

---

AFX Inc.

---

Client:

LumCAT: 326809

Luminaire: LED Lamp

Report No:

Ballast type:

Test No:

Voltage(V): 119.970

LampCAT:

Current(A): 0.084

Lamp flux(lm): 751.4

Power (W): 9.020

Number of Lamps: 1

PF: 0.891

Length(mm): 130

Width(mm): 90

Phm Type: C

Height(mm): 240

---

### Photometric Results

---

Lumens(lm): 751.36, Efficiency(%): 100.00% , Luminous Efficacy(lm/W): 83.30

Central intensity(cd): 8.582, Maximum intensity(cd): 209.635

Angle of maximum intensity: C=45.0  $\gamma$ =90.0

Beam Angle(50%Imax): [C0/180]Total=308.2

[C90/270]Total=182.4

Field angle(10%Imax): [C0/180]Total=351.8

[C90/270]Total=180.3

Maximum s/h(1/2): C0\_180=1.82 C90\_270=5.95

Maximum s/h(1/4): C0\_180=2.43 C90\_270=5.25

Up flux rate of lamp(%): 49.33%

Down flux rate of lamp(%): 50.67%

Up flux rate of LUM(%): 49.33%

Down flux rate of LUM(%): 50.67%

CIE Type : General diffuse lighting

Output flux ratio in  $\pi$  solid angle : 22.622%

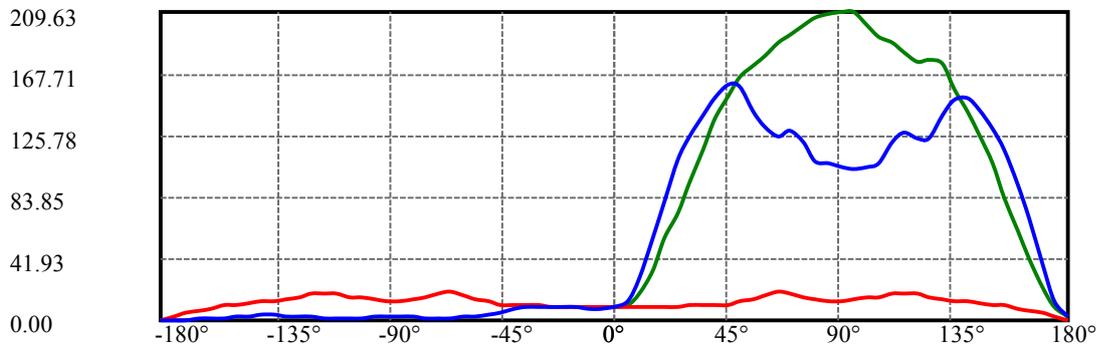
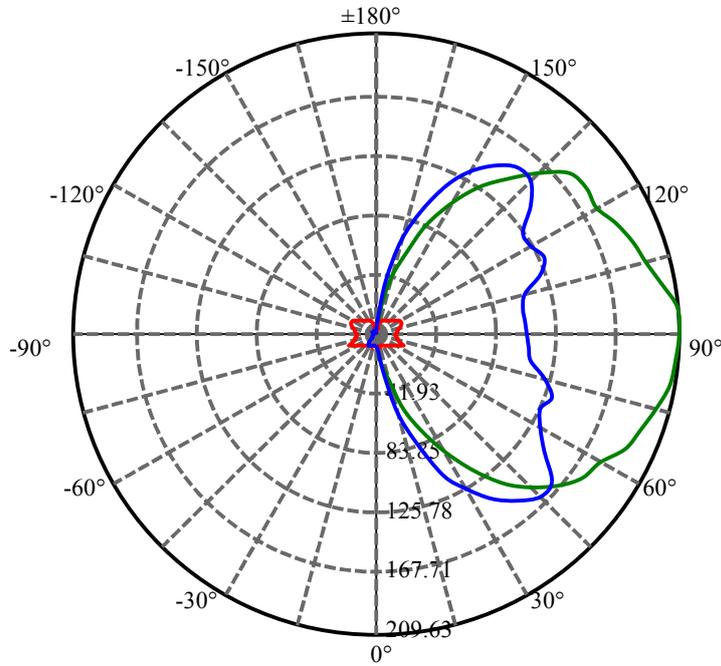
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	8.582	0.000	0	0.00%	0.00%
5.0	9.291	0.214	0.214	0.03%	0.03%
10.0	13.710	0.823	1.036	0.11%	0.14%
15.0	21.393	2.082	3.119	0.28%	0.42%
20.0	29.668	4.208	7.327	0.56%	0.98%
25.0	38.923	7.194	14.521	0.96%	1.93%
30.0	47.754	10.969	25.49	1.46%	3.39%
35.0	54.840	15.108	40.598	2.01%	5.40%
40.0	60.351	19.219	59.816	2.56%	7.96%
45.0	64.578	23.131	82.948	3.08%	11.04%
50.0	66.646	26.516	109.463	3.53%	14.57%
55.0	67.421	29.151	138.614	3.88%	18.45%
60.0	68.229	31.355	169.969	4.17%	22.62%
65.0	68.886	33.333	203.302	4.44%	27.06%
70.0	69.060	34.929	238.231	4.65%	31.71%
75.0	66.396	35.406	273.637	4.71%	36.42%
80.0	65.608	35.320	308.958	4.70%	41.12%
85.0	65.748	35.692	344.65	4.75%	45.87%
90.0	65.931	36.055	380.705	4.80%	50.67%
95.0	65.520	35.992	416.697	4.79%	55.46%
100.0	63.528	35.065	451.762	4.67%	60.13%
105.0	62.287	33.665	485.427	4.48%	64.61%
110.0	64.467	33.132	518.558	4.41%	69.02%
115.0	66.847	33.250	551.808	4.43%	73.44%
120.0	65.882	32.267	584.075	4.29%	77.74%
125.0	64.932	30.237	614.312	4.02%	81.76%
130.0	65.099	28.273	642.585	3.76%	85.52%
135.0	63.429	25.971	668.556	3.46%	88.98%
140.0	59.870	22.830	691.386	3.04%	92.02%
145.0	55.086	19.180	710.566	2.55%	94.57%
150.0	48.810	15.299	725.865	2.04%	96.61%
155.0	40.176	11.261	737.127	1.50%	98.11%
160.0	30.262	7.388	744.514	0.98%	99.09%
165.0	21.059	4.230	748.744	0.56%	99.65%
170.0	11.884	1.954	750.698	0.26%	99.91%
175.0	4.695	0.593	751.291	0.08%	99.99%
180.0	1.151	0.070	751.361	0.01%	100.00%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	25.49	3.39%	3.39%
0-40	59.82	7.96%	7.96%
0-60	169.97	22.62%	22.62%
0-90	380.70	50.67%	50.67%
0-120	584.07	77.74%	77.74%
0-180	751.36	100.00%	100.00%
60-90	210.74	28.05%	28.05%
90-120	203.37	27.07%	27.07%
90-130	261.88	34.85%	34.85%
90-150	345.16	45.94%	45.94%
90-180	370.59	49.32%	49.32%
0-122.81	601.09	80.00%	80.00%

ZONAL LUMEN SUMMARY

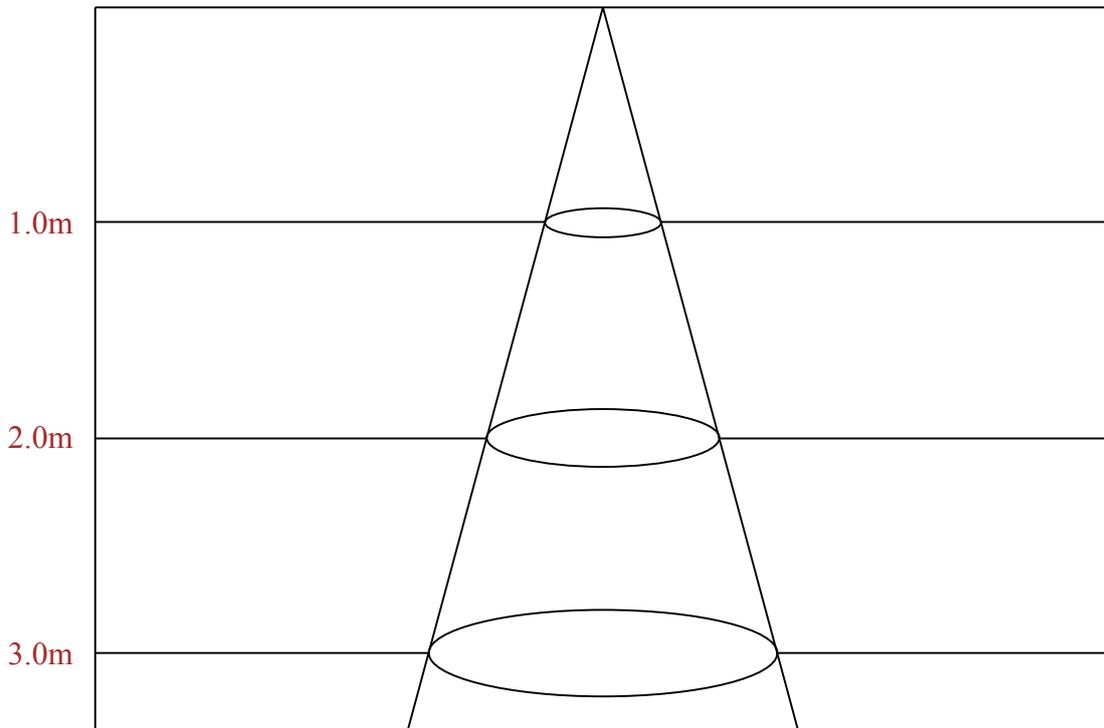
0-10	1.04
10-20	6.29
20-30	18.16
30-40	34.33
40-50	49.65
50-60	60.51
60-70	68.26
70-80	70.73
80-90	71.75
90-100	71.06
100-110	66.80
110-120	65.52
120-130	58.51
130-140	48.80
140-150	34.48
150-160	18.65
160-170	6.18
170-180	0.59



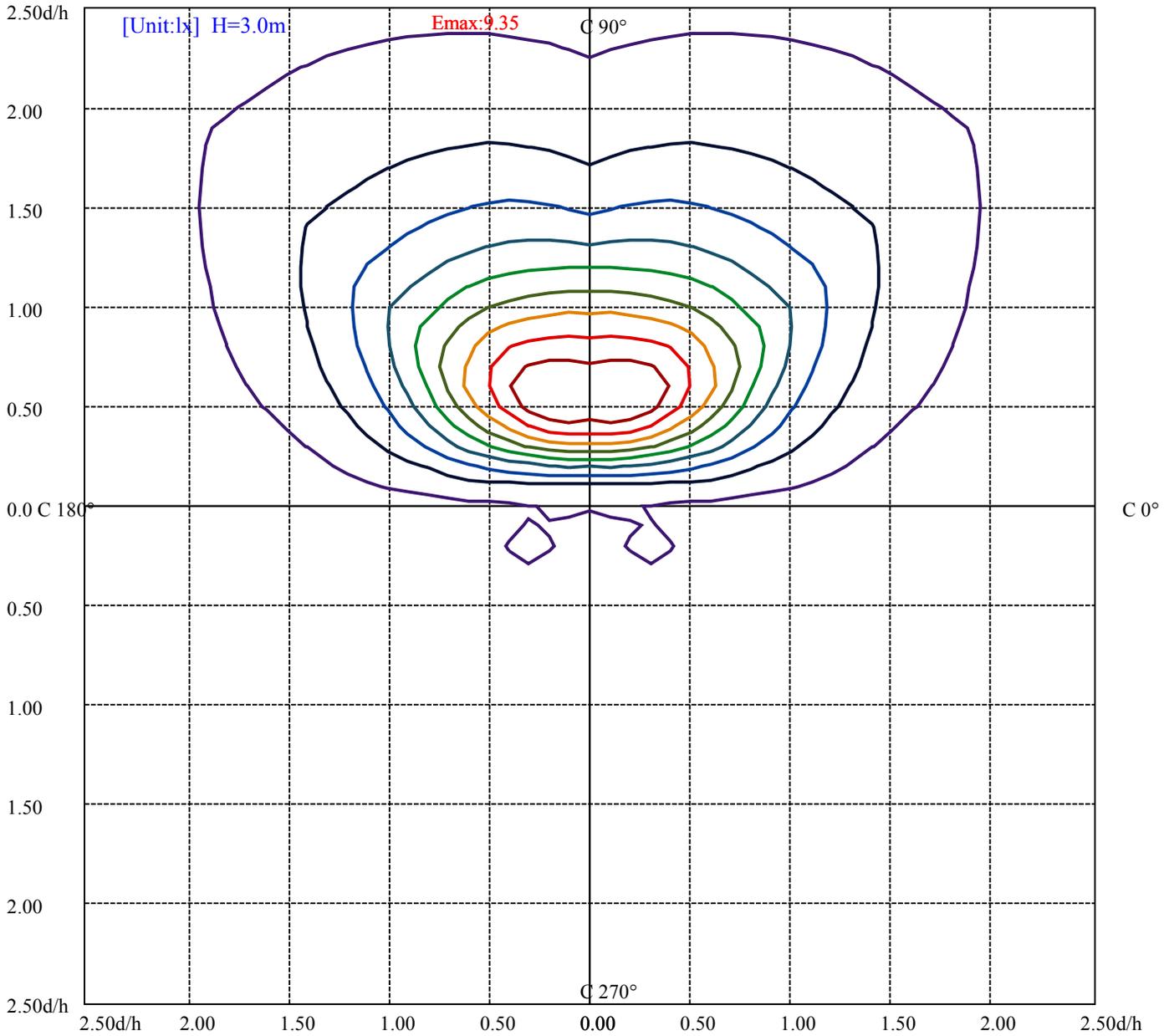
C45(Max): —  
 C0/C180: —  
 C90/C270: —

Field angle(10%Imax):C0/180Left:175.9 Right:175.9  
 :C90/270Left:6.0 Right:174.3

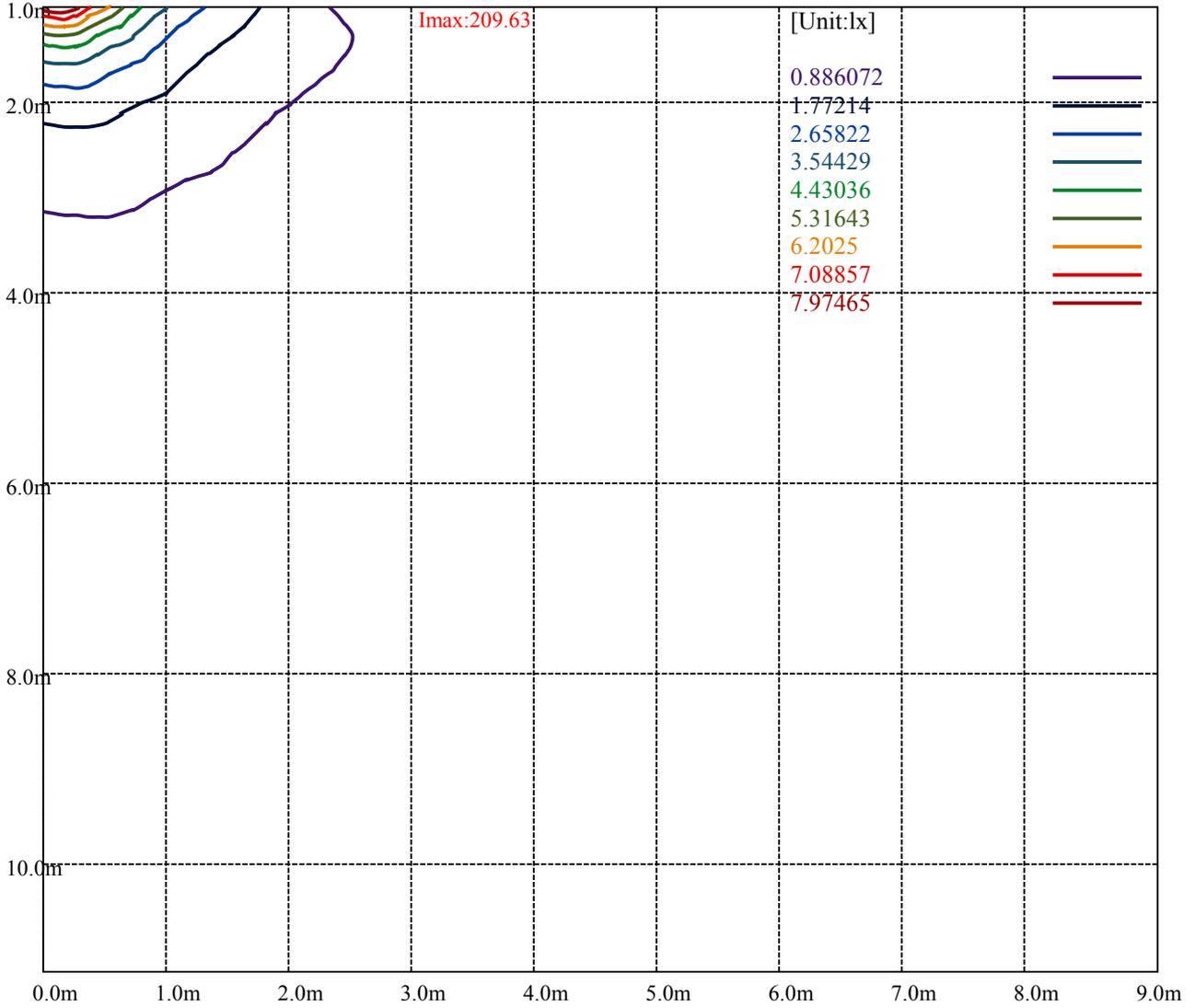
Beam Angle(50%Imax):C0/180Left:154.1 Right:154.1  
 :C90/270Left:19.8 Right:162.6



Max , Ave      Beam angle of C45 plane 338.69



(10%Emax) 0.9348089	—
(20%Emax) 1.869622	—
(30%Emax) 2.804422	—
(40%Emax) 3.739233	—
(50%Emax) 4.674044	—
(60%Emax) 5.608855	—
(70%Emax) 6.543655	—
(80%Emax) 7.478467	—
(90%Emax) 8.413278	—



Luminance Limiting Curve(no luminous side)

Luminance Table

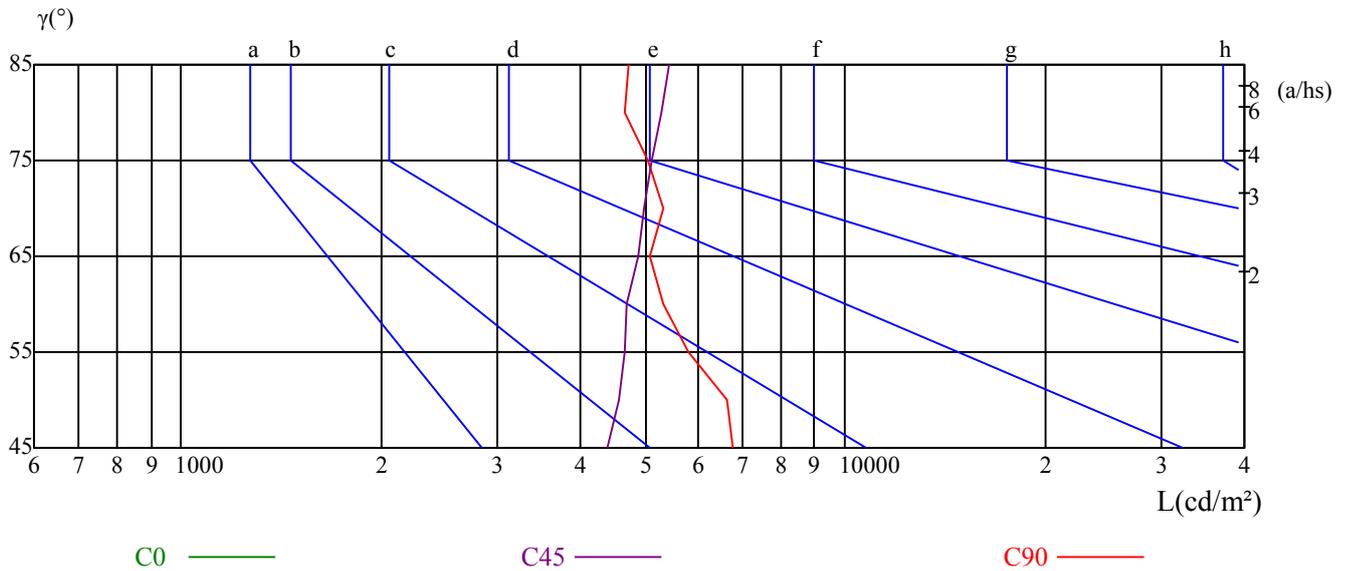
$\gamma$	45	50	55	60	65	70	75	80	85
C0	363	395	445	515	599	546	473	444	423
C45	4376	4570	4659	4704	4884	4980	5116	5301	5450
C90	6801	6626	5800	5331	5084	5309	5060	4662	4712

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4023	12788	20208	5178	20258	34473	13312	53085	106189

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	1.07	1.07	1.07	0.99	0.99	0.99	0.84	0.84	0.84	0.70	0.70	0.70	0.57	0.57	0.57	0.51
1	0.87	0.81	0.76	0.79	0.74	0.70	0.66	0.62	0.58	0.54	0.51	0.48	0.42	0.40	0.38	0.33
2	0.73	0.65	0.58	0.67	0.59	0.53	0.55	0.49	0.44	0.44	0.40	0.36	0.34	0.31	0.28	0.23
3	0.62	0.53	0.46	0.57	0.49	0.42	0.47	0.40	0.35	0.37	0.32	0.28	0.29	0.25	0.22	0.17
4	0.54	0.44	0.37	0.49	0.41	0.34	0.40	0.34	0.28	0.32	0.27	0.23	0.25	0.21	0.17	0.13
5	0.47	0.38	0.31	0.43	0.35	0.28	0.35	0.29	0.23	0.28	0.23	0.19	0.22	0.17	0.14	0.11
6	0.42	0.32	0.26	0.38	0.30	0.24	0.31	0.25	0.20	0.25	0.20	0.16	0.19	0.15	0.12	0.09
7	0.37	0.28	0.22	0.34	0.26	0.20	0.28	0.21	0.17	0.22	0.17	0.13	0.17	0.13	0.10	0.07
8	0.34	0.25	0.19	0.31	0.23	0.17	0.25	0.19	0.14	0.20	0.15	0.11	0.16	0.11	0.08	0.06
9	0.30	0.22	0.16	0.28	0.20	0.15	0.23	0.17	0.12	0.18	0.13	0.10	0.14	0.10	0.07	0.05
10	0.28	0.20	0.14	0.25	0.18	0.13	0.21	0.15	0.11	0.17	0.12	0.09	0.13	0.09	0.06	0.04

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	8.58	8.66	8.97	9.52	9.28	9.28	10.45	10.38	10.53
15.0	8.58	8.75	9.74	13.04	16.09	21.29	27.73	35.07	39.44
30.0	8.58	8.92	12.75	21.07	31.69	47.75	61.01	76.73	91.68
45.0	8.58	10.19	18.06	32.72	55.96	73.21	95.03	119.34	141.69
60.0	8.58	11.14	24.38	44.74	70.02	97.05	123.62	149.36	160.23
75.0	8.58	12.13	27.14	54.38	78.45	106.99	133.67	142.91	153.17
90.0	8.58	12.64	28.95	56.40	81.10	109.02	124.86	139.76	151.17
105.0	8.58	12.17	28.01	53.75	80.25	108.26	138.63	147.40	156.36
120.0	8.58	11.47	25.37	47.11	70.52	99.72	122.29	143.47	158.95
135.0	8.58	10.52	19.01	35.07	54.72	73.18	93.39	112.58	131.04
150.0	8.58	9.20	14.24	21.94	32.12	46.27	61.75	76.35	84.58
165.0	8.58	9.09	10.20	13.77	15.63	21.24	28.29	35.26	41.72
180.0	8.58	9.21	9.75	9.36	8.89	9.21	9.28	9.44	10.14
195.0	8.58	7.92	8.91	9.74	10.31	11.22	11.64	11.80	11.39
210.0	8.58	8.58	8.41	9.77	11.13	11.73	11.13	10.71	10.79
225.0	8.58	8.05	8.67	9.83	10.82	11.17	11.35	11.44	11.44
240.0	8.58	7.94	8.58	9.13	9.77	9.86	10.41	11.32	12.05
255.0	8.58	8.12	8.40	8.77	8.77	8.86	9.51	9.79	9.79
270.0	8.58	8.02	8.30	8.68	8.49	8.68	8.86	9.24	7.92
285.0	8.58	8.02	8.20	8.58	8.58	8.77	9.24	9.34	9.24
300.0	8.58	7.84	8.40	8.58	9.14	9.33	9.79	10.91	11.57
315.0	8.58	7.94	8.31	9.04	10.06	10.61	11.44	11.53	12.18
330.0	8.58	8.58	7.87	9.11	10.62	11.32	11.32	10.97	10.88
345.0	8.58	7.90	8.41	9.35	9.60	10.11	11.39	11.05	10.45
360.0	8.58	8.66	8.97	9.52	9.28	9.28	10.45	10.38	10.53
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	10.45	11.62	13.34	15.45	17.40	17.48	15.76	14.98	14.59
15.0	47.61	52.23	55.95	59.66	59.41	61.06	60.57	61.48	63.13
30.0	96.27	102.47	107.91	112.24	117.09	114.71	117.00	121.00	121.51
45.0	155.73	167.61	181.29	181.20	189.16	193.00	191.22	196.13	197.92
60.0	170.27	171.82	171.82	171.64	180.31	185.06	174.19	173.01	174.74
75.0	163.06	161.94	165.95	166.88	158.67	152.24	126.77	109.89	106.06
90.0	160.13	159.47	141.55	130.90	124.67	129.01	120.90	108.64	106.19
105.0	165.70	166.07	170.22	168.53	162.21	156.17	129.58	109.30	106.19
120.0	166.88	177.42	179.29	183.58	185.63	183.58	178.82	188.15	188.71
135.0	147.74	162.50	166.19	178.00	189.63	196.28	208.73	215.19	218.61
150.0	93.16	99.53	105.46	108.56	109.44	114.93	119.35	126.16	131.21
165.0	48.26	50.13	48.77	53.45	56.08	57.61	58.20	58.80	58.37
180.0	11.55	13.18	15.37	18.41	22.39	18.88	15.60	14.12	12.56
195.0	10.73	10.31	10.40	10.31	10.23	10.73	11.30	11.47	11.39
210.0	11.13	11.47	11.64	12.07	12.41	12.41	12.58	13.00	13.00
225.0	11.53	11.71	11.89	11.35	10.28	9.30	8.85	8.67	8.67
240.0	13.60	11.96	9.31	6.94	4.93	4.20	4.11	4.02	4.11
255.0	7.37	4.85	3.17	2.33	1.96	1.96	1.87	2.05	2.15
270.0	5.38	3.58	2.64	2.07	1.79	1.70	1.79	1.98	2.07
285.0	6.88	4.62	3.21	2.36	1.89	1.79	1.79	1.98	2.07
300.0	13.25	12.13	9.89	8.58	5.60	4.48	4.29	4.38	4.38
315.0	12.37	12.27	11.90	11.44	10.61	9.60	8.77	8.12	7.94
330.0	10.88	11.06	11.50	12.03	12.21	12.21	12.03	12.12	11.86
345.0	9.94	9.52	9.43	9.52	9.26	9.09	9.43	9.94	10.54
360.0	10.45	11.62	13.34	15.45	17.40	17.48	15.76	14.98	14.59

Intensity data(cd)

C/γ(°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	14.12	13.57	14.04	14.82	15.53	16.23	17.48	16.77	15.68
15.0	68.57	71.96	67.66	63.13	63.29	61.06	59.33	57.60	58.01
30.0	128.64	135.87	127.79	121.25	120.91	114.62	110.97	107.32	100.01
45.0	201.58	210.08	204.98	198.28	192.91	185.40	181.11	176.02	177.09
60.0	169.99	168.72	168.17	166.43	166.62	175.84	174.74	167.80	170.27
75.0	105.03	103.92	103.17	103.17	123.50	154.29	158.95	163.99	166.13
90.0	104.21	102.89	103.64	106.38	121.09	127.79	123.35	123.16	139.67
105.0	105.06	104.21	103.55	104.21	119.49	148.53	152.21	151.55	153.81
120.0	186.28	177.70	168.84	165.76	165.57	170.05	166.23	156.62	156.71
135.0	217.68	208.83	195.81	188.25	184.93	179.85	170.71	179.02	171.08
150.0	130.32	124.13	118.47	115.37	117.85	111.39	110.59	106.61	102.63
165.0	59.14	56.25	53.96	53.36	56.50	58.12	56.59	55.82	55.65
180.0	13.18	16.15	16.77	17.63	20.21	21.30	18.49	15.21	13.42
195.0	11.55	11.39	10.81	10.23	10.40	9.98	9.98	9.98	10.48
210.0	12.66	12.41	11.98	11.56	11.30	10.62	10.37	10.45	10.28
225.0	8.94	9.03	9.39	9.65	10.28	10.82	10.46	9.57	9.30
240.0	4.11	4.11	4.47	4.47	5.02	5.66	6.21	6.94	6.66
255.0	2.15	2.15	2.05	2.15	2.15	2.33	2.61	3.08	3.73
270.0	2.17	1.98	1.89	1.79	1.70	1.70	1.98	2.36	2.92
285.0	2.07	1.98	1.89	1.89	1.98	2.17	2.45	2.83	3.87
300.0	4.38	4.57	4.66	4.57	5.41	6.16	7.09	7.56	7.37
315.0	7.94	8.31	8.77	9.69	10.24	10.61	10.43	10.15	10.15
330.0	11.50	11.94	12.21	11.68	11.50	11.06	10.17	9.56	9.11
345.0	11.05	10.37	9.69	9.18	8.84	8.75	8.67	8.41	8.33
360.0	14.12	13.57	14.04	14.82	15.53	16.23	17.48	16.77	15.68
C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	14.36	13.81	12.09	10.77	10.06	8.97	7.41	5.62	3.51
15.0	57.10	49.76	42.33	34.66	25.66	17.58	12.71	8.58	5.20
30.0	97.37	85.22	82.17	69.08	55.06	40.87	23.62	13.93	6.88
45.0	163.23	145.27	125.42	105.75	81.35	59.00	41.84	22.97	8.76
60.0	173.01	162.14	148.45	133.48	107.09	83.35	56.24	29.49	10.68
75.0	161.28	153.35	143.65	137.03	124.16	90.95	64.92	36.01	12.22
90.0	150.14	151.64	143.35	130.52	115.34	92.42	68.37	38.19	12.54
105.0	152.96	152.78	140.80	127.31	112.32	87.23	64.88	35.93	11.79
120.0	155.41	158.58	151.49	140.57	109.51	82.18	54.38	28.92	10.45
135.0	152.72	138.23	126.79	106.49	85.73	63.58	40.51	21.22	8.49
150.0	97.14	92.10	82.90	68.74	51.67	36.19	23.53	13.89	6.28
165.0	54.04	45.54	39.43	32.29	24.22	17.16	12.32	8.07	4.59
180.0	12.56	12.01	11.47	10.53	9.52	7.41	5.93	3.82	1.33
195.0	10.89	10.56	9.90	8.50	6.68	5.53	4.87	2.89	0.91
210.0	9.60	9.18	8.84	8.41	6.29	4.59	3.40	2.04	0.59
225.0	9.03	7.87	7.51	6.17	5.10	3.49	2.50	1.43	0.36
240.0	5.84	5.57	5.02	4.47	3.56	2.28	1.37	0.73	0.18
255.0	4.01	3.73	3.26	3.17	2.43	1.40	0.65	0.28	0.09
270.0	3.87	3.58	3.21	2.64	1.70	1.13	0.66	0.28	0.19
285.0	4.34	3.96	3.68	3.21	2.73	1.70	0.94	0.57	0.47
300.0	7.00	6.53	5.41	4.94	4.10	3.08	2.05	1.31	0.93
315.0	9.14	8.31	7.66	6.83	5.91	4.43	3.14	2.21	1.57
330.0	8.85	8.49	8.40	8.14	7.25	5.31	4.07	3.01	2.03
345.0	8.41	8.67	8.84	7.73	6.80	6.46	5.10	3.82	2.63
360.0	14.36	13.81	12.09	10.77	10.06	8.97	7.41	5.62	3.51

Intensity data(cd)

C/γ(°)	180.0
0.0	0.31
15.0	1.16
30.0	1.70
45.0	2.23
60.0	2.74
75.0	2.99
90.0	3.21
105.0	3.11
120.0	2.99
135.0	2.86
150.0	2.39
165.0	1.95
180.0	0.00
195.0	0.00
210.0	0.00
225.0	0.00
240.0	0.00
255.0	0.00
270.0	0.00
285.0	0.00
300.0	0.00
315.0	0.00
330.0	0.00
345.0	0.00
360.0	0.31