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Nata

LumCAT: CR01L01680150AX

Luminaire:

Report No:

Test No: GC2018022706

LampCAT: CREE XPG

Lamp flux(lm): 100.1

Number of Lamps: 1

Length(mm): 16

Phm Type: C

Voltage(V):

Current(A):

Power (W): 1.0000

PF:

Ballast type:

Width(mm): 10

Height(mm): 10

Photometric Results

Lumens(lm): 94.58

Efficiency(%): 94.50%

Lumens(lm)/Power(W): 94.58

Central intensity(cd): 29.345

Maximum intensity(cd): 41.568

Angle of maximum intensity: C=90.0 γ =60.0

Beam Angle(50%Imax): [C0/180]Total=81.2

[C90/270]Total=149.2

Field angle(10%Imax): [C0/180]Total=107.0

[C90/270]Total=155.4

Maximum s/h(1/2): C0_180=1.17 C90_270=1.84

Maximum s/h(1/4): C0_180=1.14 C90_270=2.10

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 94.50%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 78.062%

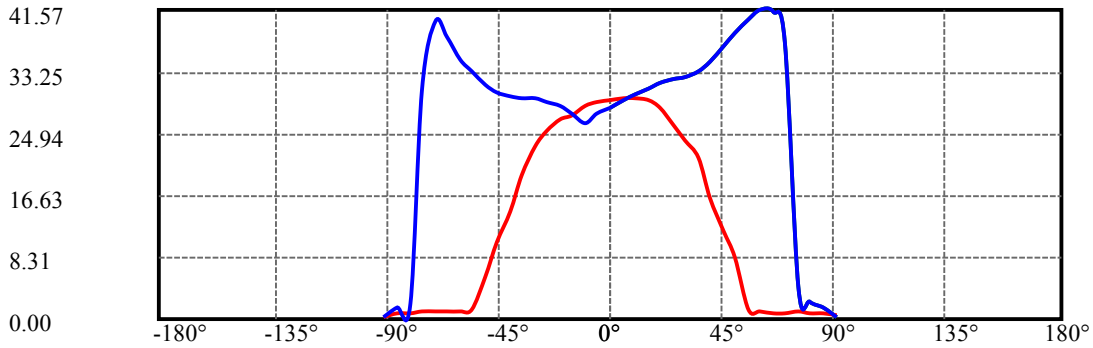
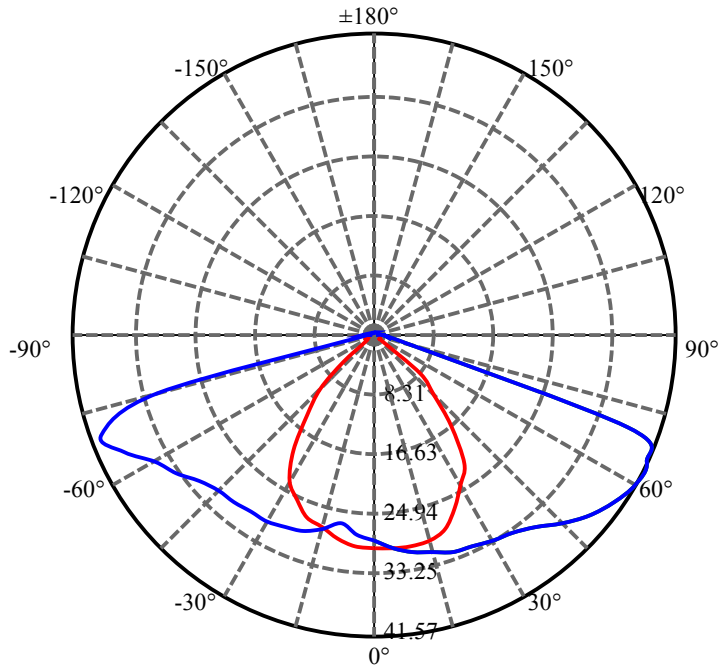
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	29.027	0.000	0	.000%	.000%
5.0	29.140	0.695	0.695	.695%	.735%
10.0	28.932	2.077	2.773	2.076%	2.932%
15.0	28.848	3.427	6.2	3.424%	6.555%
20.0	28.746	4.747	10.947	4.742%	11.574%
25.0	28.380	5.991	16.938	5.986%	17.908%
30.0	27.644	7.090	24.028	7.084%	25.405%
35.0	26.403	7.959	31.987	7.952%	33.819%
40.0	24.598	8.509	40.496	8.501%	42.816%
45.0	22.530	8.726	49.222	8.718%	52.042%
50.0	20.697	8.735	57.957	8.727%	61.277%
55.0	17.402	8.284	66.241	8.277%	70.035%
60.0	15.442	7.592	73.833	7.585%	78.062%
65.0	13.545	7.047	80.879	7.041%	85.512%
70.0	11.493	6.340	87.219	6.334%	92.216%
75.0	5.616	4.472	91.691	4.468%	96.944%
80.0	1.377	1.871	93.562	1.869%	98.922%
85.0	0.997	0.645	94.207	.644%	99.604%
90.0	0.372	0.375	94.582	.374%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	24.03	24.01%	25.40%
0-40	40.50	40.46%	42.82%
0-60	73.83	73.77%	78.06%
0-90	94.21	94.12%	99.60%
0-120	94.21	94.12%	99.60%
0-180	94.58	94.50%	100.00%
60-90	27.97	27.94%	29.57%
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%
0-61.30	75.67	75.60%	80.00%

ZONAL LUMEN SUMMARY

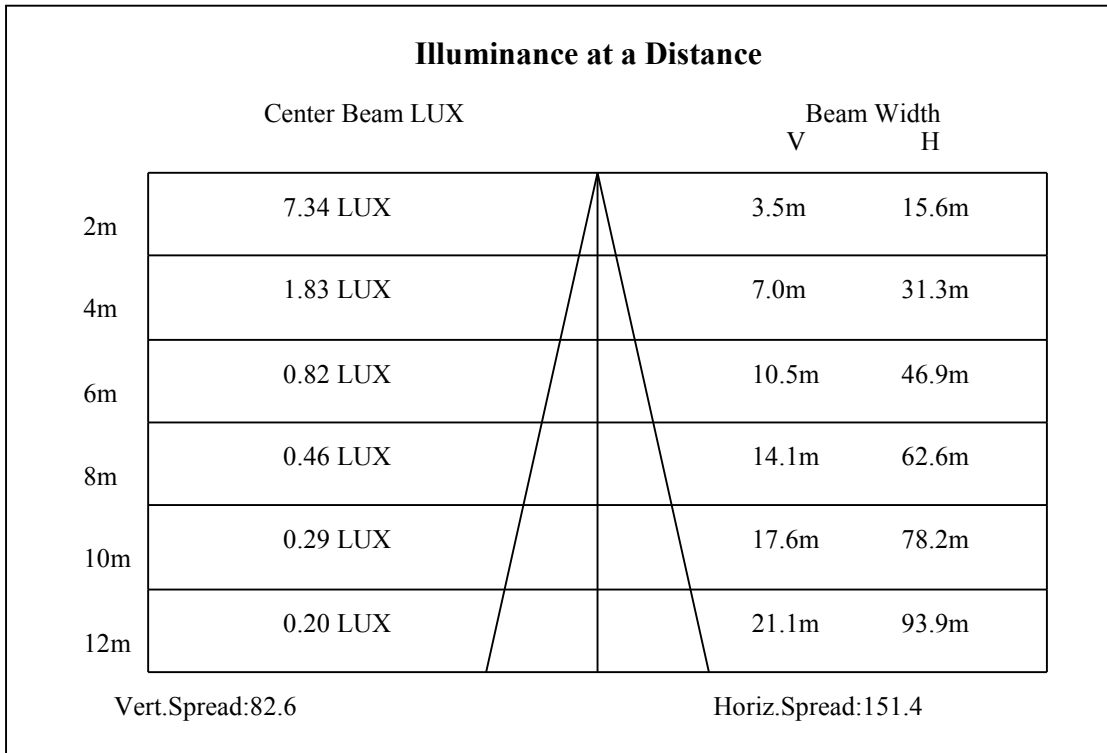
0-10	2.77
10-20	8.17
20-30	13.08
30-40	16.47
40-50	17.46
50-60	15.88
60-70	13.39
70-80	6.34
80-90	0.64
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

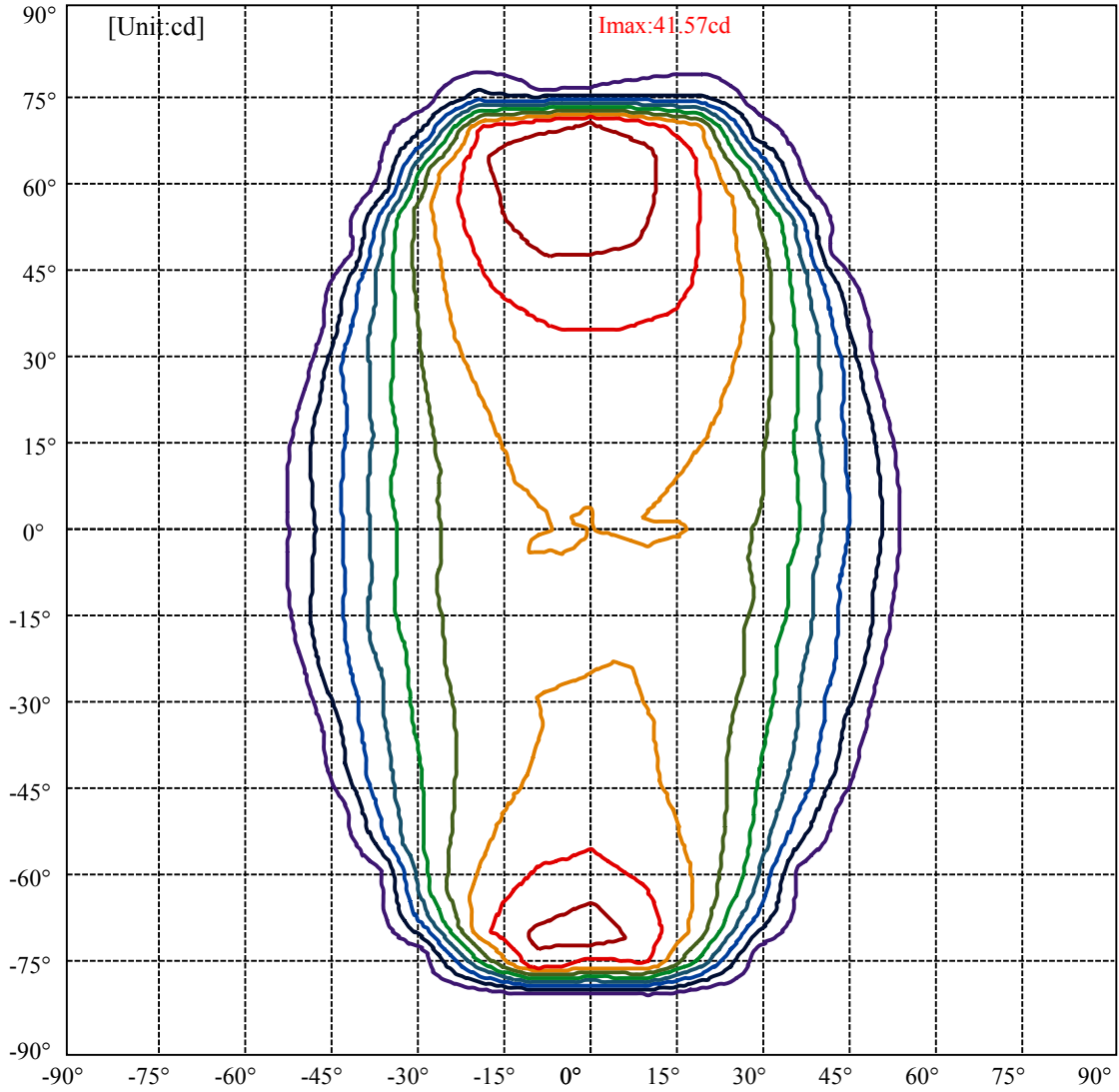


C90(Max): —
C0/C180: —
C90/C270: —

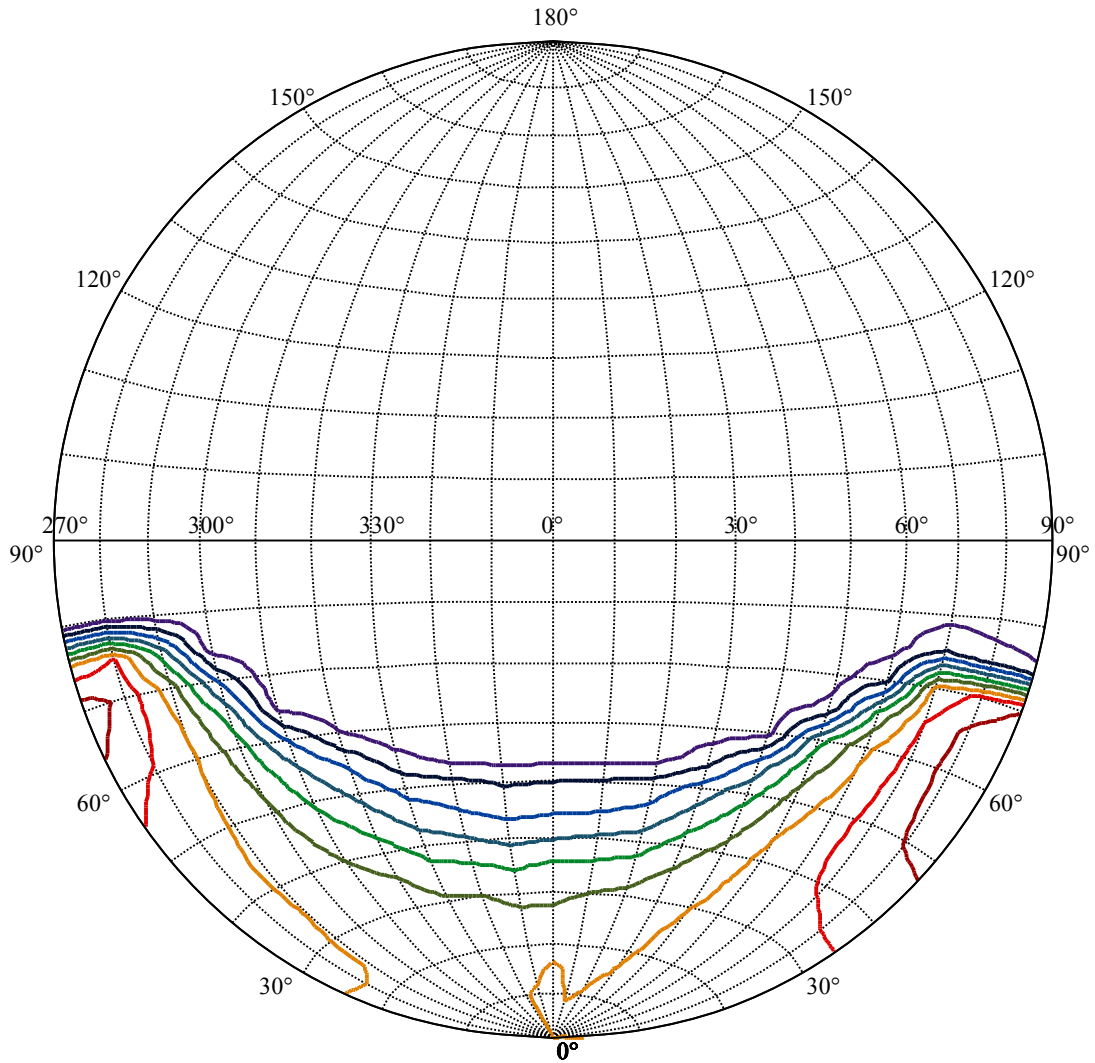
Field angle(10%Imax):C0/180Left:58.1 Right:48.8
:C90/270Left:139.6 Right:15.8

Beam Angle(50%Imax):C0/180Left:44.6 Right:36.7
:C90/270Left:136.7 Right:12.5





(10%Imax) 4.1568	—
(20%Imax) 8.3136	—
(30%Imax) 12.4704	—
(40%Imax) 16.6272	—
(50%Imax) 20.784	—
(60%Imax) 24.9408	—
(70%Imax) 29.0976	—
(80%Imax) 33.2544	—
(90%Imax) 37.4112	—



House

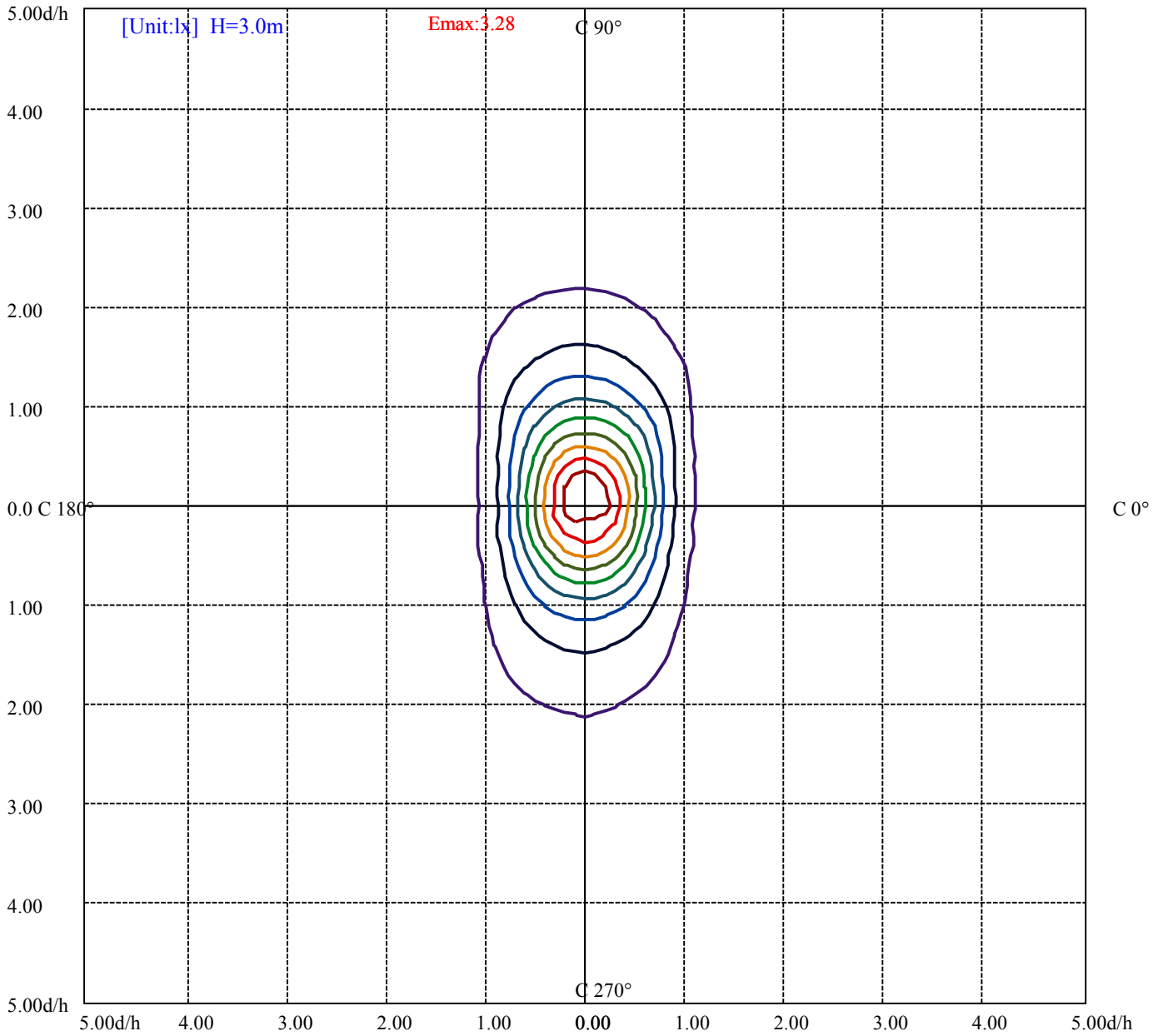
[Unit:cd]

Road

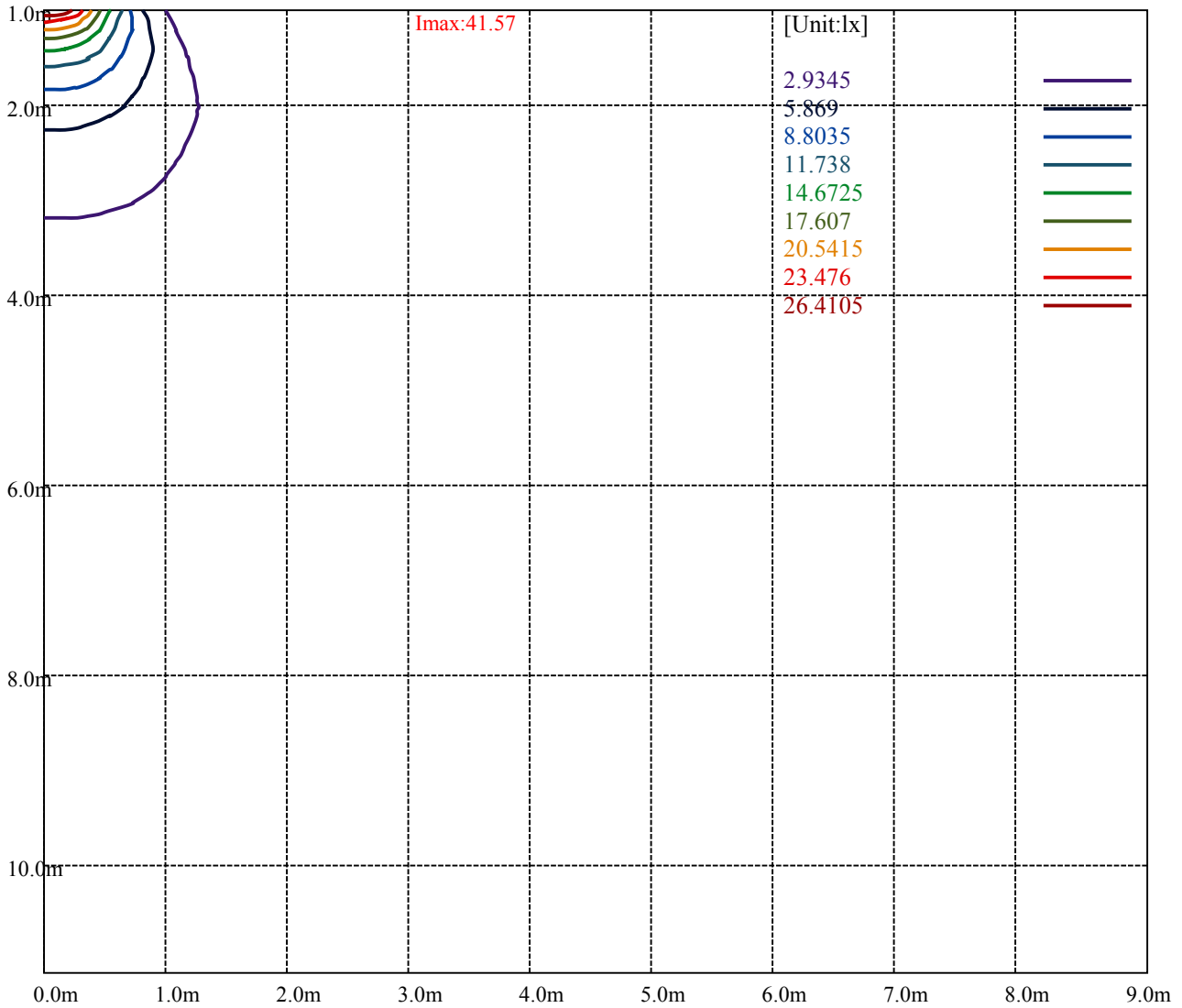
I_{max}:41.57

- (10%I_{max}) 4.1568
- (20%I_{max}) 8.3136
- (30%I_{max}) 12.4704
- (40%I_{max}) 16.6272
- (50%I_{max}) 20.784
- (60%I_{max}) 24.9408
- (70%I_{max}) 29.0976
- (80%I_{max}) 33.2544
- (90%I_{max}) 37.4112





- (10%Emax) 0.3281933
- (20%Emax) 0.6563877
- (30%Emax) 0.9845811
- (40%Emax) 1.312778
- (50%Emax) 1.640967
- (60%Emax) 1.969167
- (70%Emax) 2.297356
- (80%Emax) 2.625545
- (90%Emax) 2.953744



Luminance Table

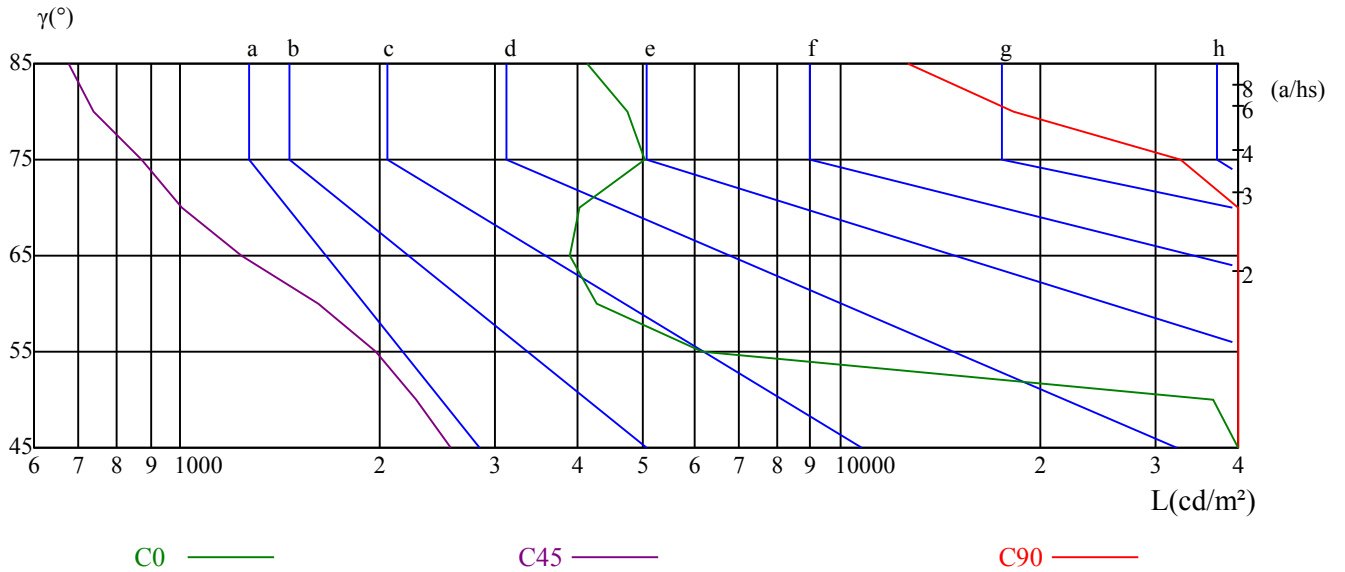
γ	45	50	55	60	65	70	75	80	85
C0	52070	36635	6175	4282	3885	4028	5057	4753	4131
C45	2570	2279	1973	1618	1239	1006	874	737	676
C90	199149	214761	232348	249504	261277	249562	32717	18311	12601

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
13029	587047	4291	24595	424114	4621	49373	104626	9555

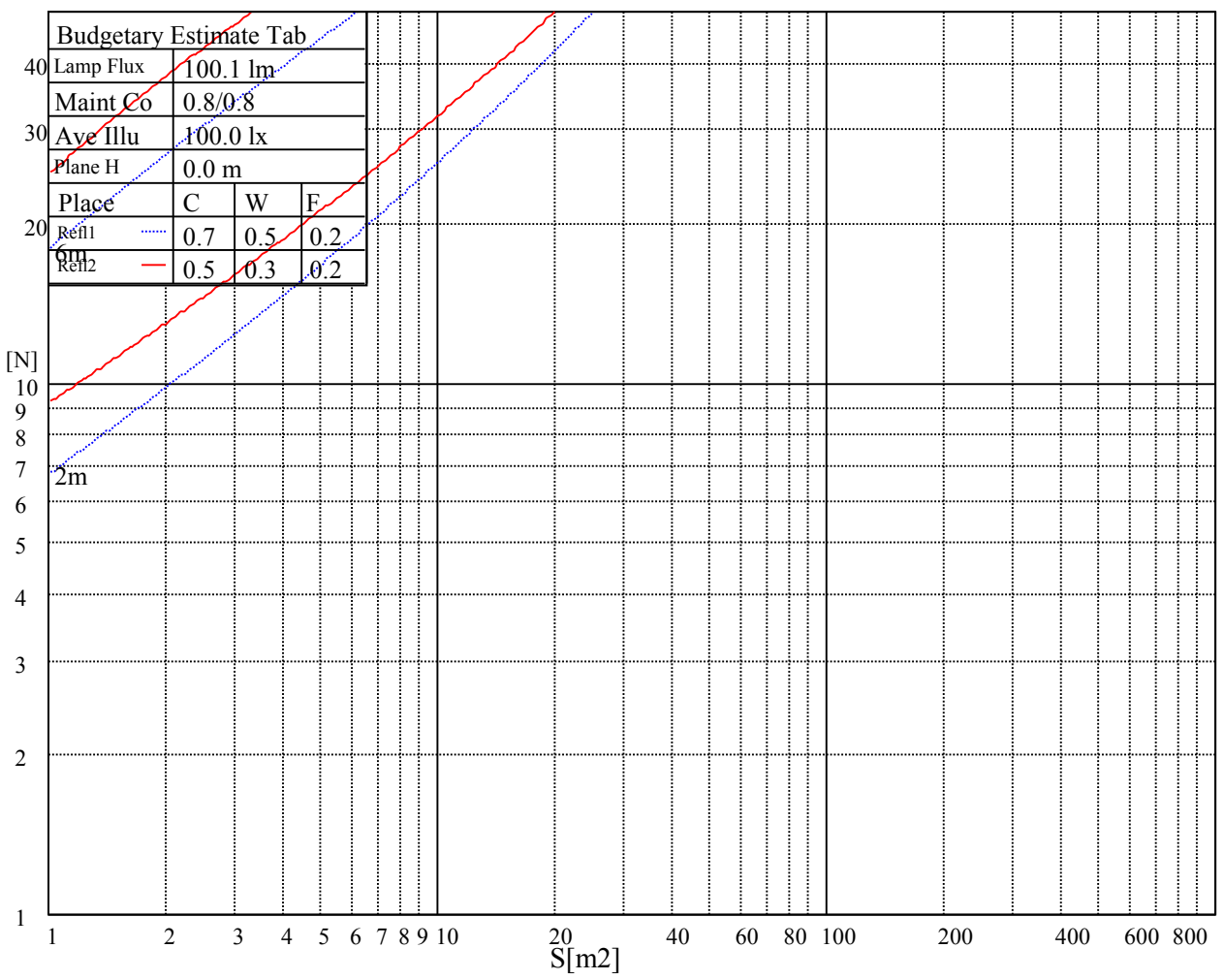
Glare Table

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

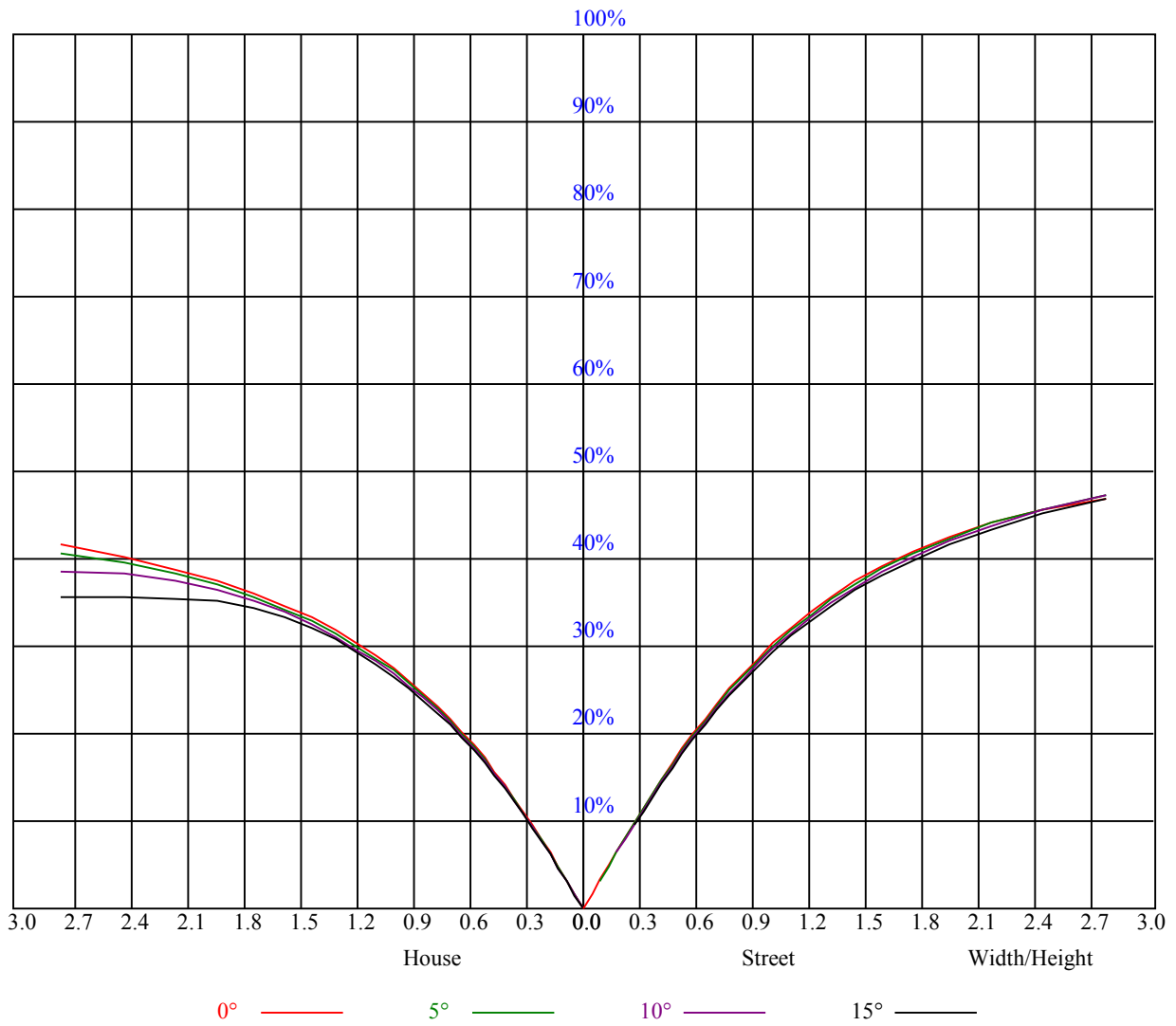
Luminance Limiting Curve



Illumination assessment according UGR											
Rf of Ceiling	70	70	50	50	30	70	70	50	50	30	
Rf of Wall	50	30	50	30	30	50	30	50	30	30	
Rf of Floor	20	20	20	20	20	20	20	20	20	20	
Room dimensions		Viewed crosswise					Viewed endwise				
X	Y										
2H	2H	41.30	42.90	41.66	43.21	43.53	20.85	22.46	21.22	22.77	23.08
	3H	44.25	45.70	44.63	46.03	46.39	21.52	22.96	21.90	23.29	23.65
	4H	44.80	46.15	45.19	46.50	46.88	22.07	23.43	22.47	23.78	24.16
	6H	44.85	46.11	45.27	46.48	46.87	22.72	23.97	23.13	24.34	24.73
	8H	44.83	46.02	45.25	46.41	46.81	23.02	24.22	23.45	24.61	25.01
	12H	44.81	45.95	45.23	46.33	46.76	23.51	24.66	23.94	25.04	25.47
4H	2H	41.11	42.47	41.51	42.82	43.20	22.99	24.35	23.39	24.70	25.08
	3H	44.14	45.27	44.55	45.67	46.07	23.51	24.64	23.92	25.04	25.44
	4H	44.72	45.74	45.15	46.16	46.59	23.95	24.97	24.38	25.38	25.82
	6H	44.81	45.69	45.26	46.13	46.59	24.44	25.33	24.89	25.77	26.22
	8H	44.78	45.61	45.24	46.05	46.52	24.75	25.58	25.21	26.02	26.49
	12H	44.76	45.51	45.24	45.98	46.45	25.19	25.93	25.67	26.41	26.88
8H	4H	44.63	45.46	45.10	45.91	46.37	26.99	27.82	27.45	28.26	28.73
	6H	44.70	45.39	45.20	45.88	46.35	27.27	27.95	27.77	28.44	28.92
	8H	44.67	45.28	45.18	45.79	46.28	27.47	28.08	27.98	28.59	29.08
	12H	44.88	45.42	45.39	45.91	46.47	27.78	28.32	28.29	28.81	29.38
12H	4H	44.61	45.35	45.09	45.83	46.30	27.33	28.07	27.81	28.55	29.02
	6H	45.64	45.29	45.19	45.75	46.29	28.59	28.24	28.14	28.70	29.24
	8H	44.65	45.19	45.16	45.68	46.24	27.86	28.39	28.36	28.88	29.45
Variation with the observer position at spacings:											
S = 1.0H	0.7/-0.5					1.5/-5.9					
S = 1.5H	1.4/-0.9					3.2/-8.3					
S = 2.0H	2.9/-2.0					4.0/-7.9					
Standard tables:	BK1					BK5					
Uncorrected UGR	16.5					8.4					



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	1.12	1.12	1.12	1.10	1.10	1.10	1.05	1.05	1.05	1.01	1.01	1.01	0.96	0.96	0.96	0.94
1	0.98	0.94	0.91	0.96	0.93	0.89	0.92	0.89	0.86	0.88	0.86	0.84	0.85	0.83	0.81	0.79
2	0.85	0.79	0.73	0.84	0.78	0.72	0.80	0.75	0.71	0.77	0.73	0.69	0.74	0.71	0.68	0.66
3	0.75	0.67	0.61	0.73	0.66	0.60	0.70	0.64	0.59	0.68	0.62	0.58	0.65	0.61	0.57	0.55
4	0.66	0.57	0.51	0.65	0.57	0.51	0.62	0.55	0.50	0.60	0.54	0.49	0.58	0.53	0.48	0.46
5	0.59	0.50	0.44	0.57	0.49	0.43	0.55	0.48	0.43	0.54	0.47	0.42	0.52	0.46	0.42	0.40
6	0.53	0.44	0.38	0.52	0.43	0.38	0.50	0.43	0.37	0.48	0.42	0.37	0.47	0.41	0.37	0.35
7	0.47	0.39	0.33	0.47	0.39	0.33	0.45	0.38	0.33	0.44	0.37	0.32	0.43	0.37	0.32	0.30
8	0.43	0.35	0.29	0.43	0.35	0.29	0.41	0.34	0.29	0.40	0.34	0.29	0.39	0.33	0.29	0.27
9	0.40	0.32	0.26	0.39	0.31	0.26	0.38	0.31	0.26	0.37	0.31	0.26	0.36	0.30	0.26	0.24
10	0.36	0.29	0.24	0.36	0.29	0.24	0.35	0.28	0.24	0.34	0.28	0.23	0.33	0.27	0.23	0.22



Intensity data(cd)

C/γ(°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	29.35	29.62	29.57	29.40	28.41	26.15	23.89	21.58	16.35
10.0	29.51	29.40	28.96	28.74	28.74	27.53	25.00	21.69	17.34
20.0	29.73	29.68	29.18	28.79	28.85	27.91	25.88	22.90	18.39
30.0	29.68	30.23	29.84	29.18	28.96	28.63	27.80	25.44	22.85
40.0	29.68	30.34	30.01	29.51	29.40	29.35	29.02	28.02	26.04
50.0	29.40	30.01	30.61	30.28	29.84	29.84	30.17	30.34	29.95
60.0	29.35	30.01	30.72	30.56	30.28	30.72	31.27	31.82	32.26
70.0	28.79	29.73	30.56	31.11	31.00	31.38	31.66	32.48	33.64
80.0	28.85	29.79	30.61	31.22	31.44	31.99	32.43	33.31	34.69
90.0	28.35	29.40	30.34	31.11	31.82	32.21	32.59	33.36	34.63
100.0	28.57	29.40	30.45	31.27	31.71	32.04	32.48	33.31	34.69
110.0	28.46	29.24	30.17	30.83	31.27	31.49	31.71	32.37	33.25
120.0	28.79	29.46	30.06	30.61	30.61	30.56	30.78	31.33	31.49
130.0	28.57	29.24	29.62	30.12	30.06	29.62	29.35	28.96	28.57
140.0	28.74	29.35	29.46	29.57	28.96	28.19	27.25	26.04	24.61
150.0	28.63	29.18	29.24	29.02	28.35	27.25	25.55	23.78	21.36
160.0	28.96	29.18	29.02	28.08	27.31	25.82	24.06	21.36	16.74
170.0	29.07	29.24	28.96	27.97	27.03	25.55	23.67	20.70	15.31
180.0	29.35	29.29	28.63	27.47	26.81	25.22	23.12	19.38	14.37
190.0	29.51	29.57	29.18	28.19	27.14	25.33	23.29	19.99	14.70
200.0	29.73	29.68	29.40	28.35	27.20	26.26	24.23	21.47	17.95
210.0	29.68	29.46	28.68	27.91	27.25	26.43	24.78	22.19	18.94
220.0	29.68	29.40	28.63	28.13	27.69	26.92	26.15	24.39	21.97
230.0	29.40	28.79	28.08	28.02	27.80	27.42	27.03	25.82	24.45
240.0	29.35	28.63	27.97	27.69	27.64	28.13	27.97	27.58	27.03
250.0	28.79	28.13	27.36	27.25	28.13	28.68	29.07	28.63	28.57
260.0	28.85	28.08	27.14	26.70	28.02	28.91	29.40	29.51	29.73
270.0	28.35	27.58	26.26	27.69	28.68	29.13	29.57	29.73	30.01
280.0	28.57	27.91	26.81	27.53	28.68	29.35	29.40	29.46	29.79
290.0	28.46	27.86	27.69	28.41	28.74	29.02	29.02	29.07	28.91
300.0	28.79	28.52	27.97	27.86	27.91	28.52	28.63	28.24	27.58
310.0	28.57	28.13	26.87	27.31	27.97	28.30	27.69	26.54	24.94
320.0	28.74	28.57	27.25	27.09	27.91	27.80	26.98	25.16	22.52
330.0	28.63	28.74	27.97	28.19	28.08	27.31	25.49	22.41	19.05
340.0	28.96	28.96	29.02	28.63	27.75	26.76	25.00	21.80	17.40
350.0	29.07	29.29	29.29	28.74	27.36	25.99	23.84	20.32	15.47
360.0	29.35	29.62	29.57	29.40	28.41	26.15	23.89	21.58	16.35

Intensity data(cd)

C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	11.78	8.26	1.38	0.94	0.83	0.83	0.99	0.88	0.72
10.0	12.22	8.75	1.82	1.38	1.16	1.10	0.99	0.94	0.88
20.0	13.54	10.02	2.09	1.43	1.21	1.16	1.05	1.05	0.99
30.0	18.39	13.93	6.44	1.87	1.38	1.21	1.16	1.10	1.10
40.0	23.34	19.44	14.09	2.70	1.82	1.38	1.21	1.27	1.27
50.0	28.74	26.59	23.51	19.11	5.23	2.42	1.71	1.32	1.32
60.0	32.04	31.27	29.57	28.24	21.97	7.87	2.59	1.82	1.16
70.0	34.47	34.85	34.80	34.25	33.31	30.23	8.70	2.59	1.82
80.0	36.34	37.60	38.37	38.87	38.54	34.19	5.73	2.53	1.49
90.0	36.61	38.54	40.36	41.57	41.35	37.11	4.52	2.31	1.43
100.0	36.50	38.54	40.03	40.80	40.69	35.02	4.35	2.20	0.33
110.0	34.80	35.90	36.83	36.78	37.33	34.25	10.02	2.75	1.87
120.0	31.71	31.49	31.49	31.49	27.47	10.96	2.75	2.04	0.77
130.0	27.47	25.93	23.62	20.15	5.34	2.31	1.43	1.05	0.44
140.0	21.75	17.95	13.87	2.09	1.32	0.94	0.77	0.72	0.50
150.0	16.63	13.65	4.35	1.32	0.83	0.66	0.55	0.55	0.50
160.0	12.39	8.86	1.49	0.99	0.72	0.61	0.55	0.50	0.44
170.0	11.07	7.65	1.43	0.99	0.88	0.83	0.72	0.61	0.55
180.0	10.41	5.62	1.38	1.10	0.94	0.94	1.05	0.77	0.66
190.0	10.79	7.54	1.27	0.94	0.83	0.88	0.83	0.88	0.83
200.0	12.72	9.53	1.54	1.05	0.88	0.83	0.88	0.94	0.99
210.0	14.32	10.85	4.57	1.16	0.88	0.88	0.88	0.94	0.99
220.0	19.16	15.31	12.00	4.02	1.16	0.99	0.94	1.05	1.10
230.0	22.57	20.32	18.00	14.87	4.18	1.49	1.16	1.27	1.16
240.0	26.37	25.60	24.61	24.01	22.57	15.03	2.15	1.54	1.16
250.0	28.68	28.96	29.51	30.45	31.88	32.04	20.59	2.04	1.49
260.0	29.90	30.89	32.04	34.14	35.79	38.48	36.17	2.53	1.82
270.0	30.45	31.44	33.31	34.85	38.04	39.97	30.61	1.98	1.49
280.0	30.01	30.72	31.38	32.92	34.58	36.06	33.42	3.25	1.71
290.0	28.74	28.85	28.91	29.13	28.85	27.09	18.66	1.76	1.27
300.0	26.54	25.49	24.23	22.41	19.16	11.89	1.71	1.21	0.77
310.0	22.74	20.21	17.23	12.28	3.14	1.21	0.88	0.88	0.77
320.0	19.11	15.69	11.84	4.52	1.05	0.83	0.66	0.61	0.61
330.0	14.87	11.12	5.56	1.16	0.77	0.61	0.55	0.55	0.50
340.0	12.88	9.86	2.26	1.05	0.77	0.66	0.61	0.55	0.50
350.0	11.07	7.87	1.32	0.94	0.83	0.83	0.66	0.61	0.55
360.0	11.78	8.26	1.38	0.94	0.83	0.83	0.99	0.88	0.72

Intensity data(cd)

C/ γ (°)	90.0
0.0	0.50
10.0	0.66
20.0	0.72
30.0	0.77
40.0	0.72
50.0	0.55
60.0	0.50
70.0	0.28
80.0	0.22
90.0	0.17
100.0	0.17
110.0	0.17
120.0	0.17
130.0	0.22
140.0	0.17
150.0	0.22
160.0	0.22
170.0	0.33
180.0	0.39
190.0	0.55
200.0	0.77
210.0	0.77
220.0	0.72
230.0	0.66
240.0	0.39
250.0	0.28
260.0	0.22
270.0	0.22
280.0	0.22
290.0	0.22
300.0	0.17
310.0	0.22
320.0	0.22
330.0	0.17
340.0	0.22
350.0	0.28
360.0	0.50