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Nata

LumCAT: 2-1678-M
Luminaire: 92.70.125.00
Report No: NATA0100
Test No: GC2018070519
LampCAT: NICHIA NTCWT012B-V3
Lamp flux(lm): 745.0
Number of Lamps: 1
Length(mm): 70
Phm Type: C

Voltage(V): 38.8000
Current(A): 0.2000
Power (W): 7.7600
PF: 0.0000
Ballast type: DC
Width(mm): 70
Height(mm): 0

Photometric Results

Lumens(lm): 676.00
Efficiency(%): 90.74%
Lumens(lm)/Power(W): 89.21
Central intensity(cd): 17112.910
Maximum intensity(cd): 17112.910
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=7.3
[C90/270]Total=7.3
Field angle(10%Imax): [C0/180]Total=14.3
[C90/270]Total=14.3
Maximum s/h(1/2): C0_180=0.13 C90_270=0.13
Maximum s/h(1/4): C0_180=0.13 C90_270=0.13
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 92.92%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 96.431%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	17112.906	16.376	16.376	2.198%	2.423%
2.0	13788.256	105.534	121.911	14.166%	18.034%
4.0	7350.924	112.458	234.369	15.095%	34.670%
6.0	2690.778	61.685	296.054	8.280%	43.795%
8.0	964.347	29.434	325.488	3.951%	48.149%
10.0	523.800	19.948	345.436	2.678%	51.100%
12.0	409.097	18.654	364.09	2.504%	53.860%
14.0	351.838	18.667	382.757	2.506%	56.621%
16.0	317.152	19.172	401.93	2.573%	59.457%
18.0	296.458	20.091	422.021	2.697%	62.429%
20.0	280.850	21.066	443.087	2.828%	65.546%
22.0	268.579	22.065	465.153	2.962%	68.810%
24.0	259.040	23.107	488.26	3.102%	72.228%
26.0	251.917	24.220	512.479	3.251%	75.811%
28.0	245.421	25.269	537.748	3.392%	79.549%
30.0	237.692	26.065	563.813	3.499%	83.405%
32.0	229.984	26.728	590.541	3.588%	87.359%
34.0	222.063	27.233	617.775	3.656%	91.387%
36.0	195.471	25.198	642.973	3.382%	95.115%
38.0	102.880	13.891	656.864	1.865%	97.170%
40.0	24.954	3.518	660.382	.472%	97.690%
42.0	9.483	1.392	661.773	.187%	97.896%
44.0	6.366	0.970	662.743	.130%	98.039%
46.0	4.343	0.685	663.428	.092%	98.141%
48.0	3.606	0.588	664.016	.079%	98.228%
50.0	3.441	0.578	664.594	.078%	98.313%
52.0	3.310	0.572	665.166	.077%	98.398%
54.0	3.207	0.569	665.735	.076%	98.482%
56.0	3.104	0.564	666.3	.076%	98.566%
58.0	3.420	0.636	666.936	.085%	98.660%
60.0	3.303	0.627	667.563	.084%	98.752%
62.0	2.904	0.562	668.126	.075%	98.836%
64.0	2.863	0.564	668.69	.076%	98.919%
66.0	2.829	0.567	669.257	.076%	99.003%
68.0	2.815	0.572	669.829	.077%	99.088%
70.0	2.794	0.576	670.405	.077%	99.173%
72.0	2.780	0.580	670.985	.078%	99.259%
74.0	2.760	0.582	671.567	.078%	99.345%

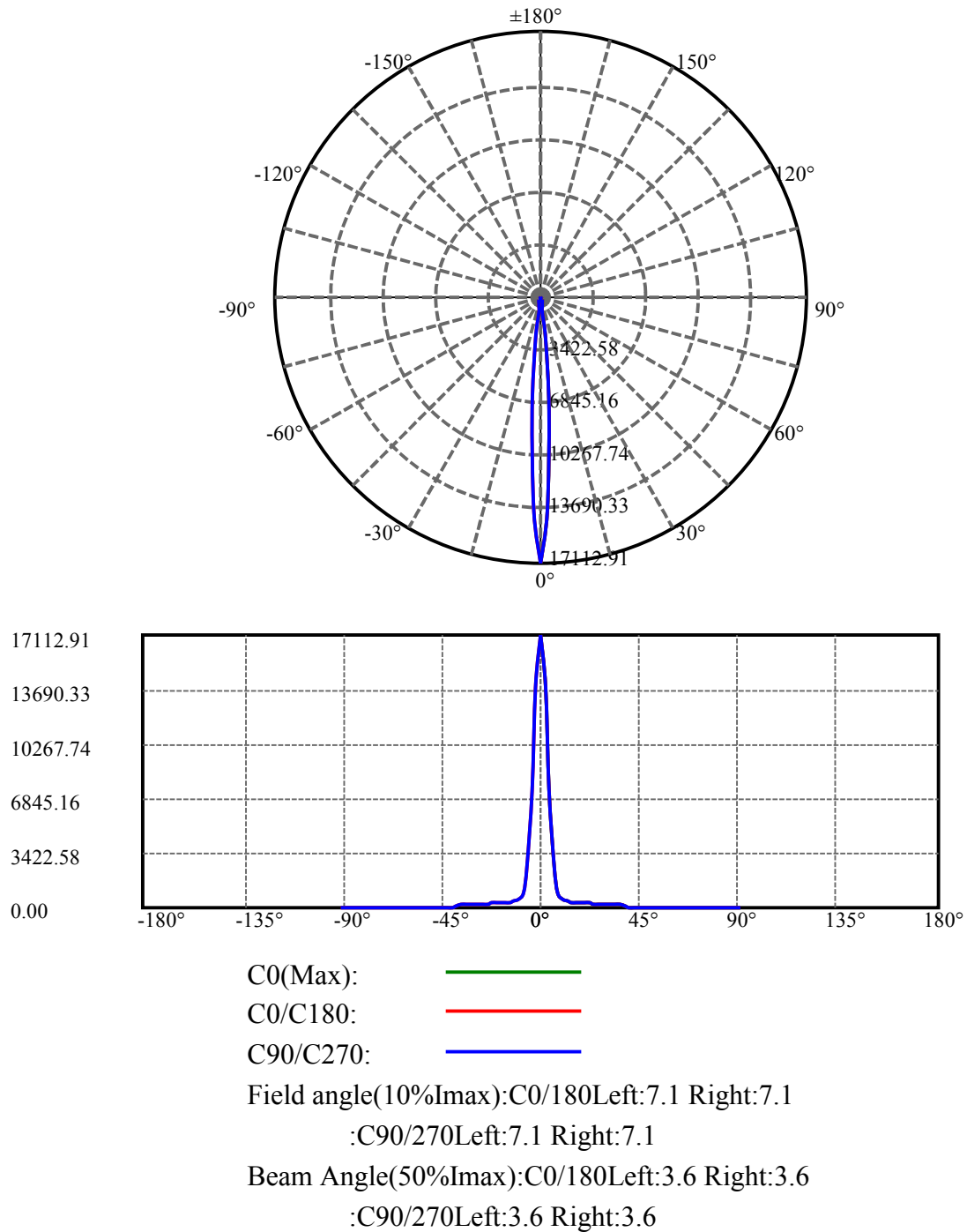
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	2.760	0.587	672.154	.079%	99.432%
78.0	2.746	0.589	672.743	.079%	99.519%
80.0	2.732	0.590	673.333	.079%	99.606%
82.0	2.725	0.592	673.925	.079%	99.694%
84.0	2.712	0.591	674.516	.079%	99.781%
86.0	2.712	0.593	675.109	.080%	99.869%
88.0	2.698	0.591	675.701	.079%	99.956%
90.0	2.698	0.296	675.997	.040%	100.000%

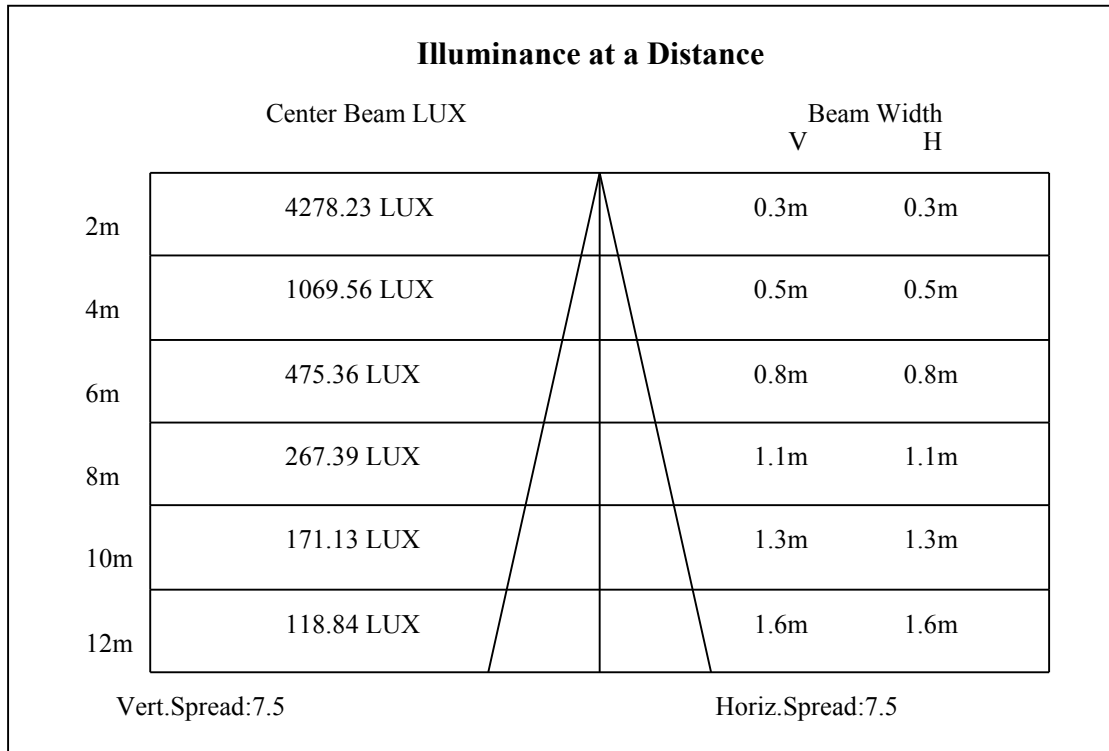
ZONAL LUMEN SUMMARY

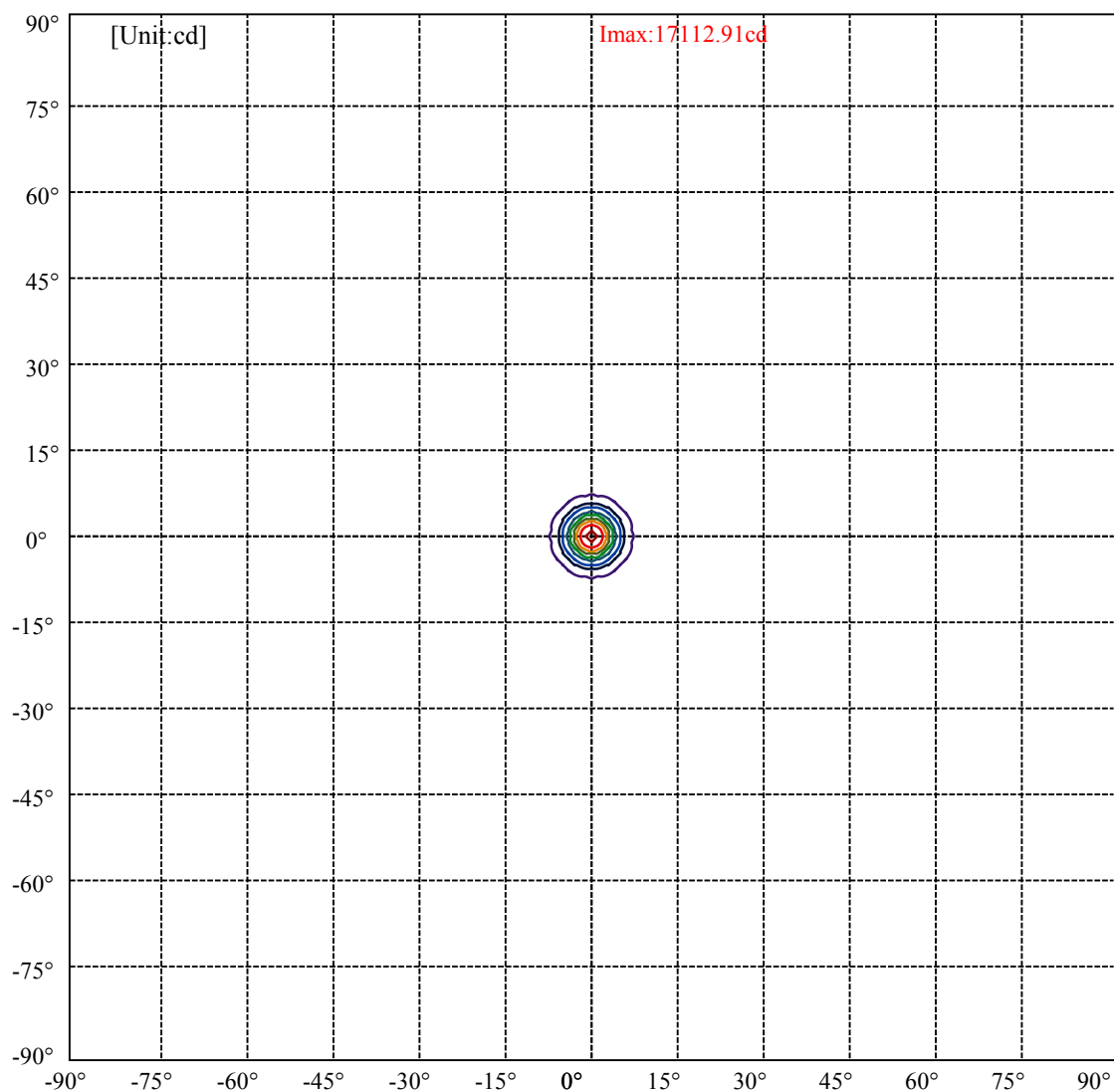
Zone	Lumens	%Lamp	%Fixt
0-30	563.81	75.68%	83.40%
0-40	660.38	88.64%	97.69%
0-60	667.56	89.61%	98.75%
0-90	675.70	90.70%	99.96%
0-120	675.70	90.70%	99.96%
0-180	676.00	90.74%	100.00%
60-90	8.76	1.18%	1.30%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-28.23	540.80	72.59%	80.00%

ZONAL LUMEN SUMMARY

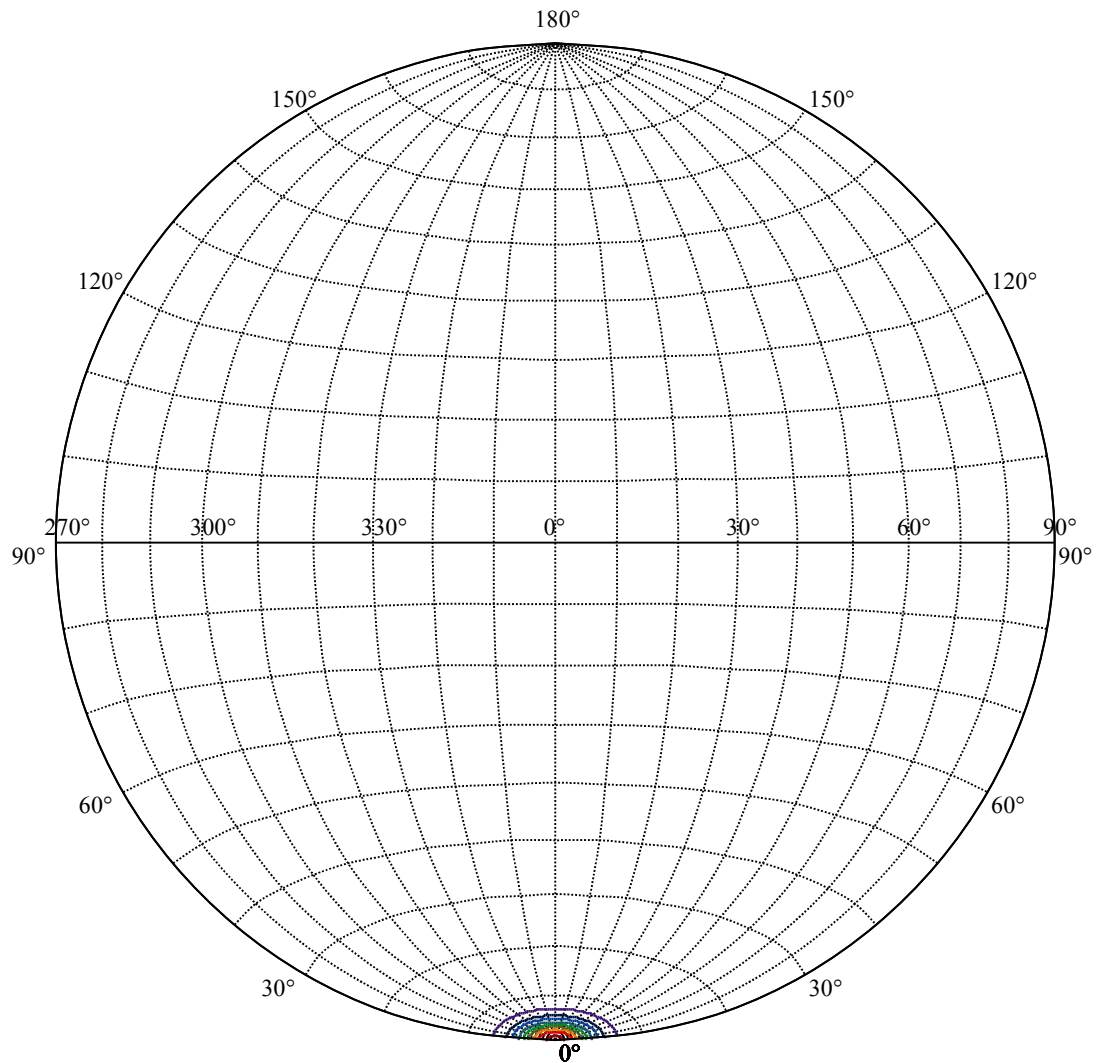
0-10	345.44
10-20	97.65
20-30	120.73
30-40	96.57
40-50	4.21
50-60	2.97
60-70	2.84
70-80	2.93
80-90	2.37
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00







(10%Imax)	1711.29	———
(20%Imax)	3422.58	———
(30%Imax)	5133.87	———
(40%Imax)	6845.16	———
(50%Imax)	8556.45	———
(60%Imax)	10267.7	———
(70%Imax)	11979	———
(80%Imax)	13690.3	———
(90%Imax)	15401.6	———



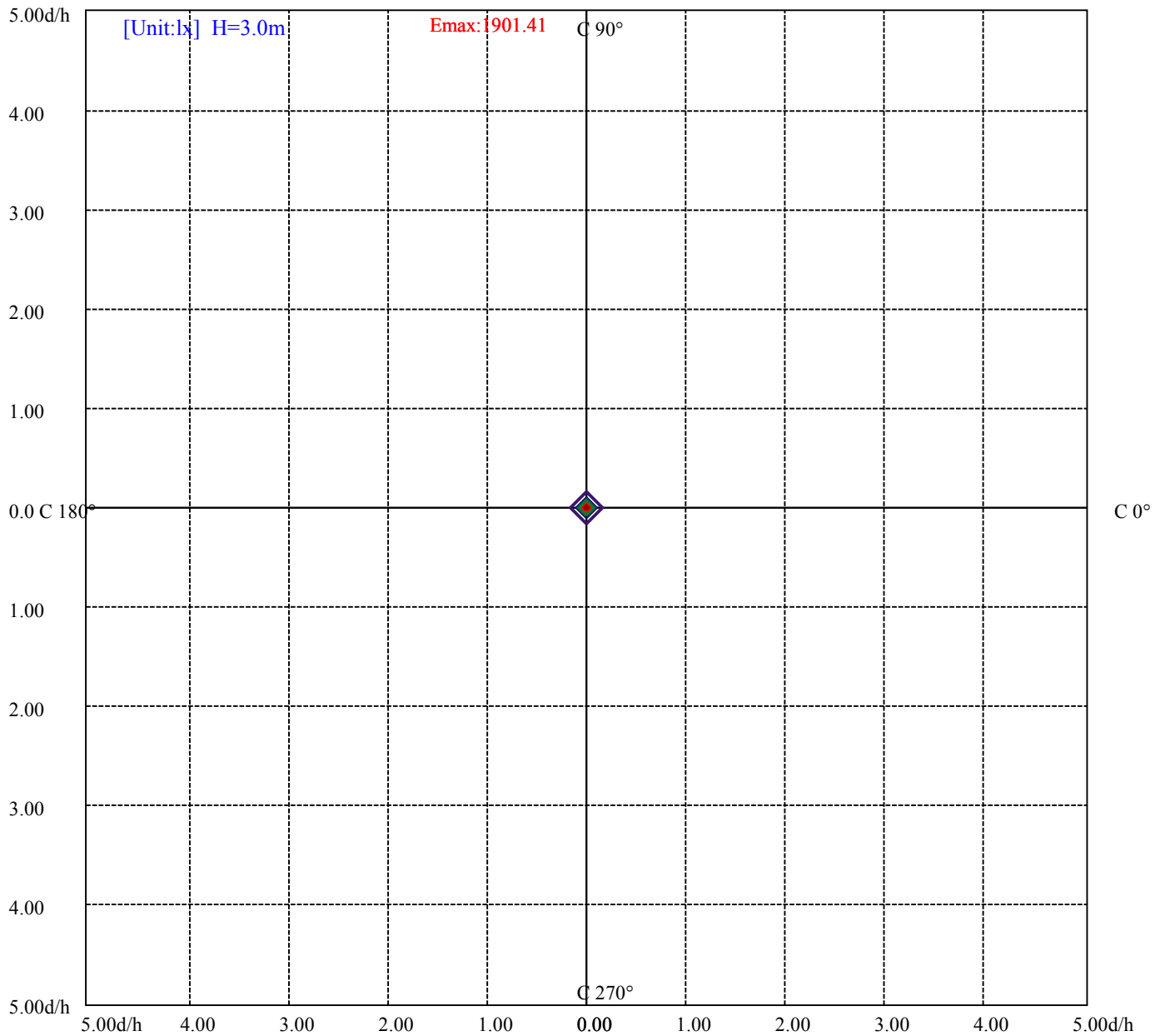
House

[Unit:cd]

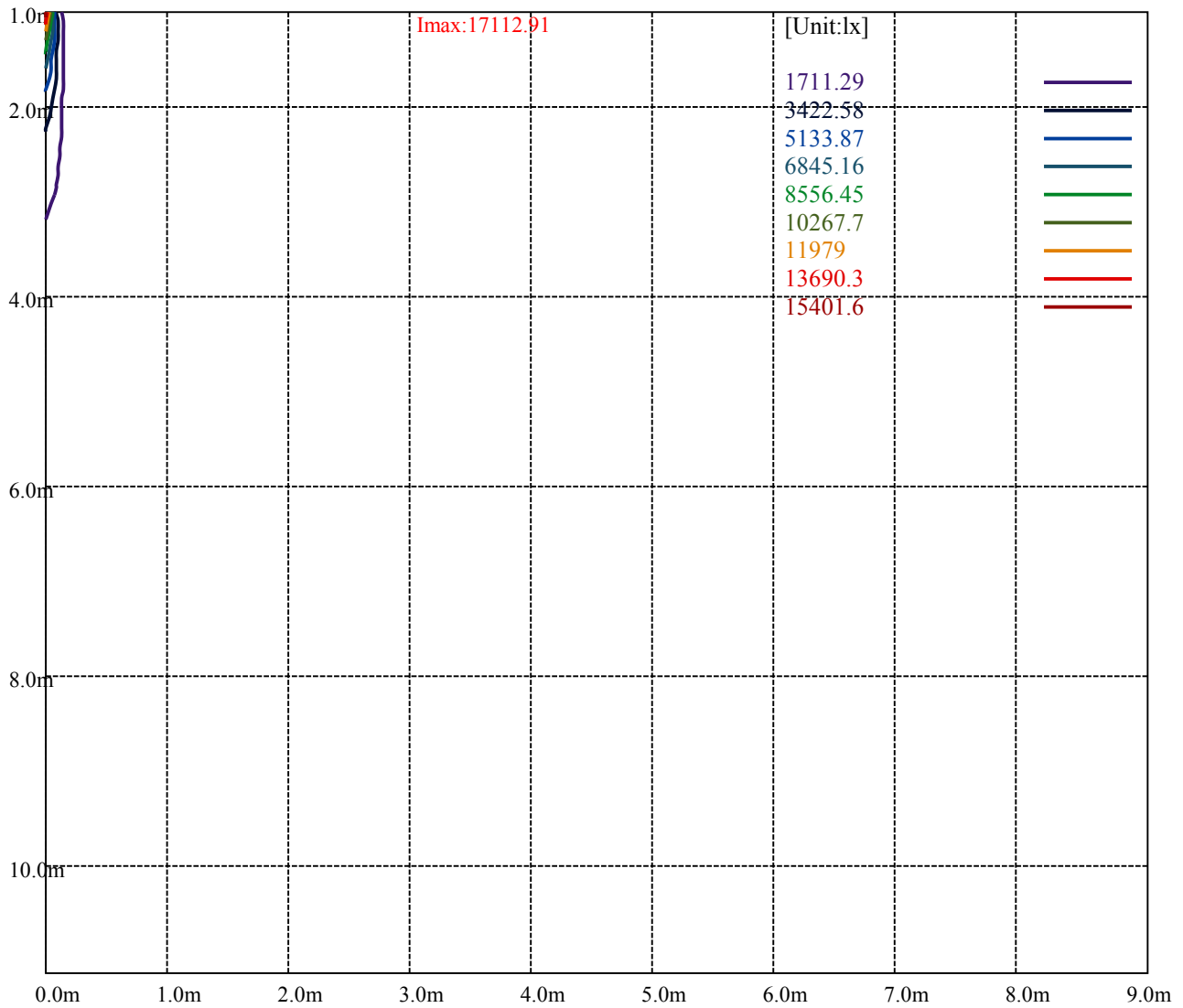
Road

Imax:17112.91

(10%Imax)	1711.29	—
(20%Imax)	3422.58	—
(30%Imax)	5133.87	—
(40%Imax)	6845.16	—
(50%Imax)	8556.45	—
(60%Imax)	10267.7	—
(70%Imax)	11979	—
(80%Imax)	13690.3	—
(90%Imax)	15401.6	—



(10%E _{max}) 190.1411	—
(20%E _{max}) 380.2811	—
(30%E _{max}) 570.4222	—
(40%E _{max}) 760.5623	—
(50%E _{max}) 950.7034	—
(60%E _{max}) 1140.844	—
(70%E _{max}) 1330.989	—
(80%E _{max}) 1521.122	—
(90%E _{max}) 1711.267	—



Luminance Table

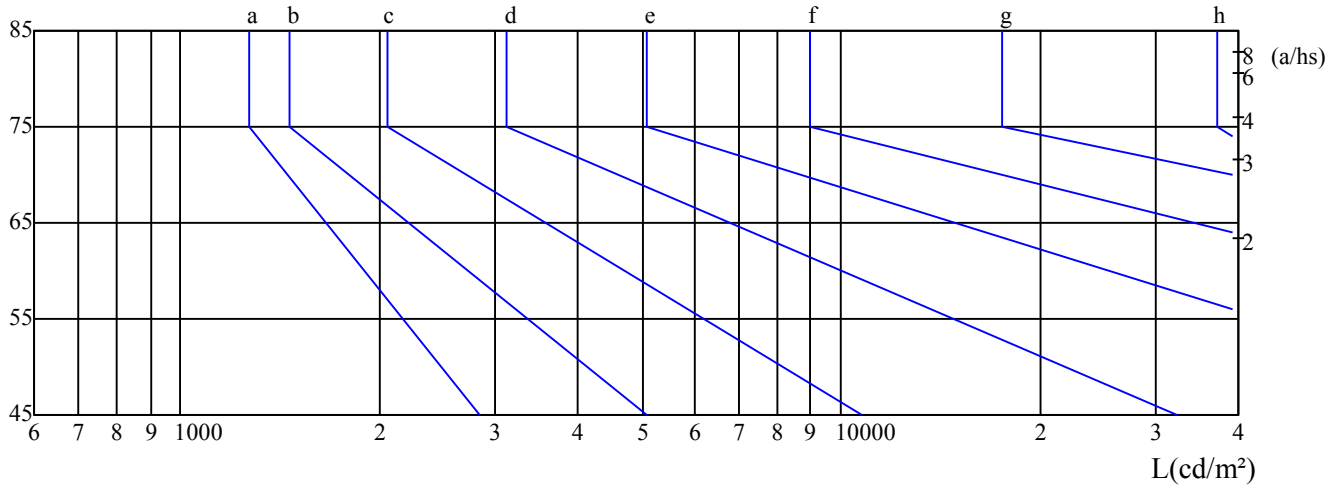
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

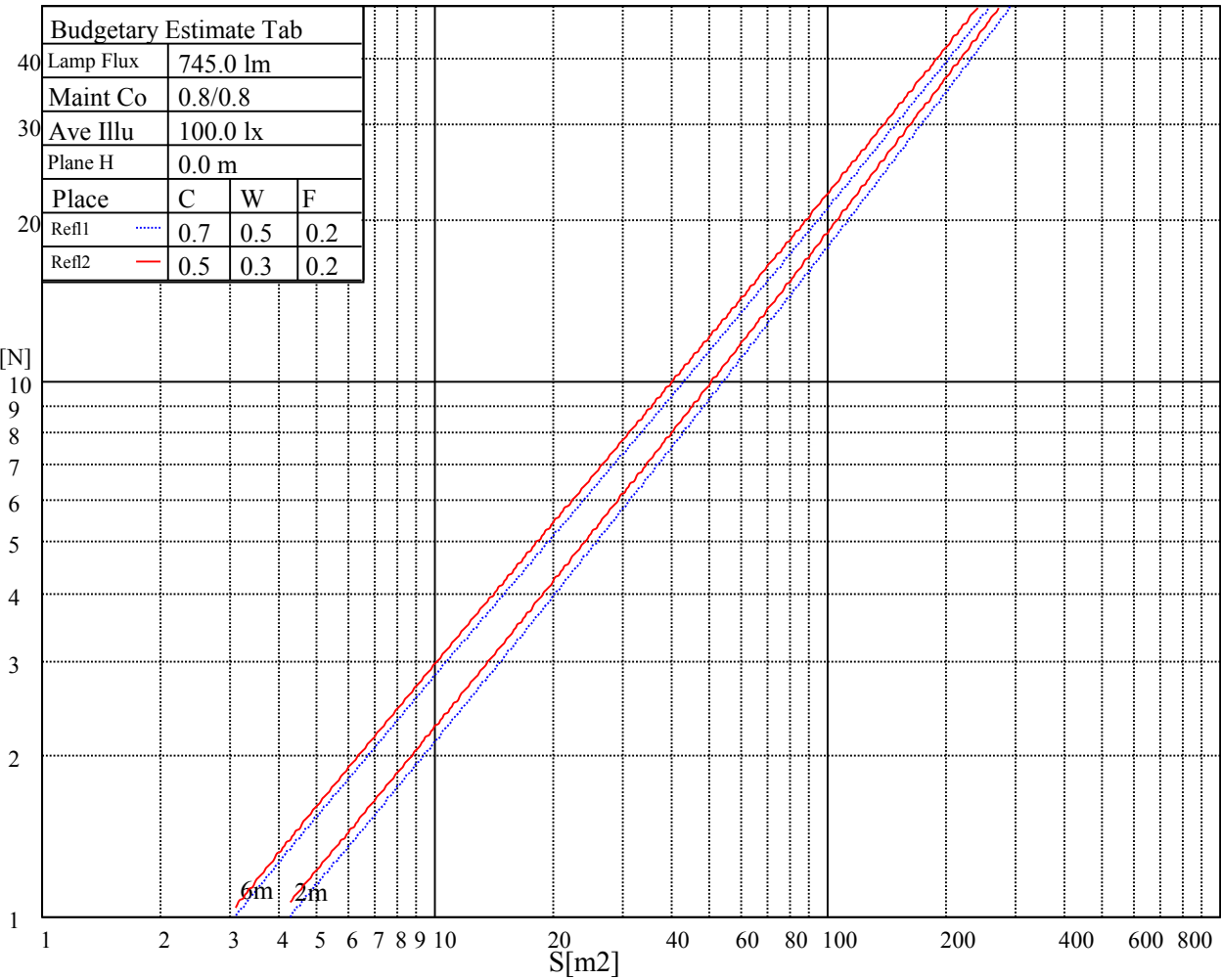
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

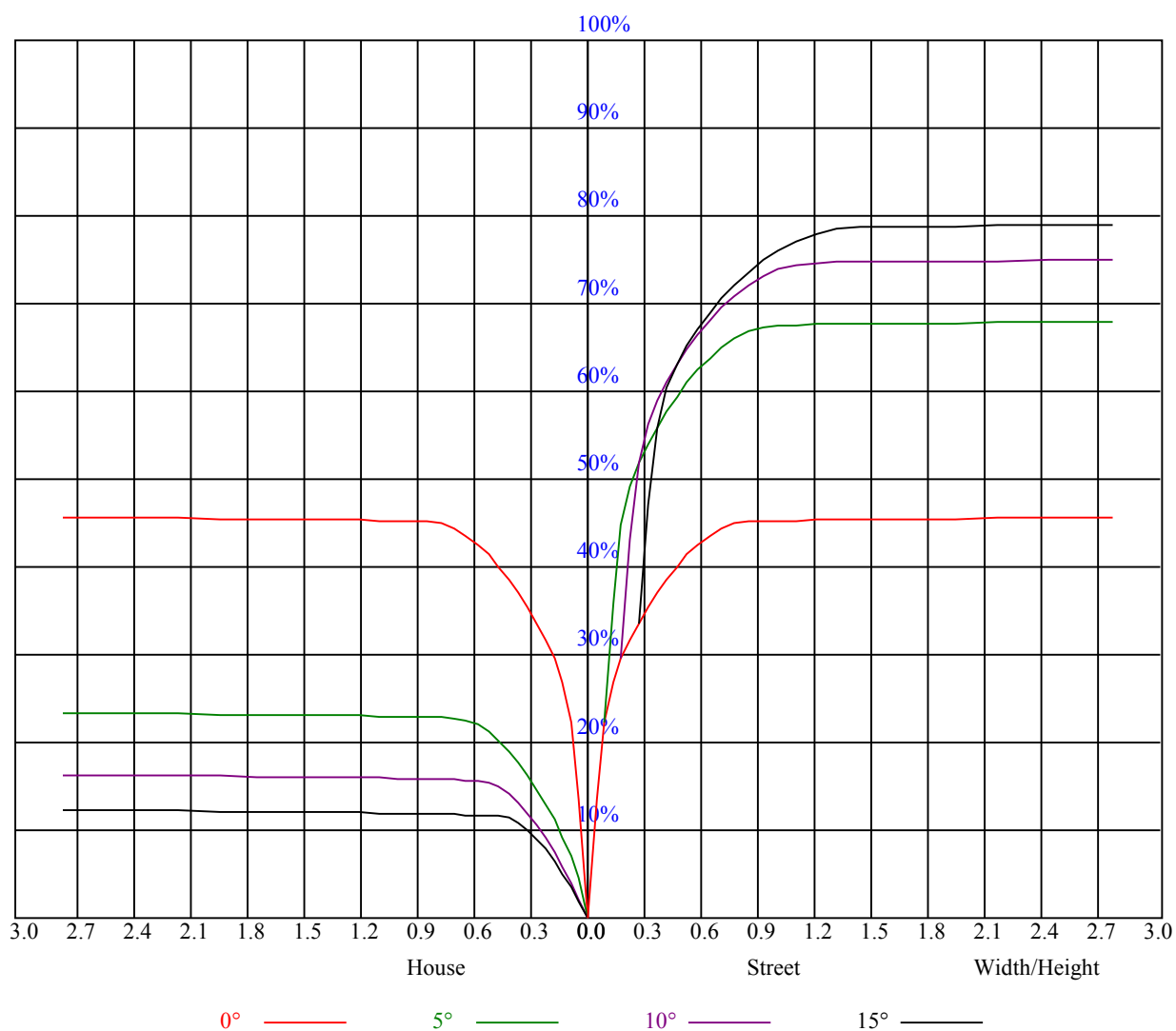
C0 ———

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	1.11	1.11	1.11	1.08	1.08	1.08	1.03	1.03	1.03	0.99	0.99	0.99	0.95	0.95	0.95	0.93
1	1.02	0.99	0.96	1.00	0.97	0.95	0.96	0.94	0.92	0.92	0.91	0.89	0.89	0.88	0.87	0.85
2	0.96	0.93	0.90	0.95	0.91	0.89	0.92	0.89	0.87	0.89	0.87	0.85	0.86	0.85	0.83	0.82
3	0.92	0.88	0.85	0.91	0.87	0.84	0.88	0.85	0.83	0.86	0.83	0.81	0.84	0.82	0.80	0.79
4	0.88	0.84	0.80	0.87	0.83	0.80	0.85	0.82	0.79	0.83	0.80	0.78	0.82	0.79	0.77	0.76
5	0.85	0.80	0.77	0.84	0.80	0.77	0.82	0.79	0.76	0.81	0.78	0.75	0.79	0.77	0.75	0.73
6	0.82	0.77	0.74	0.81	0.77	0.74	0.80	0.76	0.73	0.78	0.75	0.73	0.77	0.74	0.72	0.71
7	0.79	0.74	0.71	0.78	0.74	0.71	0.77	0.74	0.71	0.76	0.73	0.71	0.75	0.72	0.70	0.69
8	0.76	0.72	0.69	0.76	0.72	0.69	0.75	0.71	0.69	0.74	0.71	0.68	0.73	0.70	0.68	0.67
9	0.74	0.70	0.67	0.74	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.67	0.72	0.69	0.66	0.66
10	0.72	0.68	0.65	0.72	0.68	0.65	0.71	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.65	0.64



Nata 2-1678-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	17612.54	14639.50	7812.50	2962.03	1046.07	552.77	428.89	361.72	322.08
45.0	16456.36	17282.20	11760.05	5081.71	1615.35	680.50	459.17	376.04	329.79
90.0	17386.81	16467.37	9143.22	3446.53	1079.66	557.06	421.95	362.33	323.79
135.0	16995.91	16307.71	10064.31	3523.61	1144.07	574.24	434.95	371.63	327.59
180.0	17612.54	12811.62	6536.85	2213.82	772.83	480.75	398.00	346.97	314.32
225.0	16456.36	10297.20	3735.03	1038.64	606.78	429.22	364.58	324.78	301.98
270.0	17386.81	11886.68	5070.69	1560.30	726.19	460.27	379.34	332.54	306.66
315.0	16995.91	10613.77	4684.75	1699.59	723.83	455.59	385.89	338.71	311.01
360.0	17612.54	14639.50	7812.50	2962.03	1046.07	552.77	428.89	361.72	322.08
C/γ(°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0
0.0	301.16	281.34	267.30	257.77	251.22	244.01	235.15	229.42	220.17
45.0	305.01	286.84	278.59	262.01	253.87	247.86	241.53	231.79	225.13
90.0	298.96	281.61	268.23	259.32	251.77	245.44	236.63	228.92	220.72
135.0	304.46	285.74	270.33	261.24	254.97	247.04	239.11	231.35	222.81
180.0	294.72	280.84	268.73	259.81	252.49	246.43	237.35	230.63	222.43
225.0	285.91	273.47	262.34	255.02	248.30	241.09	235.42	227.16	219.84
270.0	289.05	278.03	266.25	258.32	252.16	245.77	239.05	231.46	223.91
315.0	292.40	278.92	266.86	258.82	250.56	245.72	237.29	229.14	221.49
360.0	301.16	281.34	267.30	257.77	251.22	244.01	235.15	229.42	220.17
C/γ(°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0
0.0	211.03	118.54	23.73	11.56	7.38	3.96	3.69	3.52	3.36
45.0	216.32	161.04	63.65	11.78	8.97	6.50	3.69	3.52	3.36
90.0	211.75	132.85	32.15	9.52	6.61	4.51	3.58	3.41	3.25
135.0	215.49	136.04	33.42	10.90	7.76	4.73	3.63	3.47	3.36
180.0	193.69	89.03	12.94	9.14	5.56	3.74	3.58	3.41	3.30
225.0	147.61	41.02	10.30	6.83	4.68	3.69	3.52	3.36	3.25
270.0	190.16	74.00	11.56	8.15	5.12	3.80	3.58	3.41	3.30
315.0	177.72	70.53	11.89	7.98	4.84	3.80	3.58	3.41	3.30
360.0	211.03	118.54	23.73	11.56	7.38	3.96	3.69	3.52	3.36
C/γ(°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0
0.0	3.25	3.14	3.03	2.97	2.92	2.86	2.81	2.86	2.81
45.0	3.25	3.14	3.08	3.03	2.92	2.86	2.86	2.81	2.81
90.0	3.19	3.08	6.22	5.67	2.86	2.86	2.81	2.81	2.75
135.0	3.25	3.14	3.03	2.97	2.92	2.86	2.86	2.81	2.81
180.0	3.19	3.08	3.03	2.97	2.92	2.86	2.86	2.81	2.75
225.0	3.14	3.03	2.97	2.92	2.92	2.86	2.81	2.81	2.81
270.0	3.19	3.14	3.03	2.97	2.92	2.86	2.81	2.81	2.81
315.0	3.19	3.08	2.97	2.92	2.86	2.86	2.81	2.81	2.81
360.0	3.25	3.14	3.03	2.97	2.92	2.86	2.81	2.86	2.81
C/γ(°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0
0.0	2.81	2.75	2.75	2.75	2.75	2.70	2.70	2.75	2.70
45.0	2.81	2.81	2.81	2.81	2.75	2.75	2.81	2.75	2.70
90.0	2.75	2.75	2.75	2.70	2.75	2.75	2.70	2.70	2.70
135.0	2.81	2.75	2.75	2.75	2.70	2.70	2.70	2.70	2.70
180.0	2.75	2.75	2.75	2.75	2.70	2.75	2.70	2.70	2.70
225.0	2.75	2.75	2.75	2.75	2.75	2.75	2.70	2.70	2.70
270.0	2.81	2.75	2.75	2.75	2.75	2.70	2.70	2.70	2.70
315.0	2.75	2.75	2.75	2.70	2.70	2.70	2.70	2.70	2.70
360.0	2.81	2.75	2.75	2.75	2.75	2.70	2.70	2.75	2.70

Intensity data(cd)

Appendix Page: 16 Total:16

C/ γ (°)	90.0
0.0	2.70
45.0	2.70
90.0	2.70
135.0	2.70
180.0	2.70
225.0	2.70
270.0	2.70
315.0	2.70
360.0	2.70