
Nata

LumCAT: 3-2046-M
Luminaire: 92.70.129.00
Report No: GC2017061910
Test No: NT-0010
LampCAT: CREE CXA1830
Lamp flux(lm): 2036.0
Number of Lamps: 1
Length(mm): 84
Phm Type: C

Voltage(V): 218.3000
Current(A): 0.1000
Power (W): 19.8000
PF: 0.9010
Ballast type: DC
Width(mm): 84
Height(mm): 0

Photometric Results

Lumens(lm): 1819.57
Efficiency(%): 89.37%
Lumens(lm)/Power(W): 91.90
Central intensity(cd): 4339.821
Maximum intensity(cd): 4339.821
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=34.5
 [C90/270]Total=34.5
Field angle(10%Imax): [C0/180]Total=68.0
 [C90/270]Total=68.0
Maximum s/h(1/2): C0_180=0.57 C90_270=0.57
Maximum s/h(1/4): C0_180=0.57 C90_270=0.57
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 89.37%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.692%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4339.821	0.000	0	.000%	.000%
1.0	4332.113	4.149	4.149	.204%	.228%
2.0	4310.641	12.405	16.554	.609%	.910%
3.0	4274.992	20.534	37.088	1.009%	2.038%
4.0	4225.028	28.452	65.541	1.397%	3.602%
5.0	4156.896	36.059	101.599	1.771%	5.584%
6.0	4064.676	43.207	144.806	2.122%	7.958%
7.0	3949.196	49.742	194.548	2.443%	10.692%
8.0	3827.246	55.655	250.202	2.734%	13.751%
9.0	3671.298	60.772	310.974	2.985%	17.090%
10.0	3509.846	64.987	375.961	3.192%	20.662%
11.0	3354.174	68.586	444.546	3.369%	24.431%
12.0	3176.066	71.385	515.931	3.506%	28.354%
13.0	2987.773	73.149	589.08	3.593%	32.375%
14.0	2800.169	74.085	663.165	3.639%	36.446%
15.0	2602.654	74.172	737.338	3.643%	40.523%
16.0	2401.147	73.320	810.657	3.601%	44.552%
17.0	2220.700	71.975	882.632	3.535%	48.508%
18.0	2025.250	70.007	952.639	3.438%	52.355%
19.0	1848.656	67.398	1020.037	3.310%	56.059%
20.0	1682.248	64.625	1084.662	3.174%	59.611%
21.0	1517.354	61.439	1146.101	3.018%	62.987%
22.0	1372.157	58.066	1204.167	2.852%	66.178%
23.0	1240.352	54.817	1258.984	2.692%	69.191%
24.0	1097.811	51.121	1310.105	2.511%	72.001%
25.0	1003.114	47.770	1357.875	2.346%	74.626%
26.0	920.240	45.401	1403.276	2.230%	77.121%
27.0	840.188	43.069	1446.346	2.115%	79.488%
28.0	775.924	40.917	1487.262	2.010%	81.737%
29.0	730.144	39.403	1526.665	1.935%	83.902%
30.0	690.256	38.351	1565.016	1.884%	86.010%
31.0	642.742	37.095	1602.111	1.822%	88.049%
32.0	586.185	35.207	1637.318	1.729%	89.984%
33.0	522.829	32.672	1669.99	1.605%	91.779%
34.0	435.303	28.996	1698.986	1.424%	93.373%
35.0	354.646	24.533	1723.519	1.205%	94.721%
36.0	276.383	20.092	1743.611	.987%	95.825%
37.0	182.732	14.974	1758.585	.735%	96.648%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	124.386	10.251	1768.836	.503%	97.212%
39.0	64.788	6.457	1775.293	.317%	97.566%
40.0	34.121	3.450	1778.743	.169%	97.756%
41.0	20.619	1.949	1780.692	.096%	97.863%
42.0	14.507	1.276	1781.968	.063%	97.933%
43.0	12.236	0.991	1782.959	.049%	97.988%
44.0	10.915	0.874	1783.833	.043%	98.036%
45.0	10.020	0.805	1784.637	.040%	98.080%
46.0	9.552	0.765	1785.403	.038%	98.122%
47.0	9.249	0.748	1786.151	.037%	98.163%
48.0	9.071	0.741	1786.891	.036%	98.204%
49.0	8.933	0.739	1787.63	.036%	98.244%
50.0	8.768	0.738	1788.368	.036%	98.285%
51.0	8.658	0.737	1789.106	.036%	98.325%
52.0	8.534	0.738	1789.843	.036%	98.366%
53.0	8.424	0.738	1790.581	.036%	98.407%
54.0	8.300	0.737	1791.318	.036%	98.447%
55.0	8.245	0.739	1792.057	.036%	98.488%
56.0	8.135	0.740	1792.797	.036%	98.528%
57.0	8.080	0.741	1793.538	.036%	98.569%
58.0	7.983	0.743	1794.281	.036%	98.610%
59.0	7.928	0.744	1795.025	.037%	98.651%
60.0	7.859	0.746	1795.771	.037%	98.692%
61.0	7.804	0.747	1796.518	.037%	98.733%
62.0	7.777	0.751	1797.269	.037%	98.774%
63.0	7.708	0.753	1798.022	.037%	98.816%
64.0	7.625	0.752	1798.774	.037%	98.857%
65.0	7.598	0.753	1799.528	.037%	98.898%
66.0	7.570	0.757	1800.285	.037%	98.940%
67.0	7.543	0.760	1801.044	.037%	98.982%
68.0	7.515	0.763	1801.807	.037%	99.024%
69.0	7.460	0.764	1802.571	.038%	99.066%
70.0	7.419	0.764	1803.335	.038%	99.108%
71.0	7.405	0.766	1804.102	.038%	99.150%
72.0	7.391	0.769	1804.871	.038%	99.192%
73.0	7.336	0.770	1805.641	.038%	99.234%
74.0	7.419	0.776	1806.417	.038%	99.277%
75.0	7.694	0.799	1807.215	.039%	99.321%

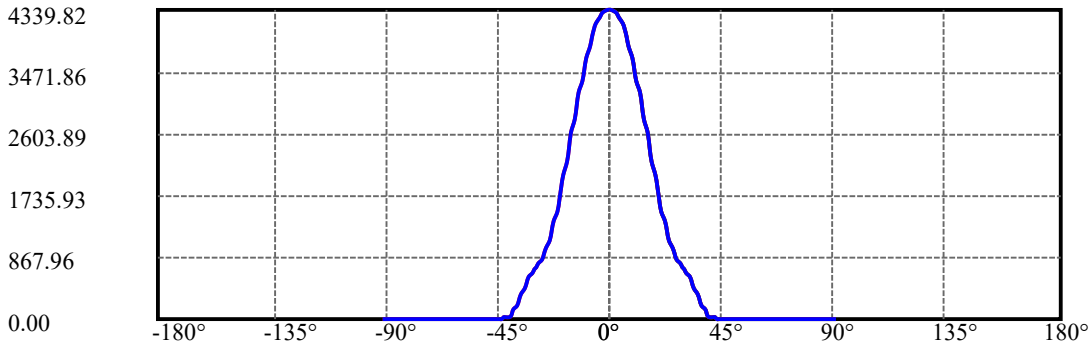
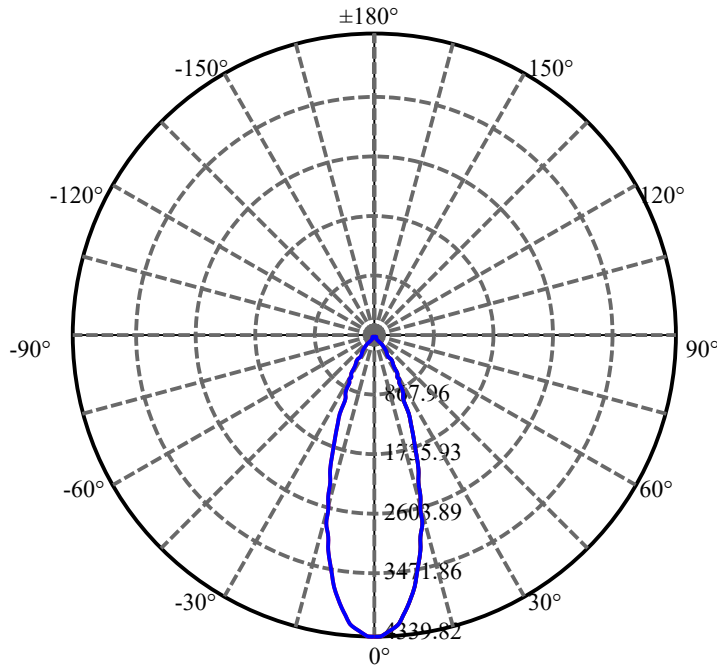
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	7.928	0.829	1808.045	.041%	99.366%
77.0	8.038	0.851	1808.896	.042%	99.413%
78.0	8.382	0.879	1809.775	.043%	99.461%
79.0	8.369	0.900	1810.675	.044%	99.511%
80.0	8.052	0.885	1811.56	.043%	99.560%
81.0	7.777	0.856	1812.416	.042%	99.607%
82.0	7.556	0.831	1813.248	.041%	99.652%
83.0	7.419	0.814	1814.062	.040%	99.697%
84.0	7.323	0.803	1814.865	.039%	99.741%
85.0	7.226	0.794	1815.659	.039%	99.785%
86.0	7.171	0.787	1816.446	.039%	99.828%
87.0	7.157	0.784	1817.23	.039%	99.871%
88.0	7.144	0.783	1818.013	.038%	99.914%
89.0	7.116	0.782	1818.795	.038%	99.957%
90.0	7.102	0.780	1819.575	.038%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1565.02	76.87%	86.01%
0-40	1778.74	87.36%	97.76%
0-60	1795.77	88.20%	98.69%
0-90	1818.79	89.33%	99.96%
0-120	1818.79	89.33%	99.96%
0-180	1819.57	89.37%	100.00%
60-90	23.77	1.17%	1.31%
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%
0-27.23	1455.66	71.50%	80.00%

ZONAL LUMEN SUMMARY

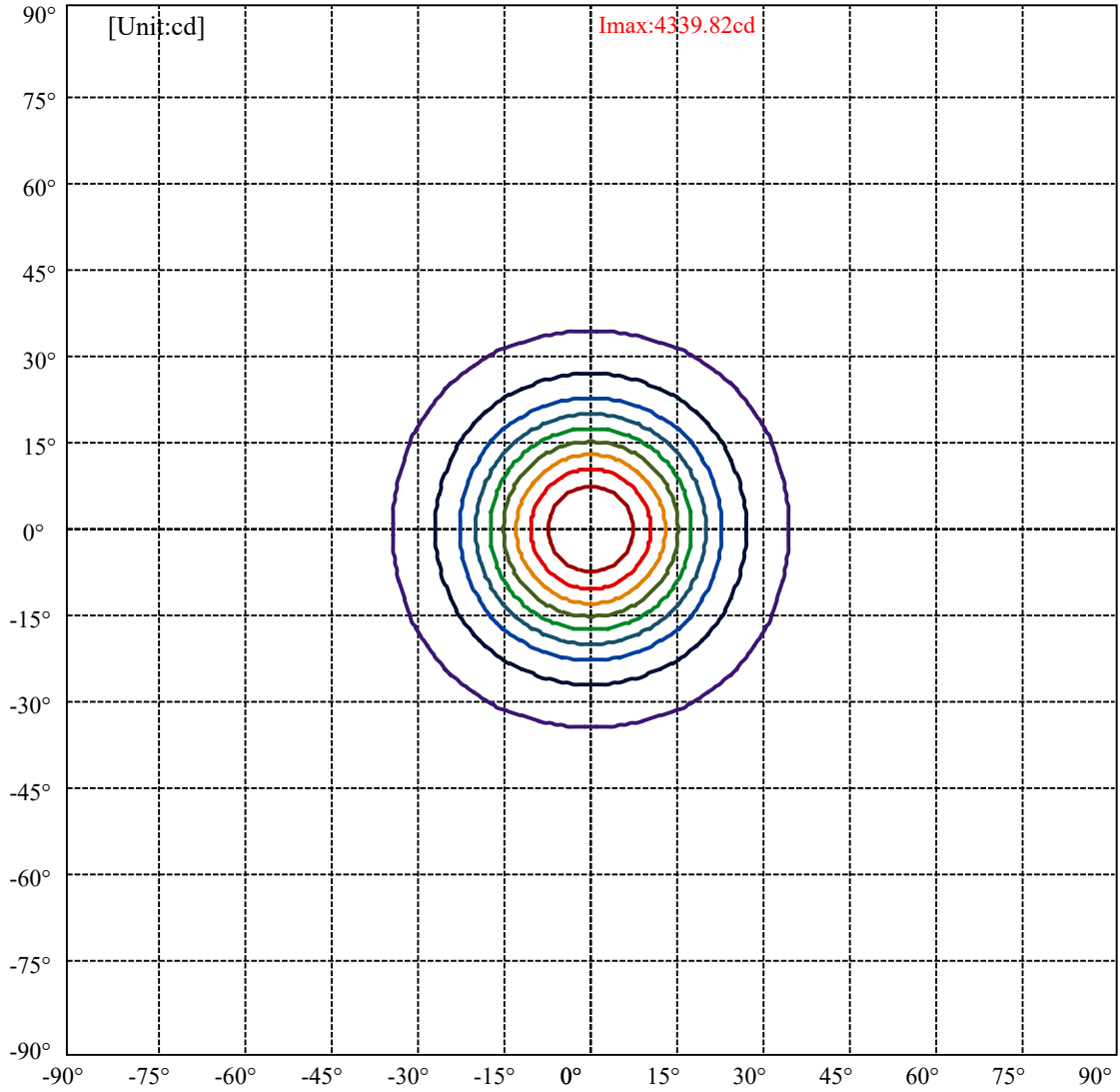
0-10	375.96
10-20	708.70
20-30	480.35
30-40	213.73
40-50	9.63
50-60	7.40
60-70	7.56
70-80	8.22
80-90	7.23
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00



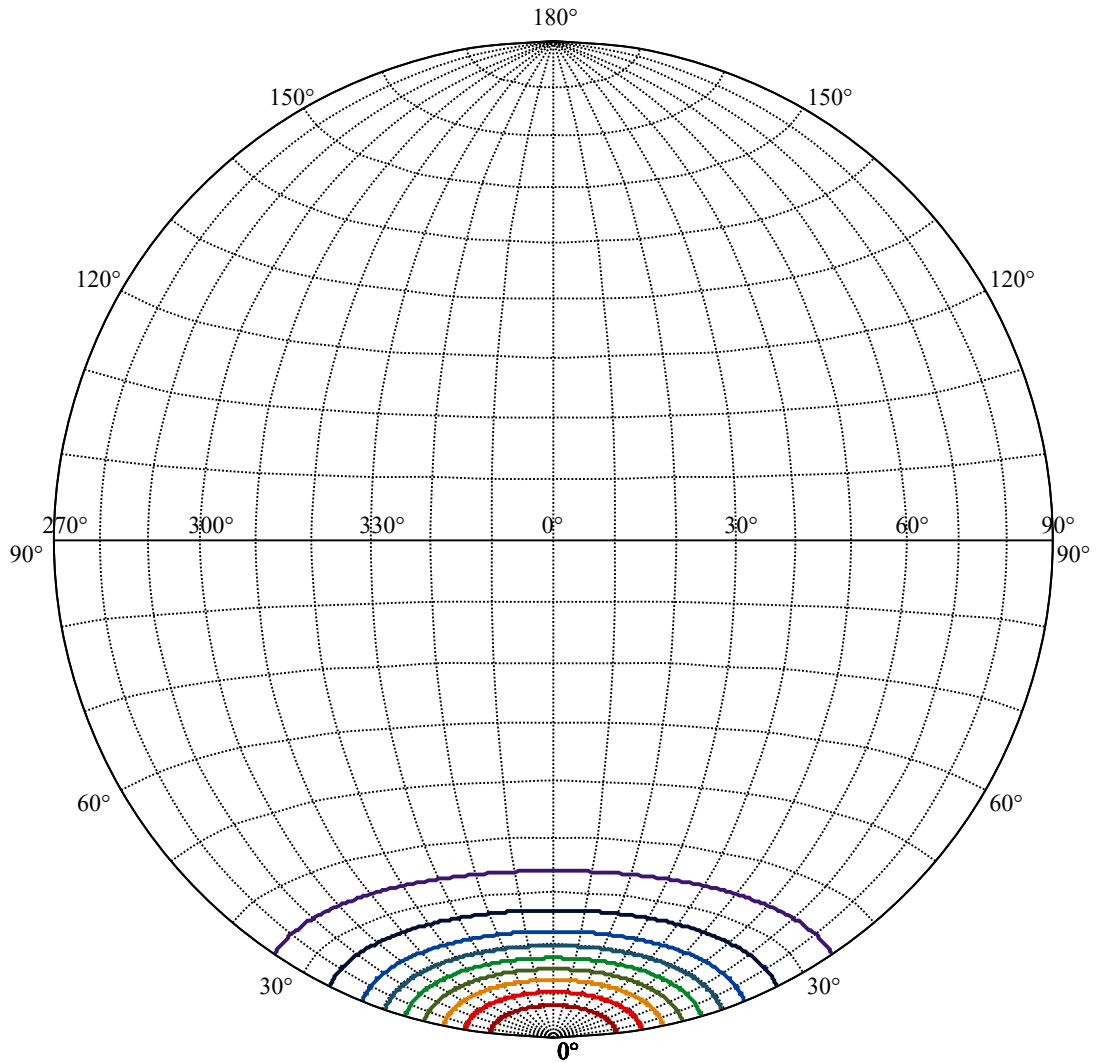
C0(Max): ———
C0/C180: ———
C90/C270: ———

Field angle(10%Imax):C0/180Left:34.0 Right:34.0
:C90/270Left:34.0 Right:34.0

Beam Angle(50%Imax):C0/180Left:17.3 Right:17.3
:C90/270Left:17.3 Right:17.3



(10%Imax)	433.982	—
(20%Imax)	867.964	—
(30%Imax)	1301.95	—
(40%Imax)	1735.93	—
(50%Imax)	2169.91	—
(60%Imax)	2603.89	—
(70%Imax)	3037.87	—
(80%Imax)	3471.86	—
(90%Imax)	3905.84	—



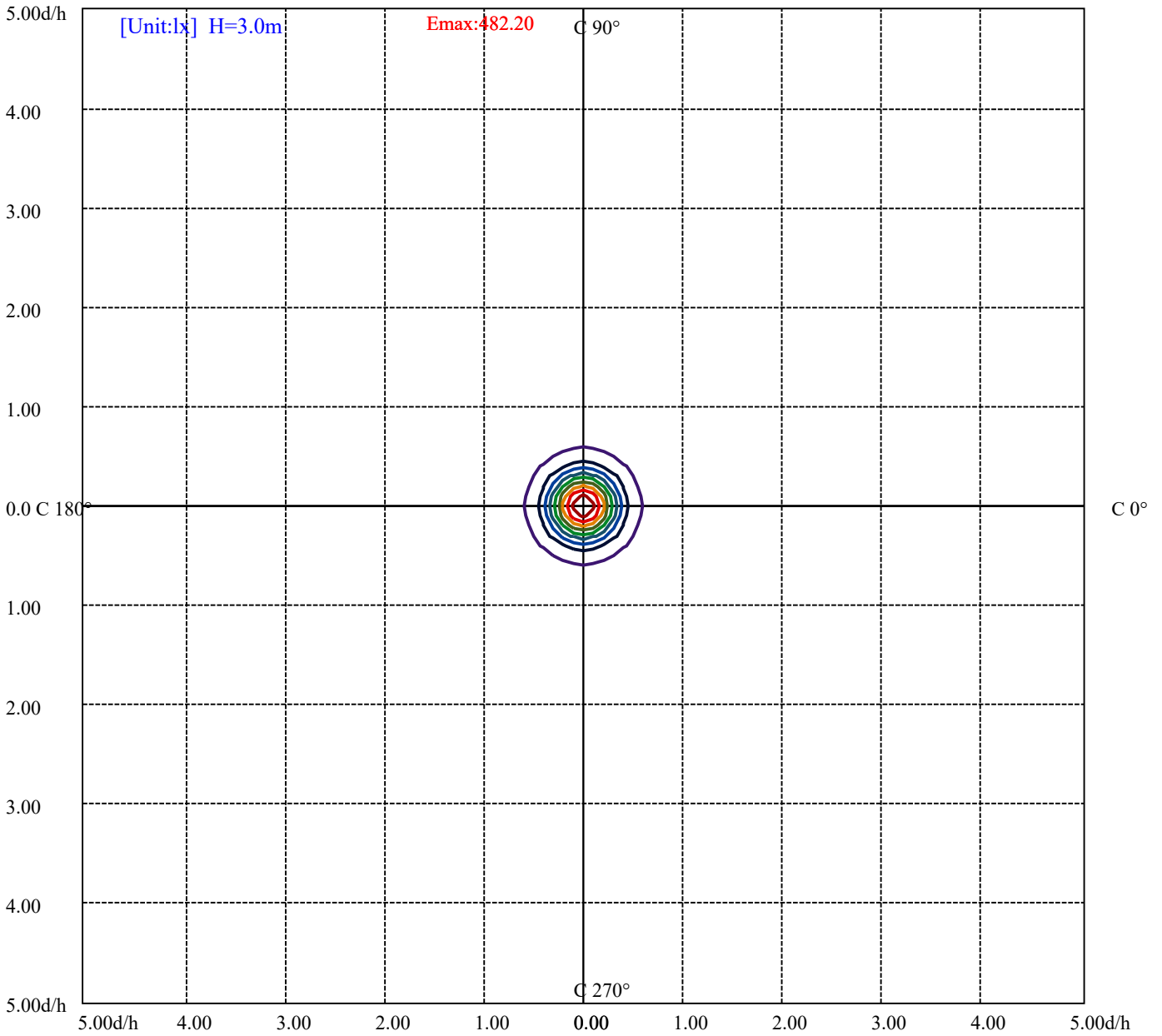
House

[Unit:cd]

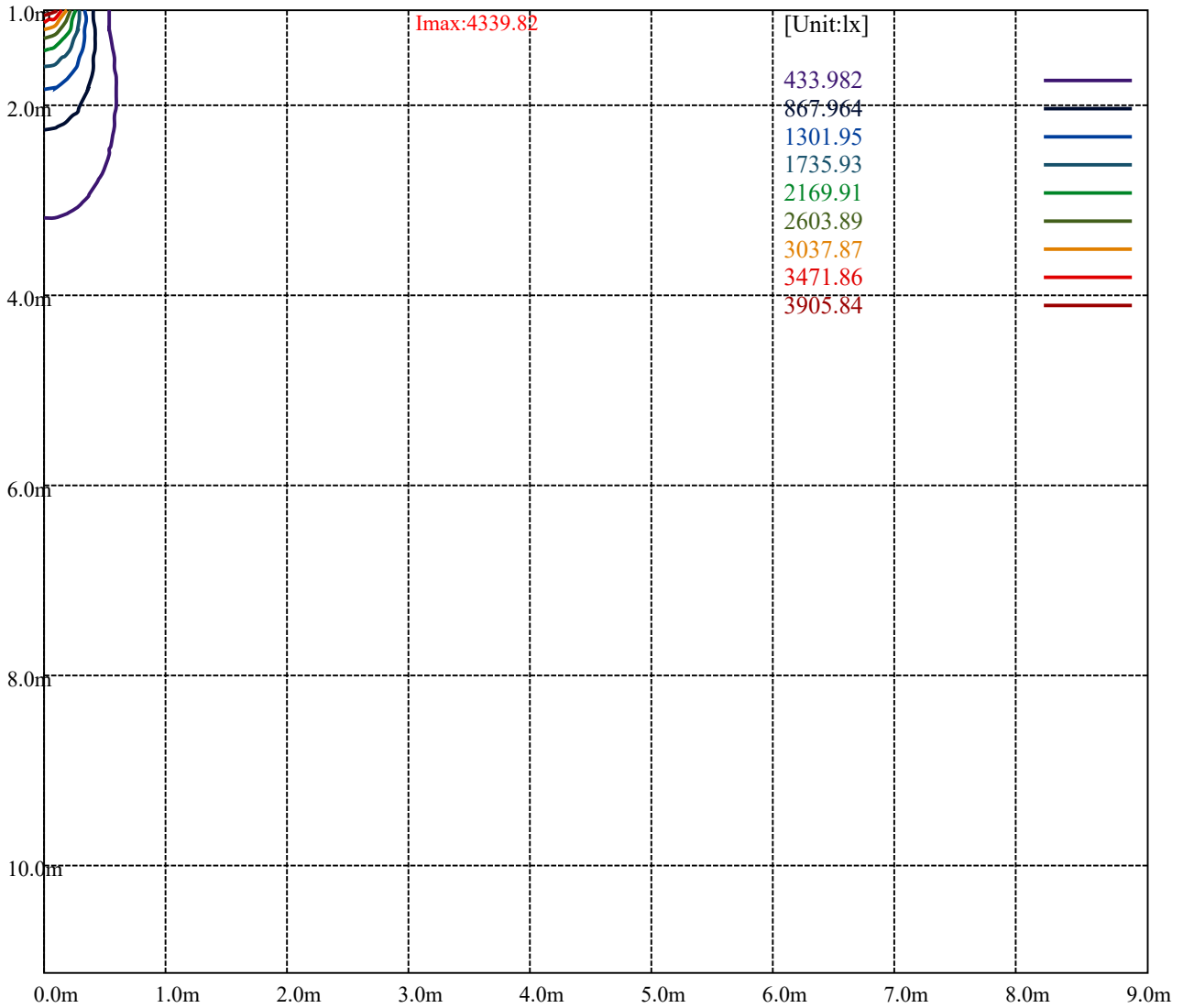
Road

Imax:4339.82

(10%Imax)	433.982	—
(20%Imax)	867.964	—
(30%Imax)	1301.95	—
(40%Imax)	1735.93	—
(50%Imax)	2169.91	—
(60%Imax)	2603.89	—
(70%Imax)	3037.87	—
(80%Imax)	3471.86	—
(90%Imax)	3905.84	—



(10%Emax) 48.22022	—
(20%Emax) 96.44044	—
(30%Emax) 144.6611	—
(40%Emax) 192.8811	—
(50%Emax) 241.1011	—
(60%Emax) 289.3211	—
(70%Emax) 337.5411	—
(80%Emax) 385.7622	—
(90%Emax) 433.9822	—



Luminance Table

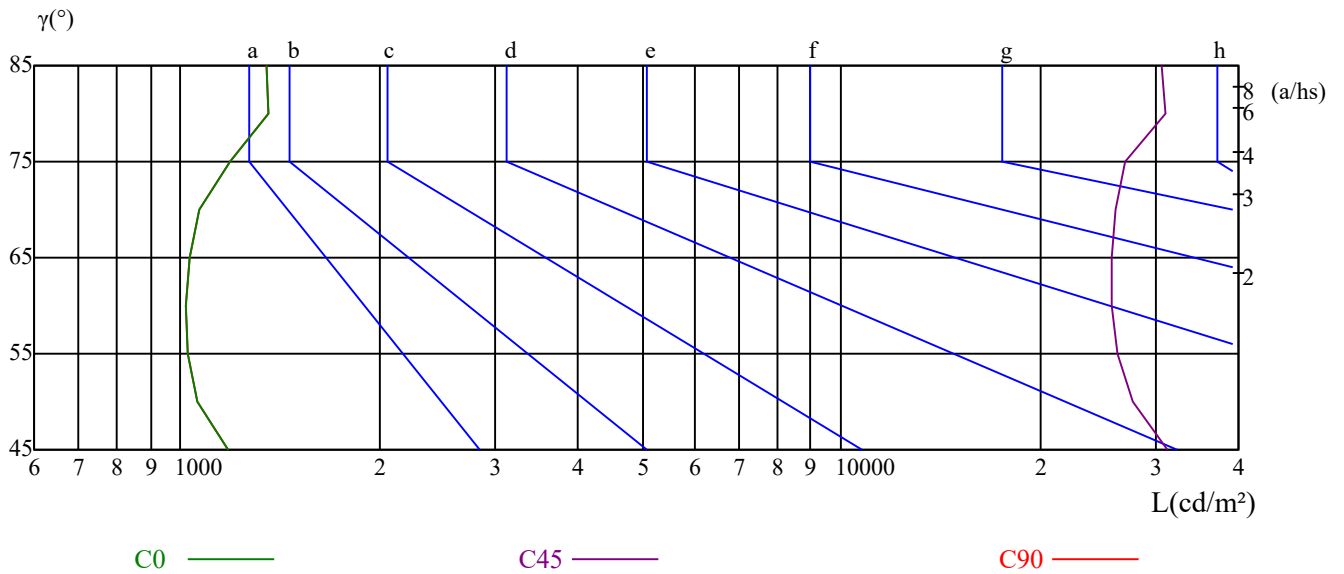
γ	45	50	55	60	65	70	75	80	85
C0	1182	1058	1025	1016	1031	1068	1190	1355	1345
C45	31210	27592	26223	25622	25642	26120	26992	31057	30689
C90	1182	1058	1025	1016	1031	1068	1190	1355	1345

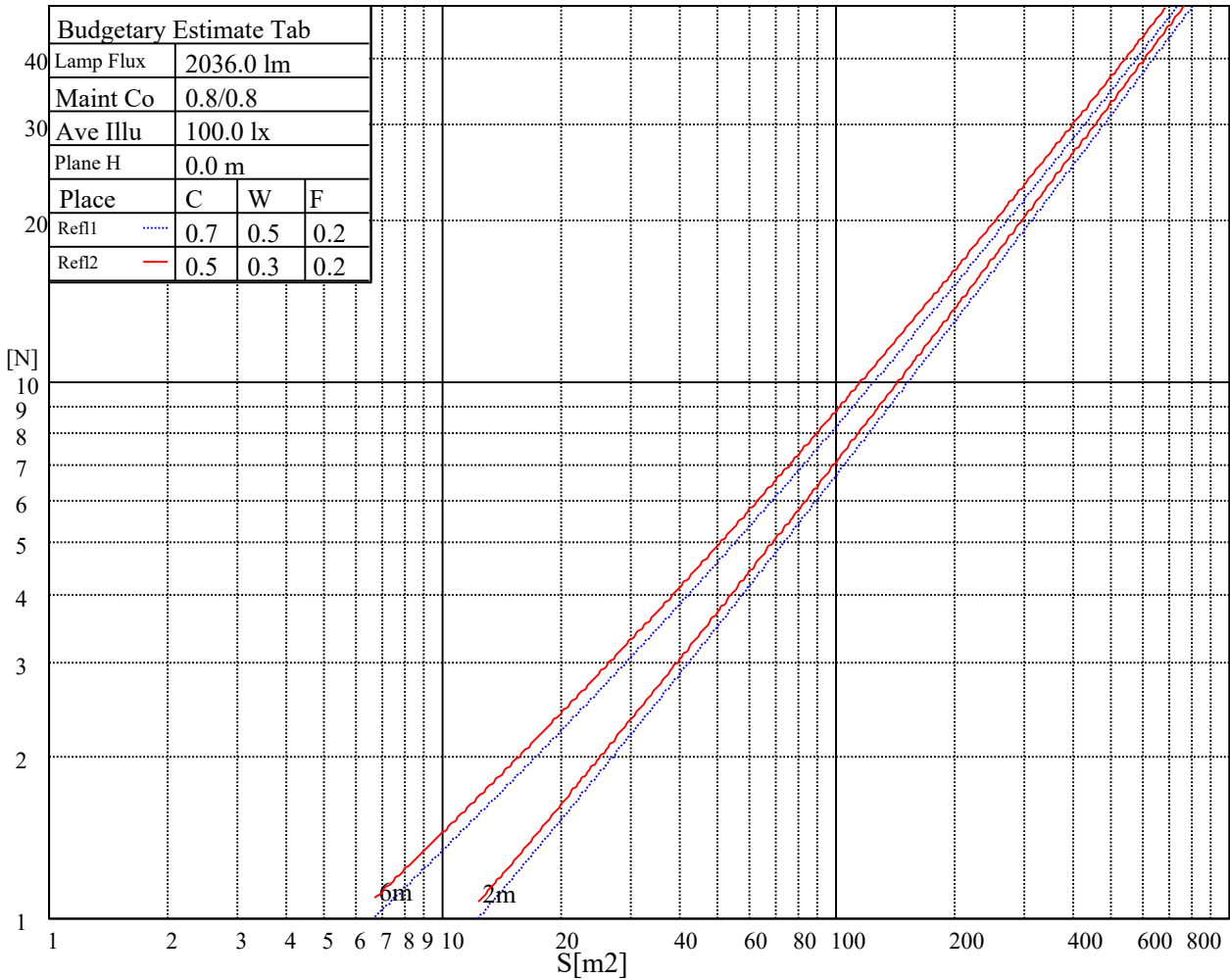
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
2488	2488	76878	4115	4115	120850	11476	11476	357512

Glare Table

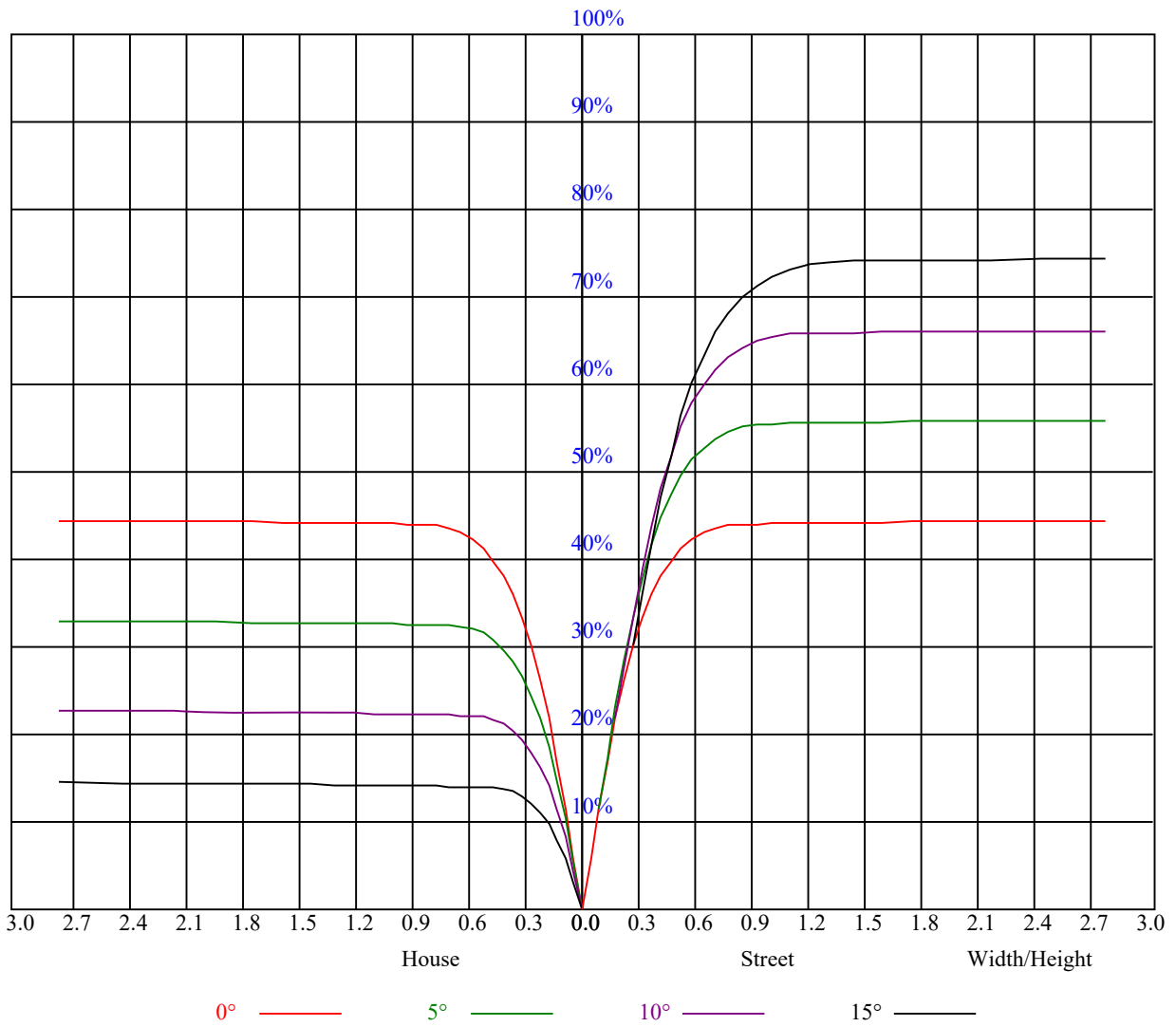
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

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	1.04	1.04	1.04	0.99	0.99	0.99	0.95	0.95	0.95	0.91	0.91	0.91	0.89
1	1.00	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	0.88	0.92	0.90	0.87	0.90	0.87	0.85	0.87	0.85	0.83	0.85	0.83	0.82	0.80
3	0.89	0.85	0.82	0.88	0.84	0.81	0.85	0.82	0.80	0.83	0.81	0.79	0.81	0.79	0.78	0.76
4	0.84	0.80	0.77	0.83	0.79	0.76	0.81	0.78	0.76	0.80	0.77	0.75	0.78	0.76	0.74	0.73
5	0.80	0.76	0.72	0.79	0.75	0.72	0.78	0.74	0.72	0.76	0.73	0.71	0.75	0.72	0.70	0.69
6	0.76	0.72	0.69	0.76	0.72	0.68	0.75	0.71	0.68	0.73	0.70	0.68	0.72	0.69	0.67	0.66
7	0.73	0.69	0.65	0.73	0.68	0.65	0.71	0.68	0.65	0.70	0.67	0.65	0.70	0.67	0.64	0.63
8	0.70	0.65	0.62	0.69	0.65	0.62	0.69	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.61	0.60
9	0.67	0.63	0.60	0.67	0.62	0.60	0.66	0.62	0.59	0.65	0.62	0.59	0.64	0.61	0.59	0.58
10	0.64	0.60	0.57	0.64	0.60	0.57	0.63	0.60	0.57	0.63	0.59	0.57	0.62	0.59	0.57	0.56



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	4350.56	4346.15	4327.98	4298.80	4254.76	4194.20	4118.22	4006.45	3879.82
90.0	4329.08	4335.14	4323.03	4301.56	4268.52	4215.12	4148.50	4079.13	3993.24
180.0	4350.56	4342.30	4316.42	4266.32	4211.26	4144.65	4035.08	3931.03	3811.00
270.0	4329.08	4304.86	4275.13	4233.29	4165.57	4073.62	3956.90	3780.17	3624.91
360.0	4350.56	4346.15	4327.98	4298.80	4254.76	4194.20	4118.22	4006.45	3879.82
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3716.31	3546.18	3387.62	3222.45	2997.82	2808.98	2615.18	2373.48	2181.89
90.0	3861.11	3740.53	3603.99	3437.72	3263.74	3101.88	2911.38	2714.28	2537.55
180.0	3644.18	3498.83	3349.08	3151.98	3007.18	2817.24	2600.31	2445.61	2271.08
270.0	3463.60	3253.83	3076.00	2892.11	2682.35	2472.58	2283.74	2071.22	1892.29
360.0	3716.31	3546.18	3387.62	3222.45	2997.82	2808.98	2615.18	2373.48	2181.89
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1999.10	1804.75	1624.71	1477.16	1325.76	1200.78	1072.50	960.18	880.35
90.0	2340.45	2166.47	1978.73	1798.69	1646.19	1479.92	1332.36	1211.79	1096.72
180.0	2056.36	1892.29	1741.43	1563.60	1427.06	1295.48	1086.98	1037.15	949.17
270.0	1705.10	1531.12	1384.12	1229.96	1089.62	985.23	899.40	803.33	754.71
360.0	1999.10	1804.75	1624.71	1477.16	1325.76	1200.78	1072.50	960.18	880.35
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	803.82	746.56	707.47	676.09	642.51	589.10	520.28	422.28	339.15
90.0	974.50	896.32	827.50	771.34	718.49	686.00	654.62	585.80	511.47
180.0	871.60	787.09	737.76	697.95	662.00	607.11	536.52	448.27	366.18
270.0	710.83	673.73	647.85	615.64	547.98	462.53	379.89	284.86	201.78
360.0	803.82	746.56	707.47	676.09	642.51	589.10	520.28	422.28	339.15
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	286.84	161.48	82.42	36.28	20.54	17.40	13.71	11.29	10.13
90.0	427.24	331.99	278.59	156.47	80.11	35.29	18.83	15.97	13.16
180.0	273.58	185.04	112.37	48.34	21.91	18.50	15.31	12.06	10.96
270.0	117.88	52.41	24.17	18.06	13.93	11.29	10.19	9.63	9.41
360.0	286.84	161.48	82.42	36.28	20.54	17.40	13.71	11.29	10.13
C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	9.80	9.58	9.36	9.19	9.03	8.86	8.75	8.59	8.48
90.0	11.29	10.08	9.47	9.30	9.14	8.97	8.86	8.70	8.53
180.0	9.80	9.52	9.30	9.08	8.97	8.81	8.70	8.59	8.48
270.0	9.19	9.03	8.86	8.70	8.59	8.42	8.31	8.26	8.20
360.0	9.80	9.58	9.36	9.19	9.03	8.86	8.75	8.59	8.48
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	8.37	8.31	8.20	8.15	8.04	7.93	7.87	7.82	7.82
90.0	8.42	8.37	8.26	8.20	8.09	8.04	7.98	7.93	7.87
180.0	8.31	8.26	8.15	8.09	7.98	7.93	7.82	7.82	7.76
270.0	8.09	8.04	7.93	7.87	7.82	7.82	7.76	7.65	7.65
360.0	8.37	8.31	8.20	8.15	8.04	7.93	7.87	7.82	7.82
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	7.71	7.65	7.60	7.54	7.54	7.54	7.49	7.43	7.38
90.0	7.82	7.71	7.65	7.65	7.60	7.60	7.54	7.49	7.49
180.0	7.71	7.60	7.60	7.54	7.54	7.49	7.43	7.38	7.38
270.0	7.60	7.54	7.54	7.54	7.49	7.43	7.38	7.38	7.38
360.0	7.71	7.65	7.60	7.54	7.54	7.54	7.49	7.43	7.38

Nata 3-2046-M

Intensity data(cd)										Appendix Page: 17 Total:17
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0	
0.0	7.38	7.32	7.32	7.32	7.38	7.82	8.59	8.37	7.82	
90.0	7.43	7.38	7.38	7.32	7.32	7.32	8.53	9.52	9.41	
180.0	7.38	7.32	7.27	7.27	7.27	7.38	7.60	7.38	7.21	
270.0	7.38	7.32	7.71	8.86	9.74	9.63	8.81	8.20	7.76	
360.0	7.38	7.32	7.32	7.32	7.38	7.82	8.59	8.37	7.82	
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0	
0.0	7.49	7.32	7.38	7.27	7.21	7.16	7.16	7.10	7.10	
90.0	8.81	8.20	7.76	7.54	7.32	7.27	7.21	7.21	7.16	
180.0	7.16	7.21	7.16	7.16	7.16	7.10	7.10	7.10	7.10	
270.0	7.65	7.49	7.38	7.32	7.21	7.16	7.16	7.16	7.10	
360.0	7.49	7.32	7.38	7.27	7.21	7.16	7.16	7.10	7.10	
C/γ(°)	90.0									
0.0	7.05									
90.0	7.16									
180.0	7.05									
270.0	7.16									
360.0	7.05									