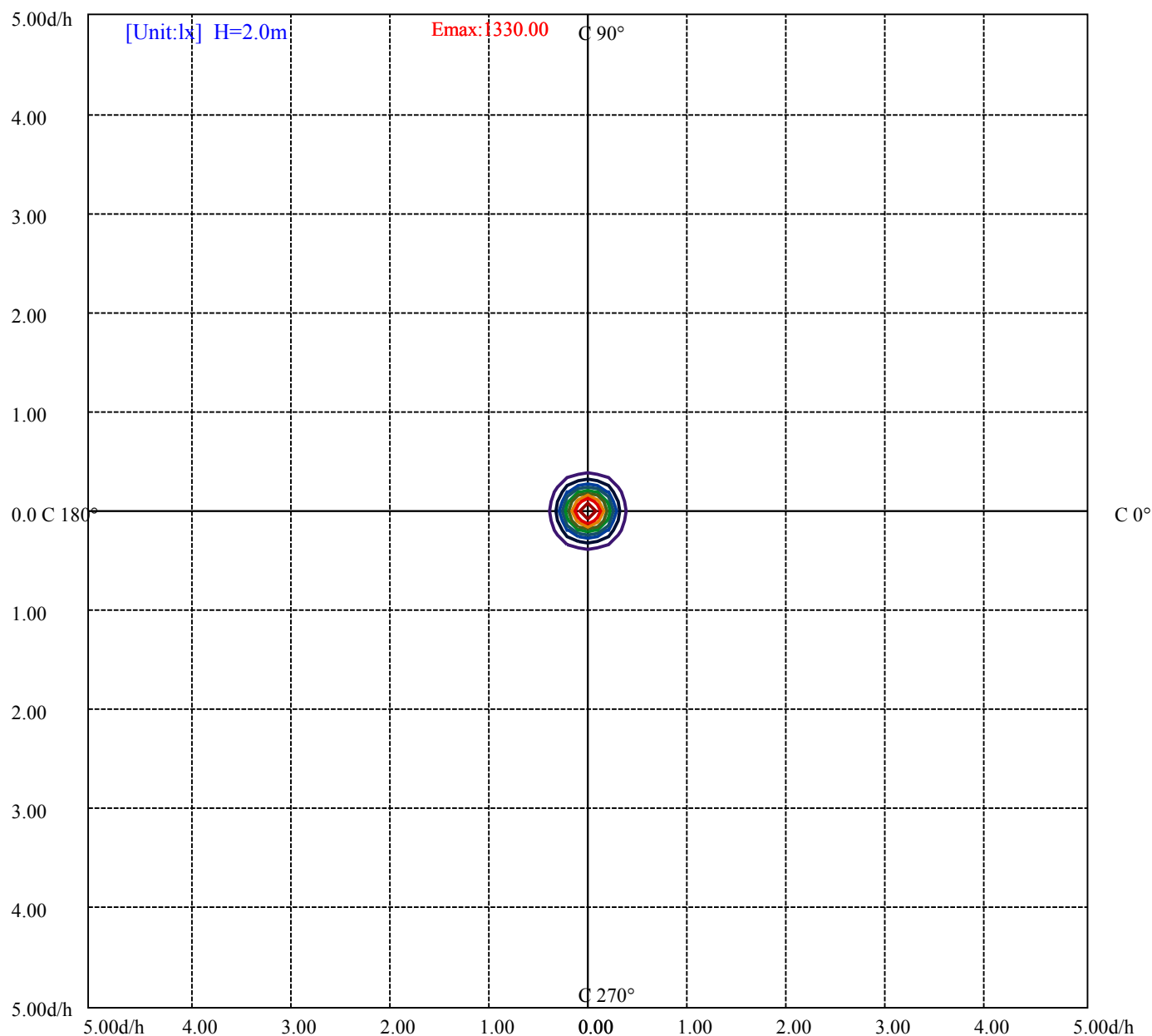
House

[Unit:cd]

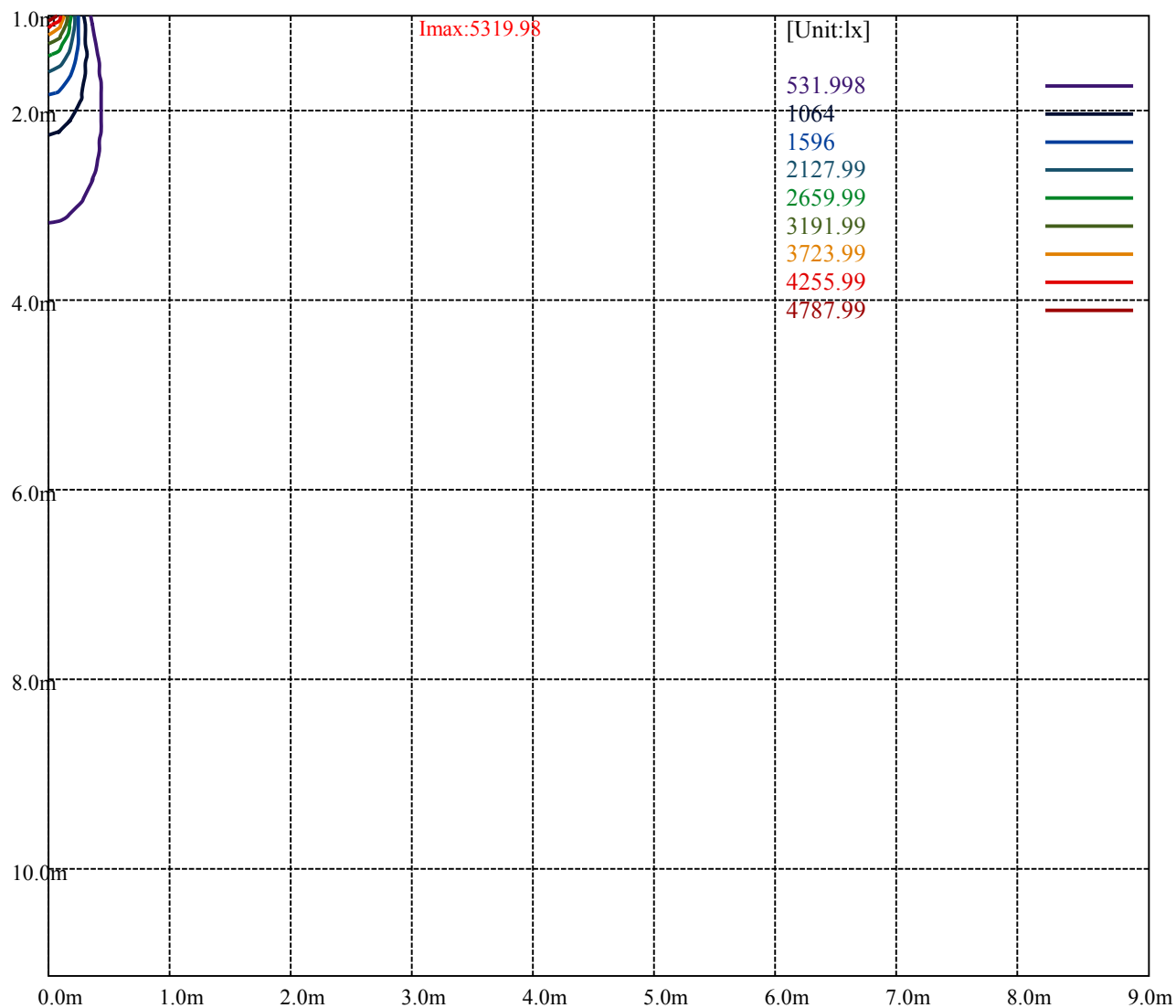
Road

Imax:5319.98

(10%Imax)	531.998	—
(20%Imax)	1064	—
(30%Imax)	1596	—
(40%Imax)	2127.99	—
(50%Imax)	2659.99	—
(60%Imax)	3191.99	—
(70%Imax)	3723.99	—
(80%Imax)	4255.99	—
(90%Imax)	4787.99	—



(10%Emax)	132.9995	
(20%Emax)	266	
(30%Emax)	398.9975	
(40%Emax)	531.9975	
(50%Emax)	664.9975	
(60%Emax)	797.9975	
(70%Emax)	930.9975	
(80%Emax)	1063.998	
(90%Emax)	1196.995	



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

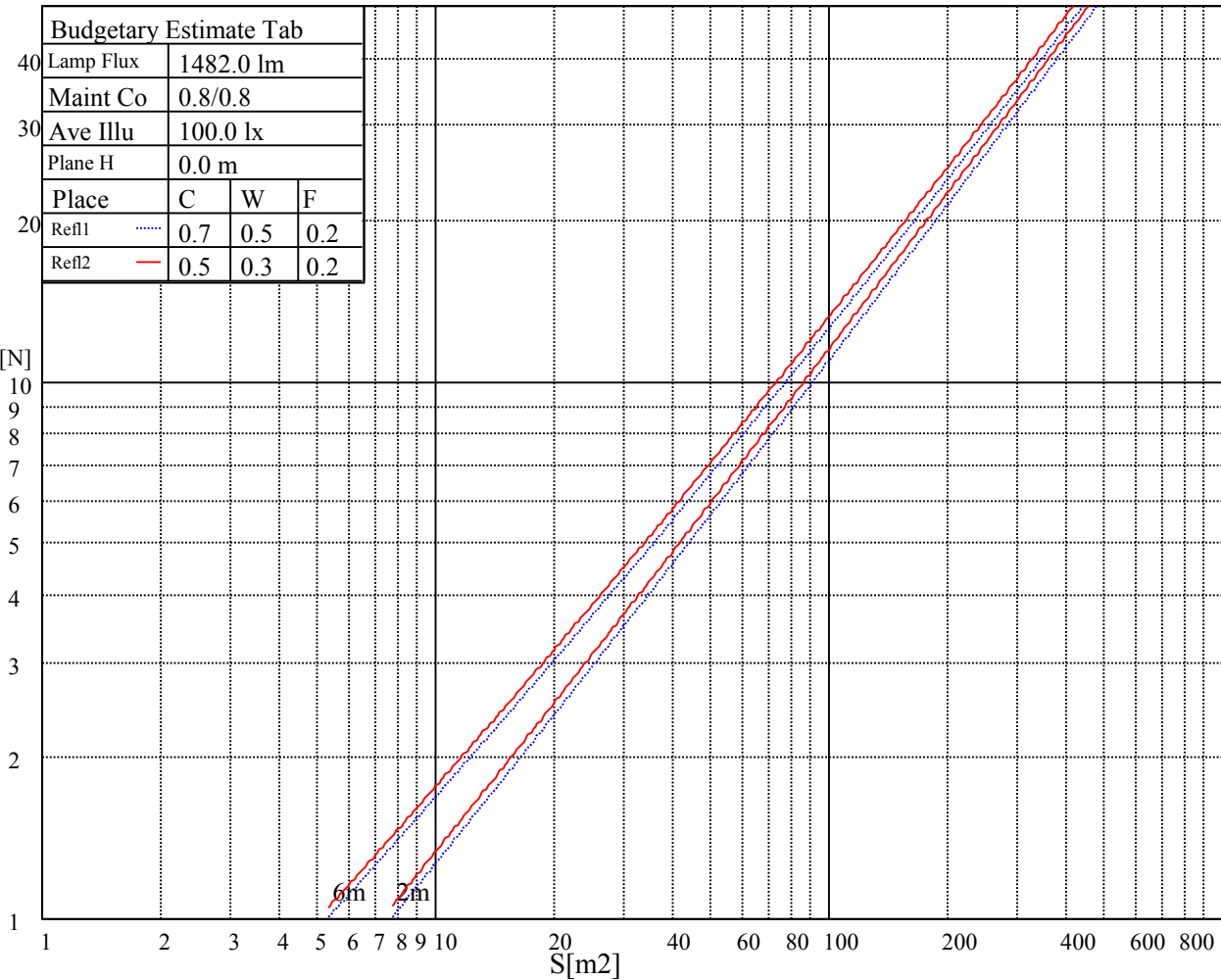
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

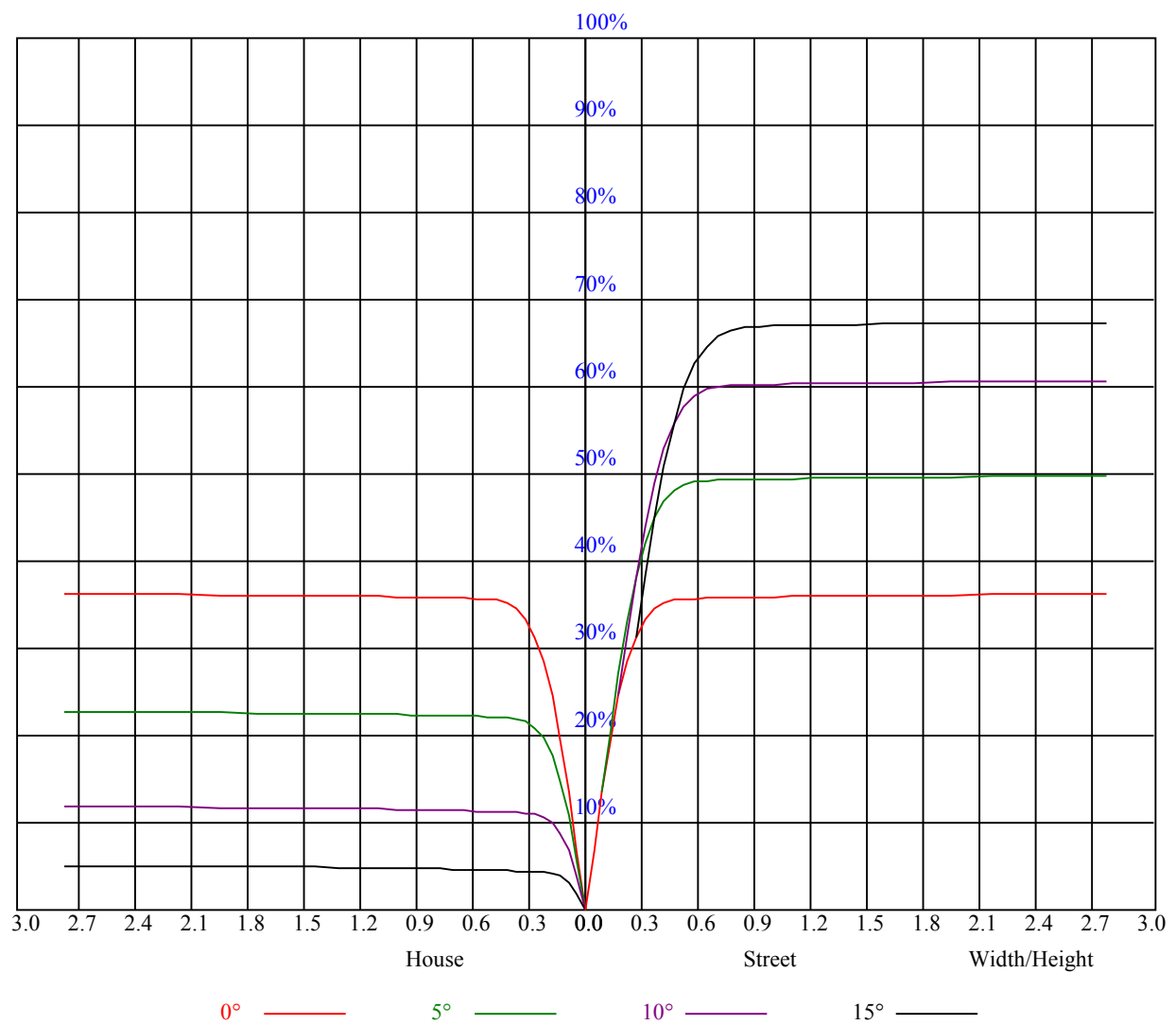
C0 ———

C45 ———

C90 ———



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	0.87	0.87	0.87	0.85	0.85	0.85	0.81	0.81	0.81	0.78	0.78	0.78	0.74	0.74	0.74	0.73
1	0.82	0.81	0.80	0.81	0.79	0.78	0.78	0.77	0.76	0.75	0.74	0.74	0.73	0.72	0.72	0.70
2	0.79	0.76	0.75	0.77	0.75	0.74	0.75	0.74	0.72	0.73	0.72	0.71	0.71	0.70	0.69	0.68
3	0.75	0.73	0.71	0.75	0.72	0.70	0.73	0.71	0.69	0.71	0.70	0.68	0.70	0.68	0.67	0.66
4	0.73	0.70	0.68	0.72	0.69	0.67	0.71	0.68	0.67	0.69	0.67	0.66	0.68	0.67	0.65	0.64
5	0.70	0.68	0.65	0.70	0.67	0.65	0.69	0.66	0.65	0.68	0.66	0.64	0.67	0.65	0.64	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	0.63	0.61	0.66	0.63	0.61	0.65	0.63	0.61	0.64	0.62	0.61	0.64	0.62	0.60	0.60
8	0.65	0.62	0.60	0.64	0.61	0.60	0.64	0.61	0.59	0.63	0.61	0.59	0.62	0.60	0.59	0.58
9	0.63	0.60	0.58	0.63	0.60	0.58	0.62	0.60	0.58	0.62	0.59	0.58	0.61	0.59	0.58	0.57
10	0.61	0.59	0.57	0.61	0.58	0.57	0.61	0.58	0.57	0.60	0.58	0.56	0.60	0.58	0.56	0.56



Nata 1-1006-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	5315.63	5325.75	5301.00	5234.06	5122.69	4948.31	4789.13	4609.13	4366.69		
45.0	5317.88	5312.81	5268.38	5174.44	5054.06	4905.00	4686.75	4476.94	4241.25		
90.0	5319.56	5283.56	5204.81	5073.19	4910.63	4736.25	4507.31	4208.63	3977.44		
135.0	5326.88	5307.75	5221.69	5100.19	4958.44	4755.94	4569.75	4348.13	4060.69		
180.0	5315.63	5277.38	5171.06	5022.00	4876.88	4692.94	4493.25	4223.81	3922.31		
225.0	5317.88	5287.50	5210.44	5105.25	4957.31	4795.88	4581.00	4330.13	4077.00		
270.0	5319.56	5319.00	5280.75	5200.31	5097.38	4960.13	4752.56	4552.31	4329.00		
315.0	5326.88	5320.13	5277.94	5185.69	5065.31	4905.00	4715.44	4516.31	4252.50		
360.0	5315.63	5325.75	5301.00	5234.06	5122.69	4948.31	4789.13	4609.13	4366.69		
C/ γ (°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0		
0.0	4089.38	3817.13	3489.75	3184.31	2834.44	2486.25	2189.25	1874.25	1593.00		
45.0	3916.69	3629.25	3327.19	2973.94	2615.63	2307.94	1987.31	1724.63	1451.25		
90.0	3692.81	3314.25	2996.44	2681.44	2295.00	2005.88	1740.38	1438.88	1121.91		
135.0	3747.94	3445.88	3088.13	2763.56	2403.56	2067.19	1794.94	1519.88	1276.31		
180.0	3621.38	3267.56	2910.94	2595.38	2289.94	1935.00	1678.50	1446.19	1111.56		
225.0	3801.38	3429.00	3108.94	2788.31	2400.19	2111.06	1840.50	1559.81	1242.00		
270.0	4046.63	3732.19	3471.75	3081.94	2729.81	2459.81	2097.00	1826.44	1521.00		
315.0	3990.94	3670.31	3330.00	3017.81	2705.63	2329.88	2046.94	1782.56	1512.00		
360.0	4089.38	3817.13	3489.75	3184.31	2834.44	2486.25	2189.25	1874.25	1593.00		
C/ γ (°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0		
0.0	1368.00	1163.81	933.19	765.56	616.50	469.13	336.94	284.63	150.81		
45.0	1198.69	1017.56	820.69	650.81	511.88	392.06	296.44	170.33	105.86		
90.0	1027.29	828.34	672.69	519.30	400.56	281.36	183.26	114.75	62.61		
135.0	1065.38	893.81	691.31	554.63	425.25	311.06	231.13	124.82	69.19		
180.0	995.68	822.04	666.39	496.69	377.89	271.91	175.39	100.01	55.07		
225.0	1115.55	913.84	749.25	585.06	439.14	325.01	215.66	129.38	72.73		
270.0	1303.88	1109.25	930.38	725.06	580.50	449.44	306.00	293.63	128.53		
315.0	1120.28	1072.86	871.59	692.16	548.94	394.37	296.66	192.60	105.58		
360.0	1368.00	1163.81	933.19	765.56	616.50	469.13	336.94	284.63	150.81		
C/ γ (°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0		
0.0	76.22	44.49	27.51	17.55	13.33	11.76	10.86	10.07	9.28		
45.0	62.55	35.49	21.60	14.63	11.53	10.58	9.84	9.17	8.61		
90.0	38.14	22.95	14.68	11.64	10.58	9.68	9.11	8.61	8.10		
135.0	35.27	23.46	15.02	11.59	10.41	9.73	9.00	8.49	8.04		
180.0	29.98	17.49	12.38	10.69	9.84	9.11	8.49	8.04	7.65		
225.0	41.06	22.44	15.02	11.98	10.58	9.62	9.00	8.38	7.88		
270.0	66.94	36.00	22.95	15.24	12.32	10.97	10.01	9.34	8.72		
315.0	62.44	34.37	20.31	15.53	12.71	11.08	10.35	9.68	9.00		
360.0	76.22	44.49	27.51	17.55	13.33	11.76	10.86	10.07	9.28		
C/ γ (°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0		
0.0	8.78	8.33	7.82	7.54	7.26	7.03	6.75	6.58	6.41		
45.0	8.21	7.82	7.48	7.20	6.98	6.81	6.58	6.41	6.30		
90.0	7.76	7.48	7.20	6.98	6.81	6.58	6.41	6.30	6.19		
135.0	7.71	7.37	7.09	6.81	6.69	6.47	6.30	6.24	6.08		
180.0	7.31	7.03	6.81	6.58	6.41	6.30	6.13	6.02	5.91		
225.0	7.48	7.14	6.86	6.64	6.41	6.24	6.13	5.96	5.85		
270.0	8.16	7.76	7.43	7.09	6.81	6.64	6.41	6.24	6.13		
315.0	8.44	8.04	7.59	7.26	7.03	6.81	6.58	6.36	6.24		
360.0	8.78	8.33	7.82	7.54	7.26	7.03	6.75	6.58	6.41		

Nata 1-1006-M

Intensity data(cd)										Appendix Page: 17 Total:18	
C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0		
0.0	6.30	6.13	6.08	5.91	5.85	5.79	5.68	5.63	5.57		
45.0	6.19	6.08	6.02	5.91	5.79	5.68	5.63	5.57	5.51		
90.0	6.08	5.96	5.85	5.79	5.68	5.63	5.57	5.51	5.46		
135.0	5.96	5.91	5.85	5.74	5.63	5.63	5.57	5.51	5.46		
180.0	5.85	5.79	5.68	5.63	5.57	5.51	5.46	5.40	5.34		
225.0	5.79	5.68	5.57	5.51	5.46	5.40	5.40	5.34	5.29		
270.0	6.02	5.91	5.79	5.74	5.63	5.57	5.51	5.46	5.40		
315.0	6.13	6.02	5.91	5.79	5.74	5.63	5.63	5.51	5.46		
360.0	6.30	6.13	6.08	5.91	5.85	5.79	5.68	5.63	5.57		
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0		
0.0	5.51	5.46	5.46	5.40	5.40	5.34	5.29	5.29	5.23		
45.0	5.46	5.40	5.34	5.34	5.29	5.23	5.23	5.23	5.23		
90.0	5.46	5.40	5.34	5.29	5.29	5.29	5.23	5.23	5.18		
135.0	5.40	5.40	5.34	5.29	5.29	5.29	5.23	5.18	5.18		
180.0	5.29	5.29	5.29	5.23	5.23	5.18	5.18	5.18	5.12		
225.0	5.23	5.18	5.18	5.12	5.12	5.12	5.06	5.06	5.06		
270.0	5.34	5.29	5.29	5.23	5.23	5.23	5.12	5.12	5.12		
315.0	5.40	5.40	5.34	5.29	5.29	5.23	5.18	5.18	5.18		
360.0	5.51	5.46	5.46	5.40	5.40	5.34	5.29	5.29	5.23		
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0		
0.0	5.23	5.18	5.18	5.18	5.18	5.12	5.12	5.12	5.12		
45.0	5.18	5.18	5.18	5.12	5.12	5.12	5.06	5.06	5.06		
90.0	5.18	5.18	5.18	5.18	5.12	5.12	5.12	5.06	5.06		
135.0	5.18	5.18	5.18	5.12	5.12	5.12	5.06	5.06	5.06		
180.0	5.12	5.12	5.12	5.06	5.06	5.06	5.06	5.06	5.01		
225.0	5.01	5.01	5.01	5.01	5.01	4.95	4.95	4.95	4.95		
270.0	5.12	5.12	5.06	5.06	5.01	5.06	5.06	5.01	5.01		
315.0	5.12	5.12	5.12	5.12	5.06	5.06	5.01	5.01	5.01		
360.0	5.23	5.18	5.18	5.18	5.18	5.12	5.12	5.12	5.12		
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0		
0.0	5.06	5.06	5.06	5.06	5.06	5.06	5.06	5.01	5.01		
45.0	5.06	5.06	5.01	5.01	5.01	5.01	5.01	4.95	4.95		
90.0	5.06	5.06	5.06	5.06	5.06	5.01	5.01	5.01	4.95		
135.0	5.01	5.01	5.01	5.01	5.01	5.01	5.01	4.95	4.95		
180.0	5.01	5.01	5.01	5.01	5.01	5.01	5.01	4.95	4.95		
225.0	4.95	4.95	4.89	4.89	4.89	4.89	4.89	4.89	4.89		
270.0	5.01	4.95	5.01	5.01	4.95	4.95	4.95	4.95	4.89		
315.0	5.01	5.01	5.01	4.95	4.95	4.95	4.95	4.95	4.95		
360.0	5.06	5.06	5.06	5.06	5.06	5.06	5.06	5.01	5.01		
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0		
0.0	5.01	5.01	5.01	5.01	5.01	4.95	4.95	4.95	4.95		
45.0	4.95	4.89	4.89	4.89	4.84	4.84	4.84	4.84	4.84		
90.0	4.89	4.89	4.89	4.89	4.84	4.89	4.84	4.84	4.84		
135.0	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.89	4.89		
180.0	4.95	4.95	4.95	5.01	4.95	4.95	4.95	4.89	4.95		
225.0	4.89	4.89	4.89	4.84	4.84	4.84	4.84	4.84	4.84		
270.0	4.89	4.89	4.89	4.89	4.89	4.89	4.89	4.84	4.84		
315.0	4.95	4.89	4.89	4.89	4.95	4.89	4.89	4.89	4.89		
360.0	5.01	5.01	5.01	5.01	5.01	4.95	4.95	4.95	4.95		

Intensity data(cd)

Appendix Page: 18 Total:18

C/ $\gamma(^{\circ})$	90.0
0.0	4.95
45.0	4.84
90.0	4.84
135.0	4.89
180.0	4.89
225.0	4.84
270.0	4.84
315.0	4.89
360.0	4.95