



NATA LIGHTING CO.,LTD.
www.nata.cn
Email:info@nata.com
Tel:+86-750-3770000 Fax:+86-750-3771111
Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

Nata

LumCAT: 1687-M
Luminaire: 92.70.126.00
Report No: NATA0100
Test No: GC2018082010
LampCAT: LUMINUS CHM-9-AA10
Lamp flux(lm): 1813.0
Number of Lamps: 1
Length(mm): 46
Phm Type: C

Voltage(V): 36.2000
Current(A): 0.4000
Power (W): 15.4800
PF: 0.0000
Ballast type: DC
Width(mm): 46
Height(mm): 0

Photometric Results

Lumens(lm): 1673.56
Efficiency(%): 92.31%
Lumens(lm)/Power(W): 108.39
Central intensity(cd): 4839.733
Maximum intensity(cd): 4839.733
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=24.4
[C90/270]Total=24.4
Field angle(10%Imax): [C0/180]Total=78.0
[C90/270]Total=78.0
Maximum s/h(1/2): C0_180=0.41 C90_270=0.41
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(%): 92.55%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.477%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4839.733	4.631	4.631	.255%	.277%
2.0	4746.894	36.332	40.964	2.004%	2.448%
4.0	4475.741	68.472	109.436	3.777%	6.539%
6.0	4053.596	92.927	202.363	5.126%	12.092%
8.0	3574.124	109.091	311.454	6.017%	18.610%
10.0	3017.848	114.930	426.384	6.339%	25.478%
12.0	2479.052	113.039	539.423	6.235%	32.232%
14.0	1909.838	101.330	640.753	5.589%	38.287%
16.0	1442.753	87.216	727.969	4.811%	43.498%
18.0	1089.105	73.810	801.779	4.071%	47.909%
20.0	868.769	65.166	866.945	3.594%	51.802%
22.0	757.514	62.235	929.18	3.433%	55.521%
24.0	700.834	62.516	991.696	3.448%	59.257%
26.0	662.969	63.738	1055.434	3.516%	63.065%
28.0	631.683	65.039	1120.473	3.587%	66.952%
30.0	609.502	66.836	1187.309	3.686%	70.945%
32.0	589.675	68.531	1255.84	3.780%	75.040%
34.0	571.568	70.096	1325.936	3.866%	79.229%
36.0	552.594	71.234	1397.171	3.929%	83.485%
38.0	524.632	70.837	1468.008	3.907%	87.718%
40.0	445.276	62.771	1530.78	3.462%	91.469%
42.0	339.588	49.834	1580.614	2.749%	94.446%
44.0	234.513	35.728	1616.341	1.971%	96.581%
46.0	106.163	16.748	1633.09	.924%	97.582%
48.0	39.620	6.457	1639.547	.356%	97.968%
50.0	22.181	3.726	1643.273	.206%	98.190%
52.0	14.982	2.589	1645.863	.143%	98.345%
54.0	10.275	1.823	1647.686	.101%	98.454%
56.0	8.830	1.605	1649.291	.089%	98.550%
58.0	8.396	1.562	1650.853	.086%	98.643%
60.0	8.086	1.536	1652.389	.085%	98.735%
62.0	7.811	1.513	1653.901	.083%	98.825%
64.0	7.591	1.496	1655.397	.083%	98.915%
66.0	7.412	1.485	1656.882	.082%	99.004%
68.0	7.219	1.468	1658.35	.081%	99.091%
70.0	7.075	1.458	1659.808	.080%	99.178%
72.0	6.972	1.454	1661.263	.080%	99.265%
74.0	6.868	1.448	1662.711	.080%	99.352%

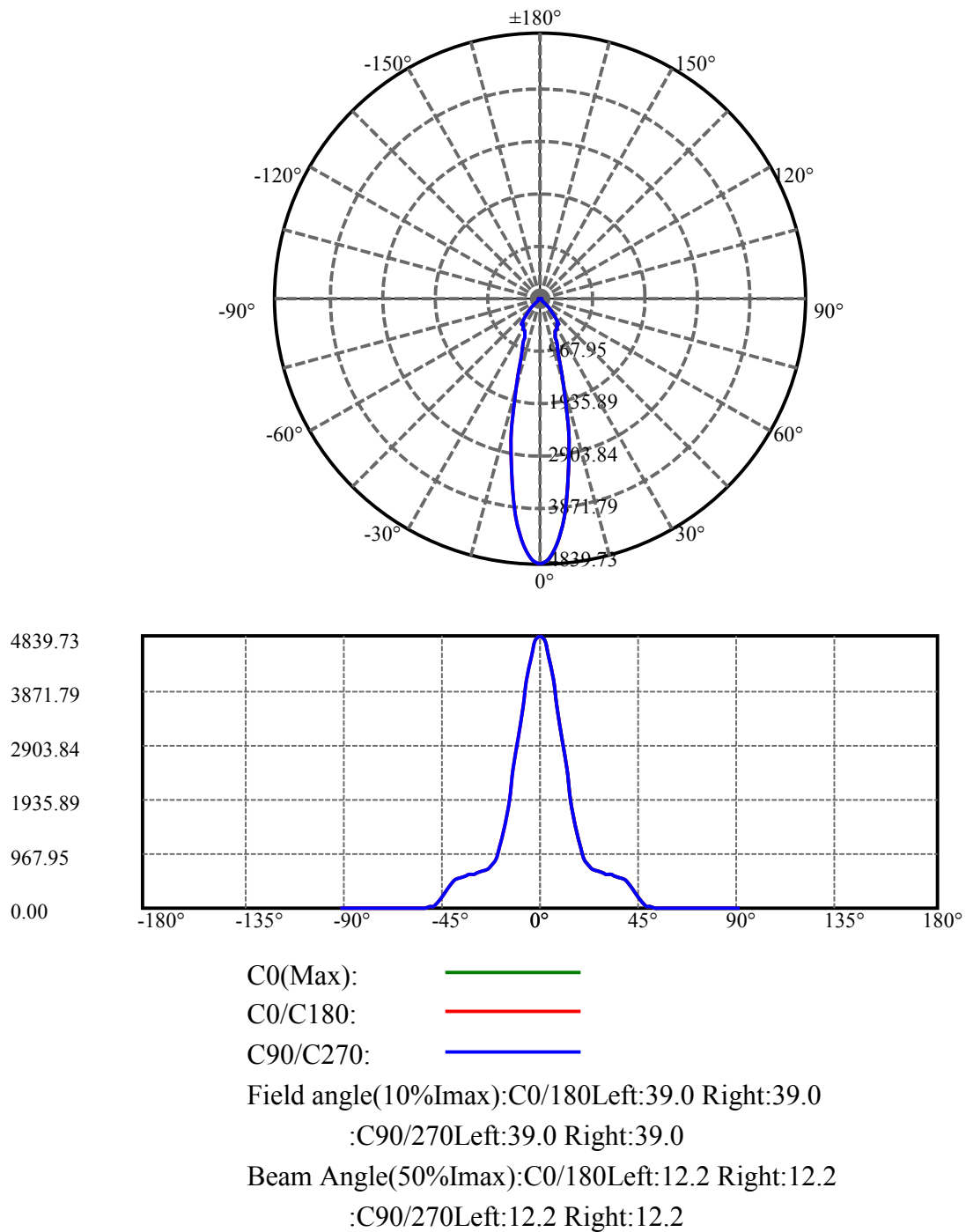
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	6.813	1.450	1664.16	.080%	99.438%
78.0	6.751	1.448	1665.609	.080%	99.525%
80.0	6.724	1.452	1667.061	.080%	99.612%
82.0	6.682	1.451	1668.512	.080%	99.698%
84.0	6.689	1.459	1669.971	.080%	99.786%
86.0	6.565	1.436	1671.408	.079%	99.871%
88.0	6.545	1.434	1672.842	.079%	99.957%
90.0	6.538	0.717	1673.559	.040%	100.000%

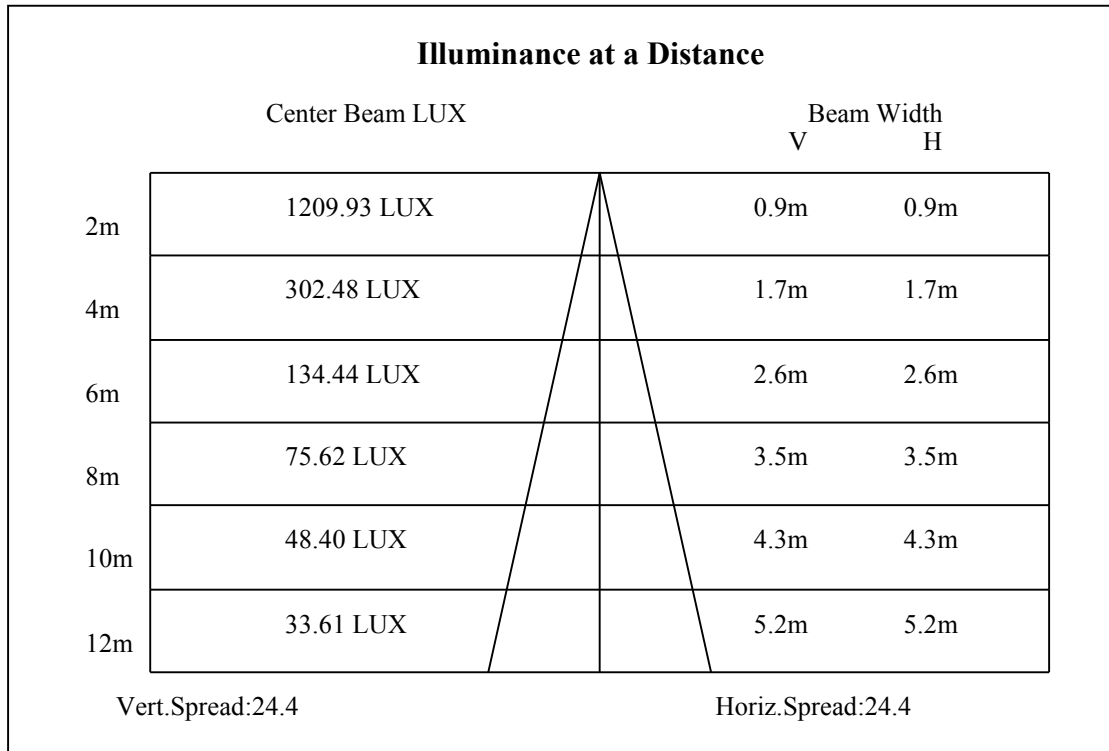
ZONAL LUMEN SUMMARY

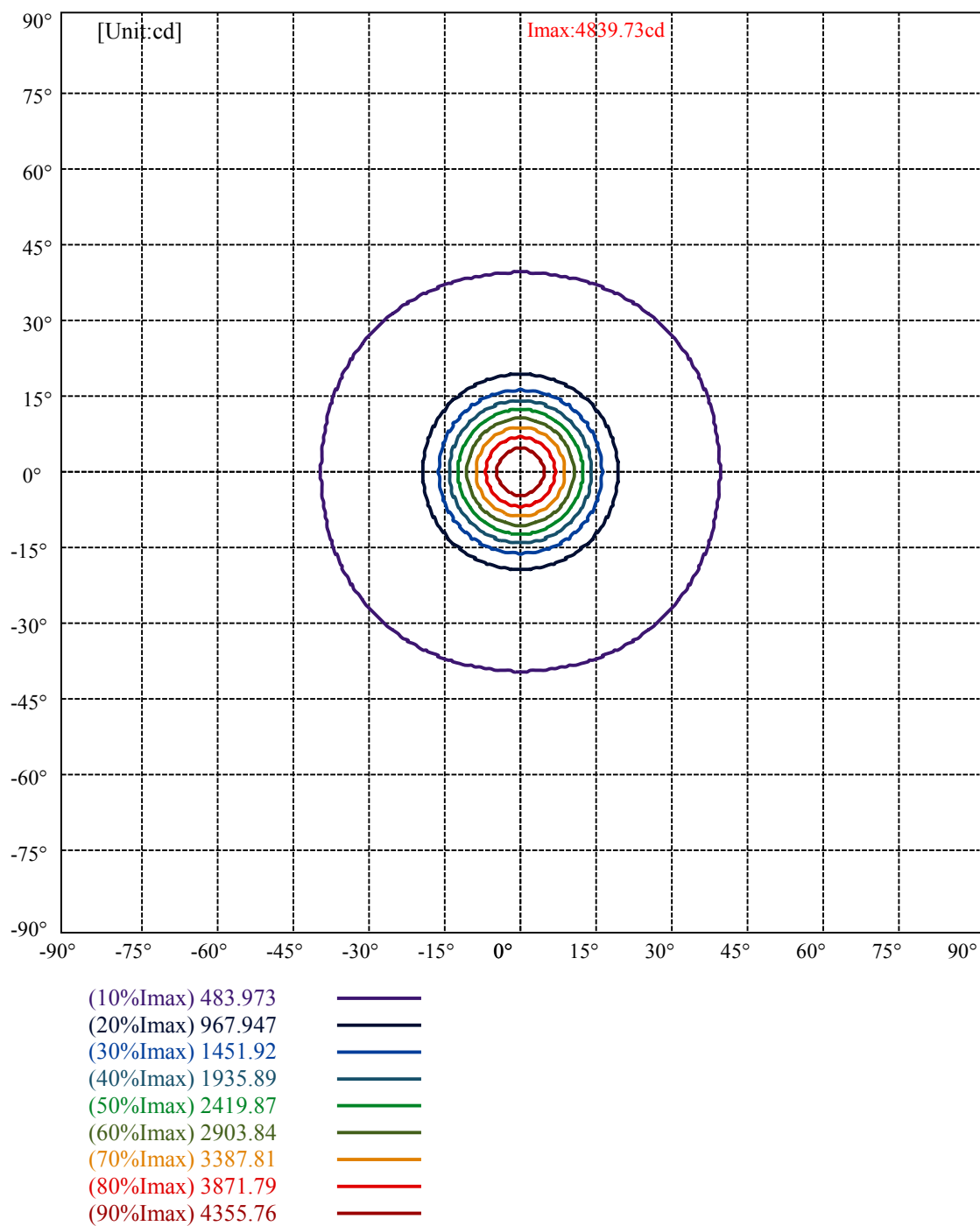
Zone	Lumens	%Lamp	%Fixt
0-30	1187.31	65.49%	70.95%
0-40	1530.78	84.43%	91.47%
0-60	1652.39	91.14%	98.74%
0-90	1672.84	92.27%	99.96%
0-120	1672.84	92.27%	99.96%
0-180	1673.56	92.31%	100.00%
60-90	21.99	1.21%	1.31%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-34.36	1338.85	73.85%	80.00%

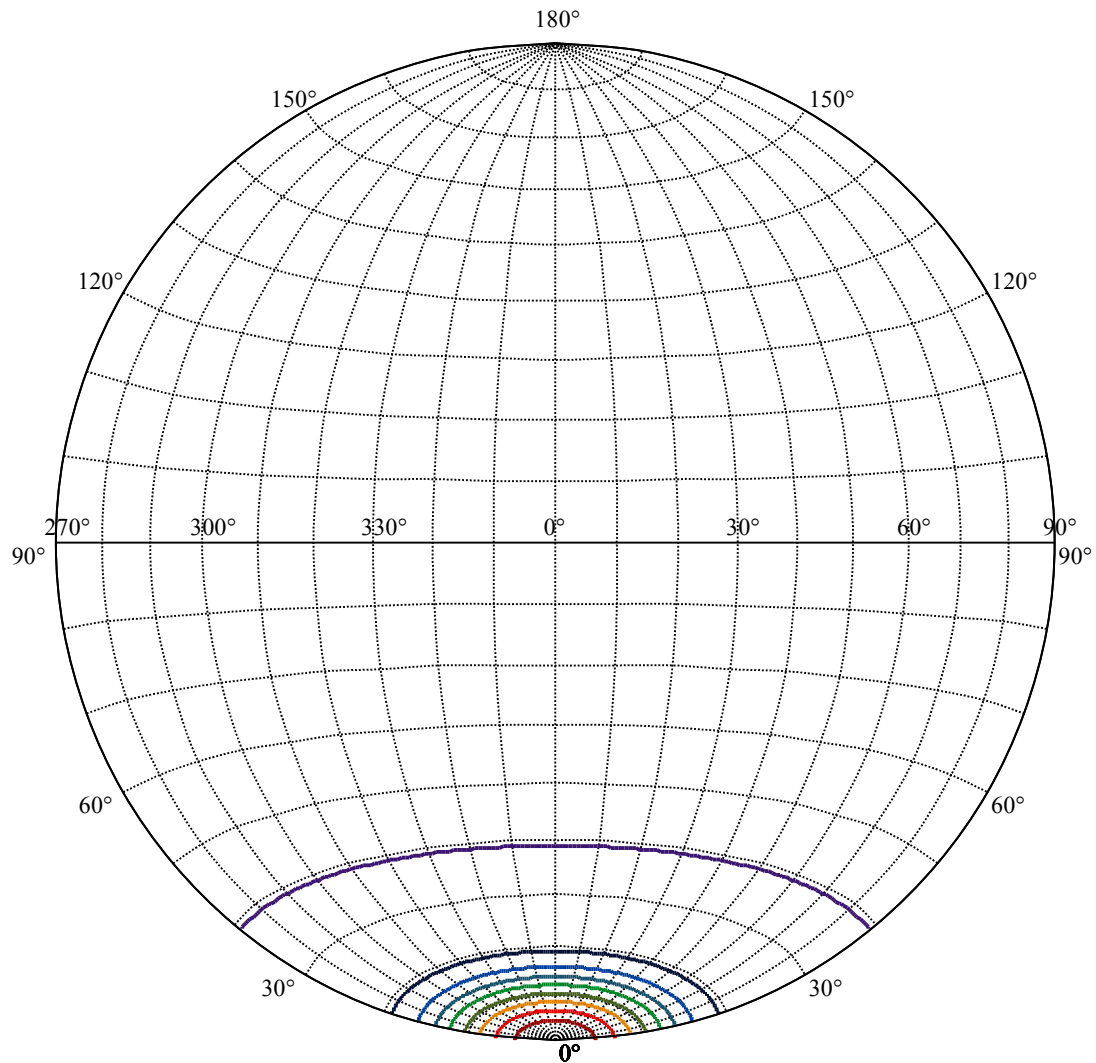
ZONAL LUMEN SUMMARY

0-10	426.38
10-20	440.56
20-30	320.36
30-40	343.47
40-50	112.49
50-60	9.12
60-70	7.42
70-80	7.25
80-90	5.78
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









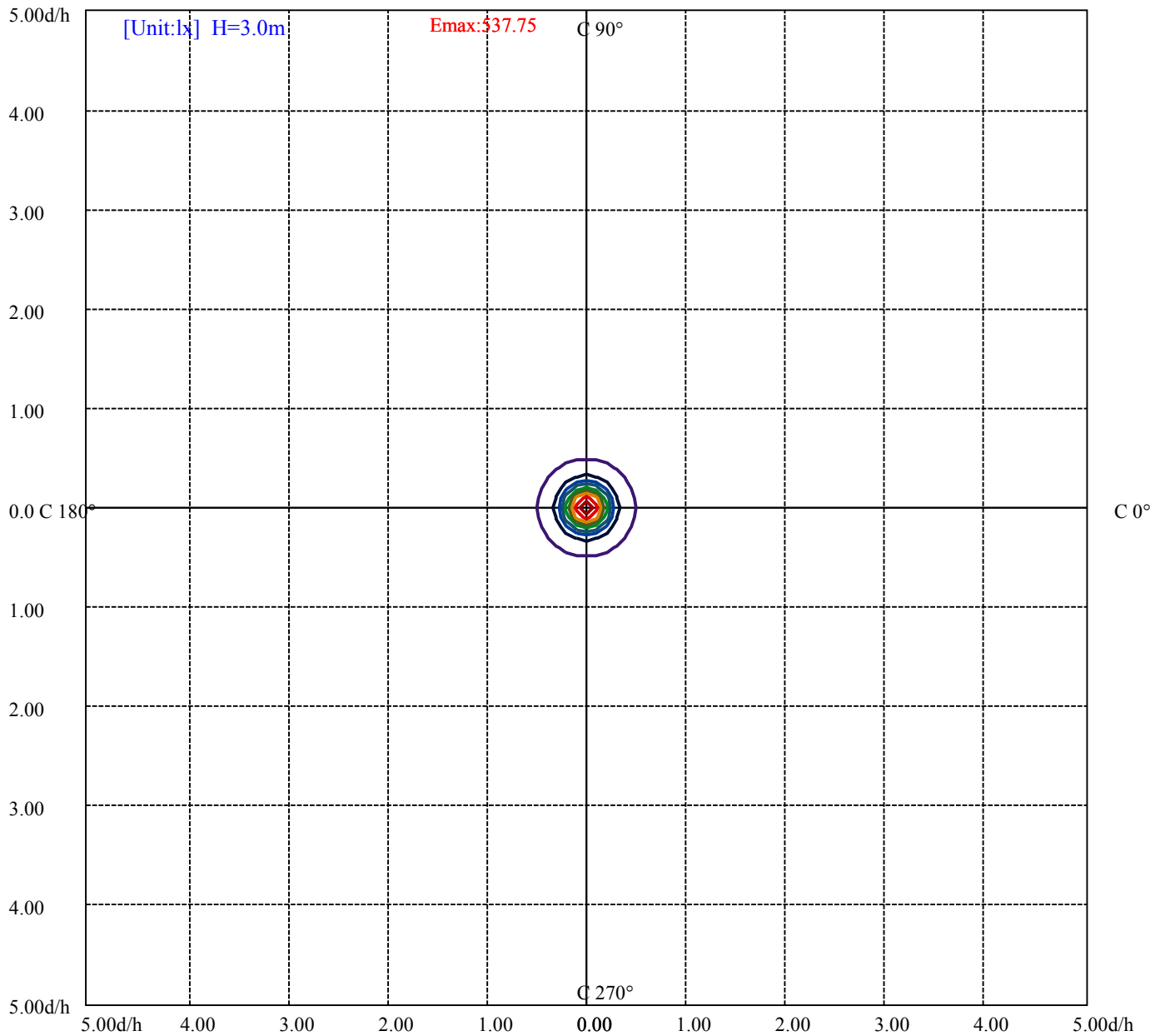
House

[Unit:cd]

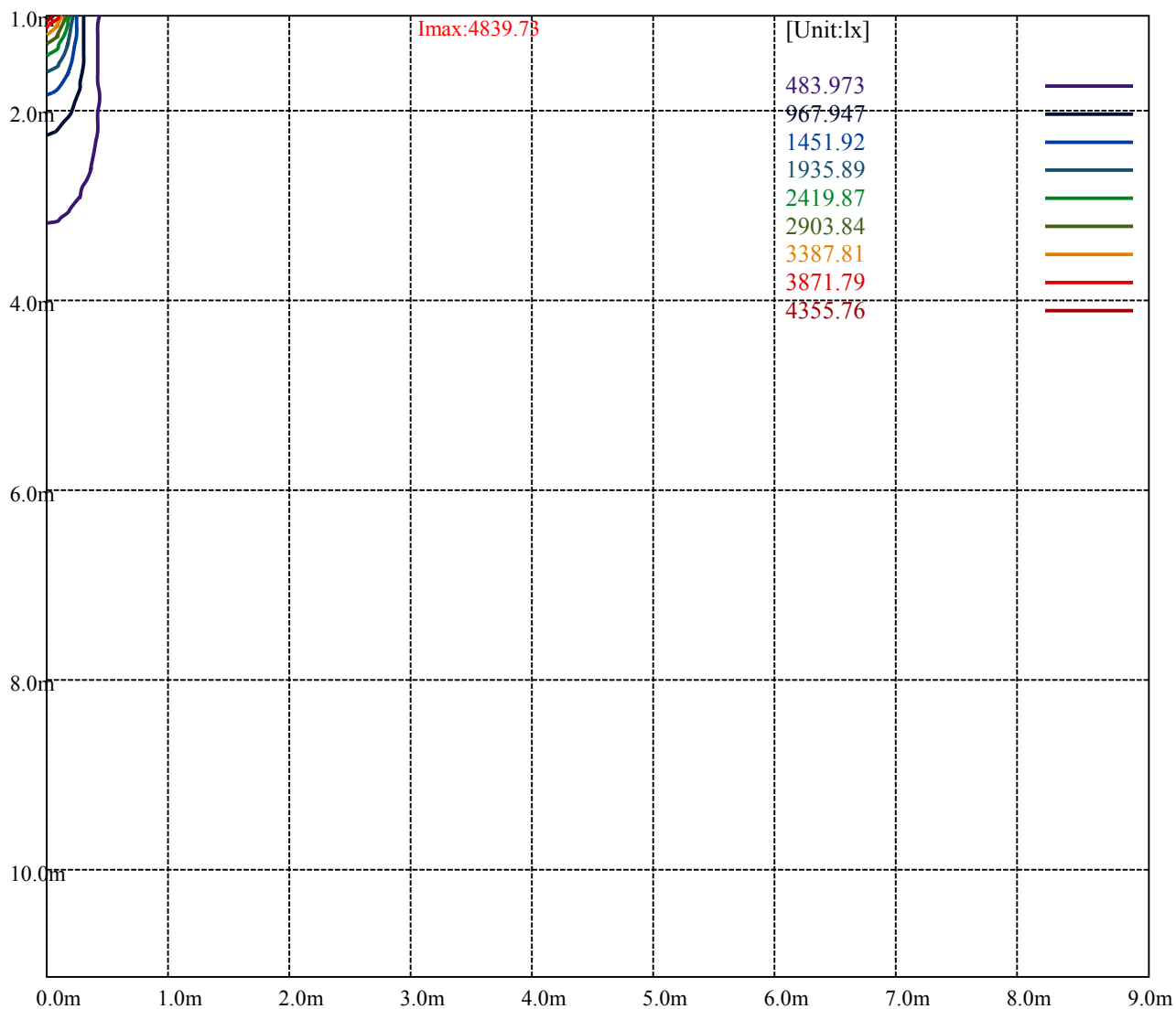
Road

Imax:4839.73

(10%Imax)	483.973	—
(20%Imax)	967.947	—
(30%Imax)	1451.92	—
(40%Imax)	1935.89	—
(50%Imax)	2419.87	—
(60%Imax)	2903.84	—
(70%Imax)	3387.81	—
(80%Imax)	3871.79	—
(90%Imax)	4355.76	—



(10%Emax)	53.77478	—
(20%Emax)	107.5494	—
(30%Emax)	161.3244	—
(40%Emax)	215.0989	—
(50%Emax)	268.8734	—
(60%Emax)	322.6489	—
(70%Emax)	376.4233	—
(80%Emax)	430.1978	—
(90%Emax)	483.9722	—



Luminance Table

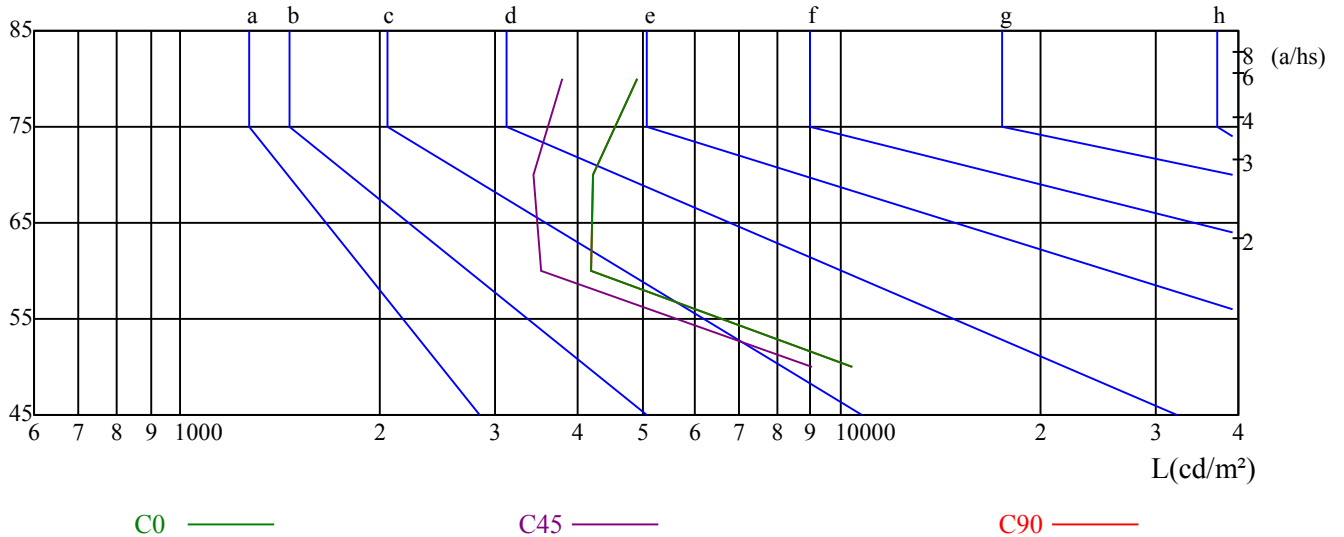
γ	45	50	55	60	65	70	75	80	85
C0	0	10387	0	4180	0	4225	0	4929	0
C45	0	9029	0	3520	0	3420	0	3784	0
C90	0	10387	0	4180	0	4225	0	4929	0

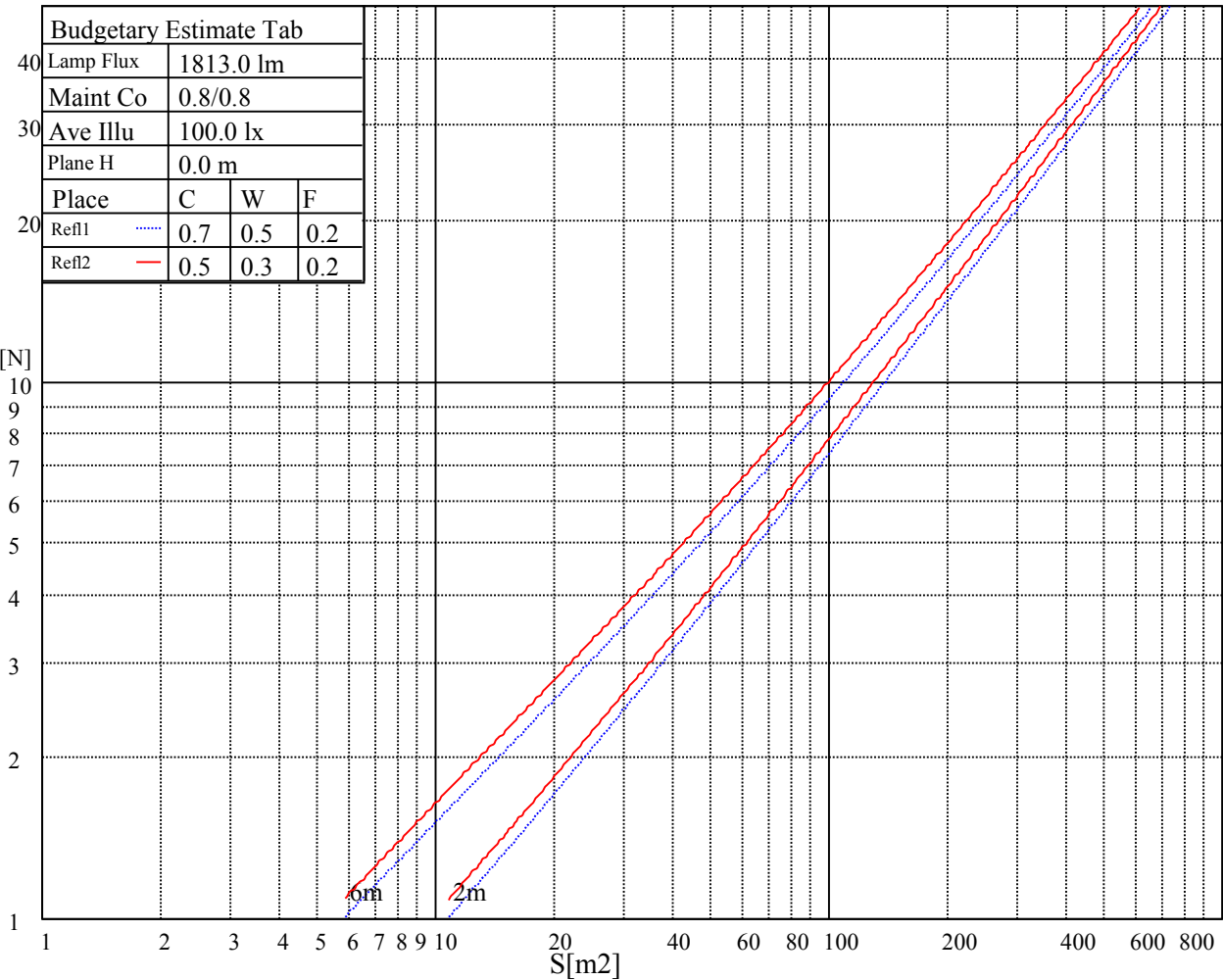
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
8604	8604	8604	13119	13119	13119	37765	37765	37765

Glare Table

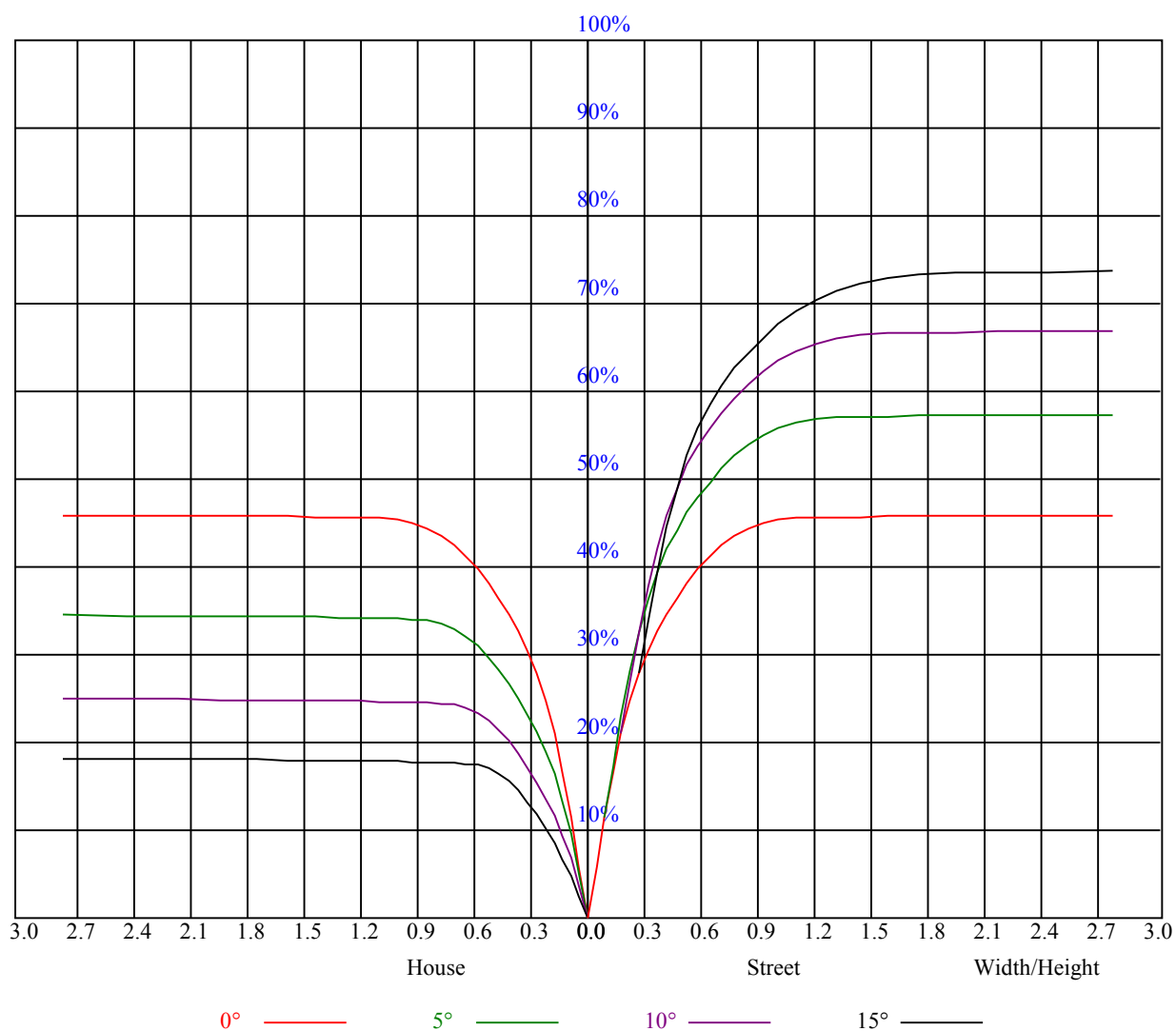
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve

 $\gamma(^{\circ})$ 



RHOC	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	1.10	1.10	1.10	1.08	1.08	1.08	1.03	1.03	1.03	0.98	0.98	0.98	0.94	0.94	0.94	0.93
1	1.03	1.00	0.98	1.01	0.98	0.97	0.97	0.95	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.87
2	0.96	0.92	0.89	0.94	0.91	0.88	0.91	0.89	0.86	0.89	0.87	0.85	0.86	0.84	0.83	0.81
3	0.90	0.86	0.82	0.89	0.85	0.82	0.87	0.83	0.80	0.84	0.82	0.79	0.82	0.80	0.78	0.77
4	0.85	0.80	0.77	0.84	0.80	0.76	0.82	0.78	0.75	0.80	0.77	0.74	0.79	0.76	0.74	0.72
5	0.80	0.75	0.72	0.80	0.75	0.71	0.78	0.74	0.71	0.76	0.73	0.70	0.75	0.72	0.70	0.68
6	0.76	0.71	0.68	0.76	0.71	0.67	0.74	0.70	0.67	0.73	0.69	0.66	0.72	0.69	0.66	0.65
7	0.73	0.67	0.64	0.72	0.67	0.64	0.71	0.67	0.63	0.70	0.66	0.63	0.69	0.65	0.63	0.62
8	0.69	0.64	0.61	0.69	0.64	0.61	0.68	0.63	0.60	0.67	0.63	0.60	0.66	0.62	0.60	0.59
9	0.66	0.61	0.58	0.66	0.61	0.58	0.65	0.61	0.58	0.64	0.60	0.57	0.63	0.60	0.57	0.56
10	0.63	0.59	0.55	0.63	0.58	0.55	0.62	0.58	0.55	0.62	0.58	0.55	0.61	0.57	0.55	0.54



Nata 1687-M

Intensity data(cd)									
Appendix Page: 15 Total:16									
C/γ(°)	0.0	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0
0.0	4841.66	4794.86	4565.28	4179.33	3711.35	3175.10	2692.81	2069.57	1569.11
45.0	4836.70	4795.96	4591.70	4217.32	3731.72	3169.05	2637.75	2034.33	1534.97
90.0	4842.76	4766.78	4527.29	4100.60	3628.22	3059.48	2487.45	1928.08	1450.74
135.0	4837.81	4782.20	4564.73	4204.66	3690.98	3140.97	2613.53	2011.76	1516.25
180.0	4841.66	4691.36	4379.19	3910.66	3430.01	2859.08	2294.20	1770.61	1337.32
225.0	4836.70	4699.61	4366.52	3890.84	3425.61	2866.24	2312.37	1782.18	1349.43
270.0	4842.76	4734.85	4424.33	3997.09	3508.74	2962.03	2453.86	1878.52	1419.90
315.0	4837.81	4709.52	4386.89	3928.27	3466.35	2910.83	2340.45	1803.65	1364.30
360.0	4841.66	4794.86	4565.28	4179.33	3711.35	3175.10	2692.81	2069.57	1569.11
C/γ(°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0
0.0	1199.68	918.34	785.10	721.24	674.44	641.41	616.08	595.71	576.44
45.0	1148.48	891.36	763.08	700.32	658.47	627.64	603.97	583.60	566.53
90.0	1066.22	859.10	745.52	692.50	656.16	624.01	602.04	581.29	563.67
135.0	1138.57	886.96	766.39	704.72	663.43	632.60	609.47	590.20	571.49
180.0	1015.52	830.86	736.21	685.51	653.08	622.19	602.98	581.89	562.62
225.0	1020.53	848.14	749.70	697.18	665.03	635.41	614.48	596.81	578.48
270.0	1080.76	865.49	763.63	708.03	671.69	640.31	618.28	599.56	581.95
315.0	1043.10	849.91	750.47	697.18	661.45	629.90	608.70	588.33	571.38
360.0	1199.68	918.34	785.10	721.24	674.44	641.41	616.08	595.71	576.44
C/γ(°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0
0.0	558.27	534.60	467.98	364.47	281.89	127.95	51.59	25.05	16.68
45.0	549.46	527.99	456.97	350.71	283.54	125.86	48.01	24.11	16.63
90.0	546.05	521.71	445.68	344.32	220.56	108.30	40.69	22.63	14.76
135.0	553.87	532.40	466.88	358.42	284.64	124.76	47.51	22.35	15.97
180.0	542.58	509.27	423.38	319.33	196.61	87.43	30.50	20.26	12.72
225.0	558.71	522.76	430.49	324.56	198.97	87.65	30.67	20.87	13.65
270.0	562.13	532.40	447.61	336.95	214.61	101.96	37.05	22.30	15.20
315.0	549.68	515.93	423.22	317.95	195.29	85.39	30.94	19.88	14.26
360.0	558.27	534.60	467.98	364.47	281.89	127.95	51.59	25.05	16.68
C/γ(°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0
0.0	11.07	9.08	8.59	8.20	7.93	7.71	7.54	7.32	7.10
45.0	10.19	8.75	8.31	7.98	7.71	7.49	7.32	7.10	7.05
90.0	9.86	8.64	8.26	7.98	7.76	7.54	7.38	7.16	7.05
135.0	10.19	8.81	8.37	8.04	7.76	7.54	7.38	7.21	7.05
180.0	9.86	8.59	8.20	7.93	7.65	7.49	7.27	7.10	6.94
225.0	10.52	8.97	8.53	8.20	7.87	7.65	7.43	7.21	7.05
270.0	10.46	8.97	8.53	8.26	7.93	7.71	7.54	7.38	7.27
315.0	10.08	8.81	8.37	8.09	7.87	7.60	7.43	7.27	7.10
360.0	11.07	9.08	8.59	8.20	7.93	7.71	7.54	7.32	7.10
C/γ(°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0
0.0	6.94	6.88	6.77	6.77	6.72	6.66	6.61	6.55	6.55
45.0	6.94	6.83	6.77	6.72	6.66	6.66	6.66	6.61	6.55
90.0	6.99	6.88	6.88	6.77	6.77	6.72	6.72	6.55	6.50
135.0	6.94	6.83	6.77	6.72	6.66	6.61	6.61	6.55	6.55
180.0	6.88	6.77	6.72	6.66	6.66	6.61	6.55	6.55	6.55
225.0	6.94	6.83	6.77	6.72	6.66	6.61	6.66	6.55	6.55
270.0	7.16	7.05	6.99	6.94	6.94	6.94	7.10	6.55	6.55
315.0	6.99	6.88	6.83	6.72	6.72	6.66	6.61	6.61	6.55
360.0	6.94	6.88	6.77	6.77	6.72	6.66	6.61	6.55	6.55

Intensity data(cd)

Appendix Page: 16 Total:16

C/ $\gamma(^{\circ})$	90.0
0.0	6.55
45.0	6.55
90.0	6.50
135.0	6.50
180.0	6.55
225.0	6.55
270.0	6.55
315.0	6.55
360.0	6.55