
ZhongShan Halcon Lighting & Electrical Co., Ltd

Client:

LumCAT: HG-L203-404F-40W

Luminaire: LED lamp

Report No:

Ballast type:

Test No:

Voltage(V): 120.010

LampCAT:

Current(A): 0.319

Lamp flux(lm): 5187.4

Power (W): 37.460

Number of Lamps: 1

PF: 0.978

Length(mm): 1160

Width(mm): 170

Phm Type: C

Height(mm): 70

Photometric Results

Lumens(lm): 5187.40, Efficiency(%): 100.00% , Luminous Efficacy(lm/W): 138.48

Central intensity(cd): 7976.551, Maximum intensity(cd): 7976.551

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=45.2

[C90/270]Total=34.2

Field angle(10%Imax): [C0/180]Total=87.4

[C90/270]Total=66.8

Maximum s/h(1/2): C0_180=0.71 C90_270=0.56

Maximum s/h(1/4): C0_180=0.75 C90_270=0.58

Up flux rate of lamp(%): 2.83%

Down flux rate of lamp(%): 97.17%

Up flux rate of LUM(%): 2.83%

Down flux rate of LUM(%): 97.17%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 90.025%

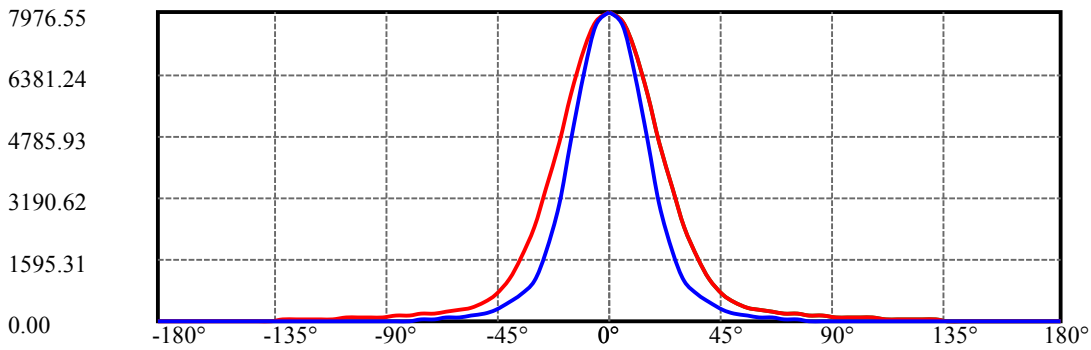
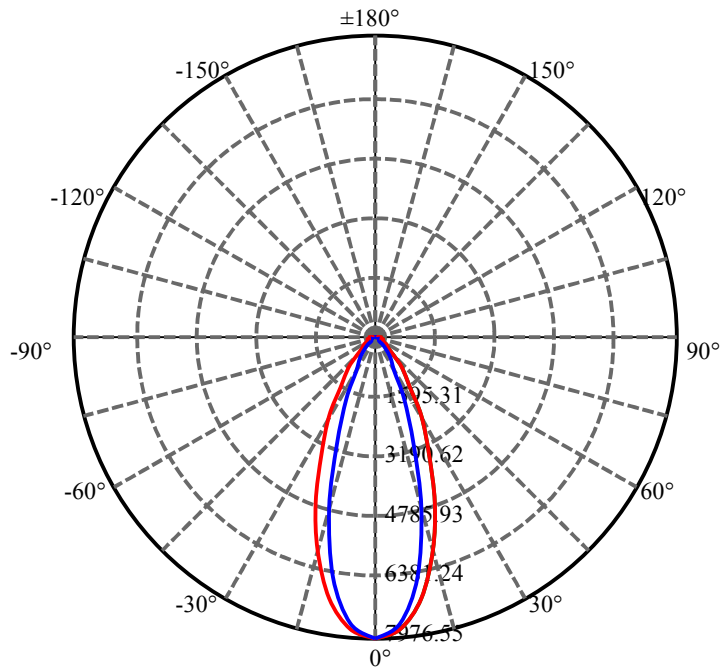
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	7976.551	0.000	0	0.00%	0.00%
5.0	7644.940	186.750	186.75	3.60%	3.60%
10.0	6689.500	512.788	699.538	9.89%	13.49%
15.0	5278.115	709.911	1409.449	13.69%	27.17%
20.0	3797.305	747.942	2157.391	14.42%	41.59%
25.0	2524.846	663.077	2820.468	12.78%	54.37%
30.0	1650.810	528.433	3348.901	10.19%	64.56%
35.0	1056.532	398.675	3747.576	7.69%	72.24%
40.0	703.006	293.566	4041.142	5.66%	77.90%
45.0	485.478	220.058	4261.2	4.24%	82.15%
50.0	346.673	168.148	4429.348	3.24%	85.39%
55.0	261.279	132.189	4561.537	2.55%	87.93%
60.0	207.725	108.409	4669.946	2.09%	90.02%
65.0	170.983	92.065	4762.011	1.77%	91.80%
70.0	140.540	78.880	4840.89	1.52%	93.32%
75.0	112.468	66.132	4907.022	1.27%	94.59%
80.0	88.904	53.882	4960.904	1.04%	95.63%
85.0	72.418	43.835	5004.739	0.85%	96.48%
90.0	59.479	36.115	5040.854	0.70%	97.17%
95.0	50.859	30.211	5071.065	0.58%	97.76%
100.0	41.967	25.223	5096.288	0.49%	98.24%
105.0	31.173	19.570	5115.858	0.38%	98.62%
110.0	23.163	14.203	5130.061	0.27%	98.89%
115.0	19.375	10.771	5140.832	0.21%	99.10%
120.0	17.186	8.888	5149.72	0.17%	99.27%
125.0	14.389	7.299	5157.018	0.14%	99.41%
130.0	11.456	5.620	5162.638	0.11%	99.52%
135.0	9.102	4.154	5166.792	0.08%	99.60%
140.0	8.695	3.295	5170.087	0.06%	99.67%
145.0	9.801	3.086	5173.173	0.06%	99.73%
150.0	11.200	3.093	5176.266	0.06%	99.79%
155.0	12.864	3.045	5179.311	0.06%	99.84%
160.0	13.898	2.807	5182.118	0.05%	99.90%
165.0	14.122	2.309	5184.427	0.04%	99.94%
170.0	14.235	1.682	5186.109	0.03%	99.98%
175.0	14.605	1.032	5187.141	0.02%	99.99%
180.0	7.487	0.264	5187.405	0.01%	100.00%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	3348.90	64.56%	64.56%
0-40	4041.14	77.90%	77.90%
0-60	4669.95	90.02%	90.02%
0-90	5040.85	97.17%	97.17%
0-120	5149.72	99.27%	99.27%
0-180	5187.40	100.00%	100.00%
60-90	370.91	7.15%	7.15%
90-120	108.87	2.10%	2.10%
90-130	121.78	2.35%	2.35%
90-150	135.41	2.61%	2.61%
90-180	146.29	2.82%	2.82%
0-42.47	4149.92	80.00%	80.00%

ZONAL LUMEN SUMMARY

0-10	699.54
10-20	1457.85
20-30	1191.51
30-40	692.24
40-50	388.21
50-60	240.60
60-70	170.94
70-80	120.01
80-90	79.95
90-100	55.43
100-110	33.77
110-120	19.66
120-130	12.92
130-140	7.45
140-150	6.18
150-160	5.85
160-170	3.99
170-180	1.03



C0(Max): ———

C0/C180: ———

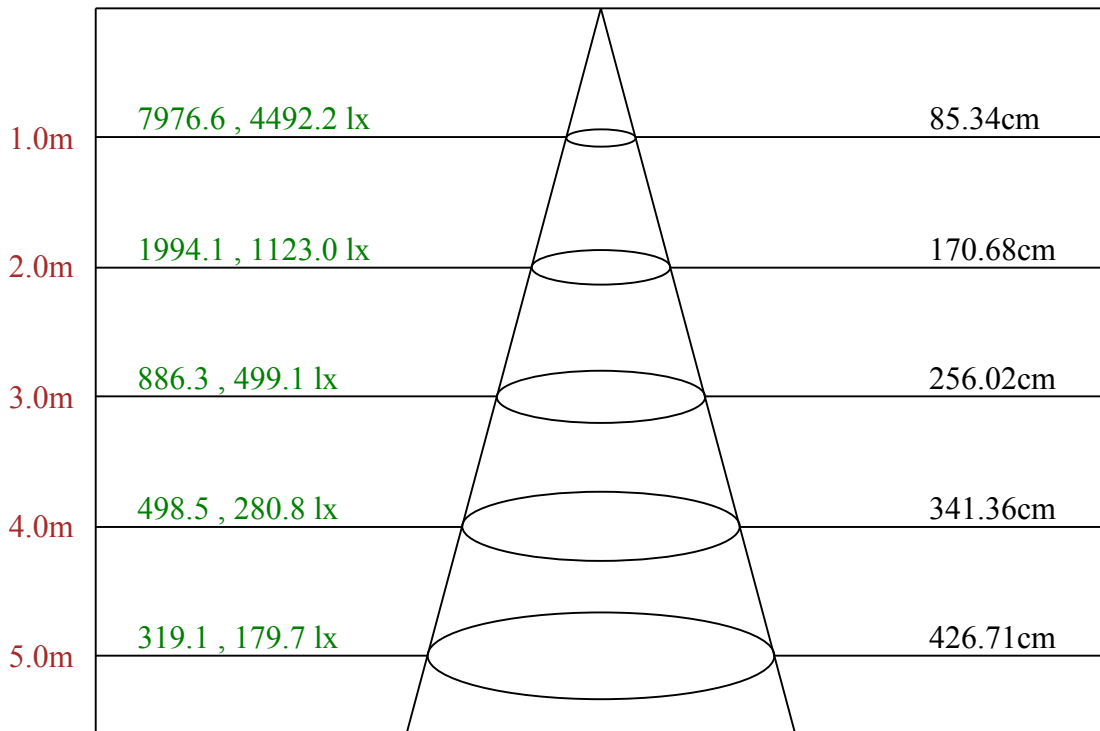
C90/C270: ———

Field angle(10%Imax):C0/180Left:43.7 Right:43.7

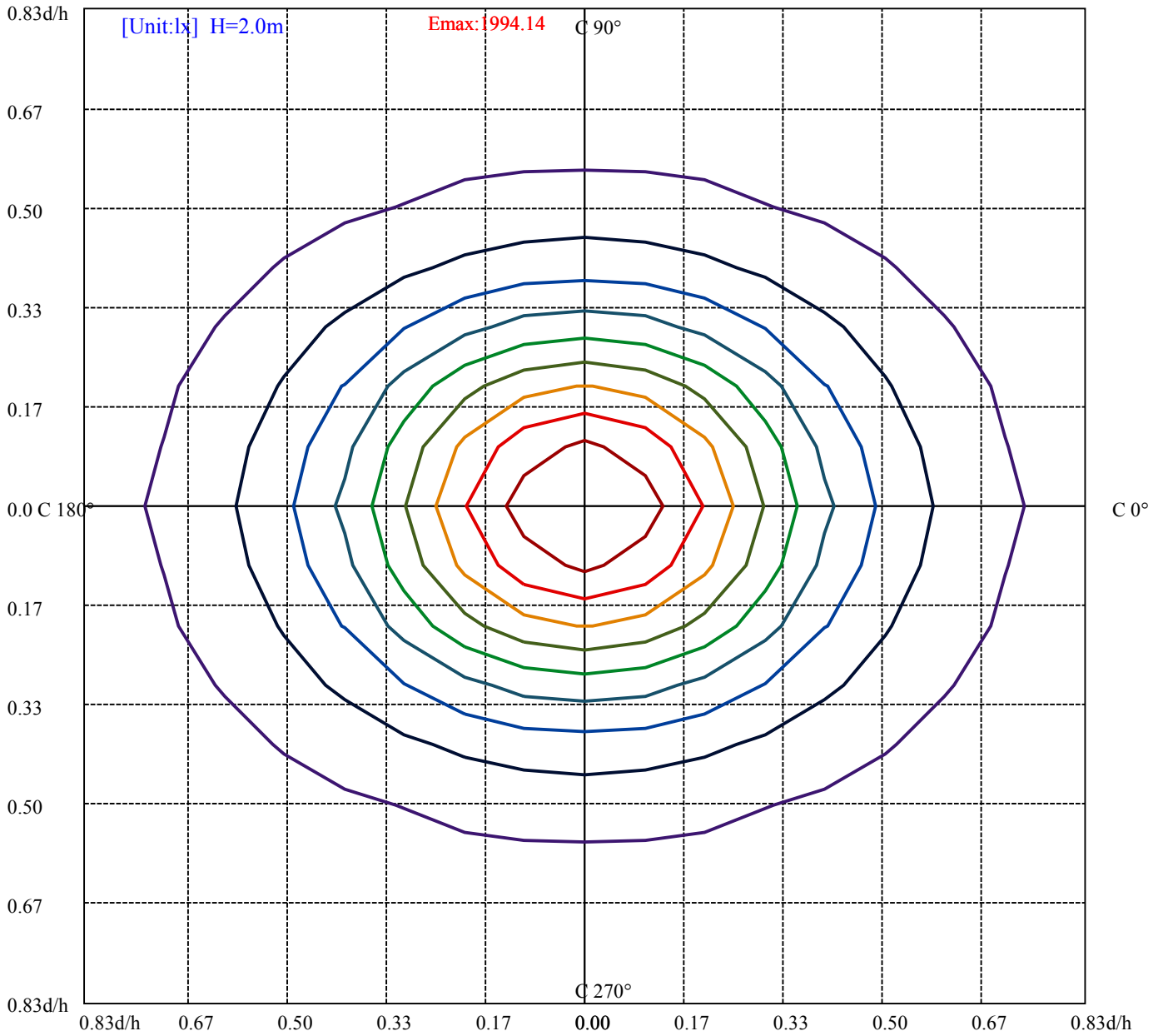
:C90/270Left:33.4 Right:33.4

Beam Angle(50%Imax):C0/180Left:22.6 Right:22.6

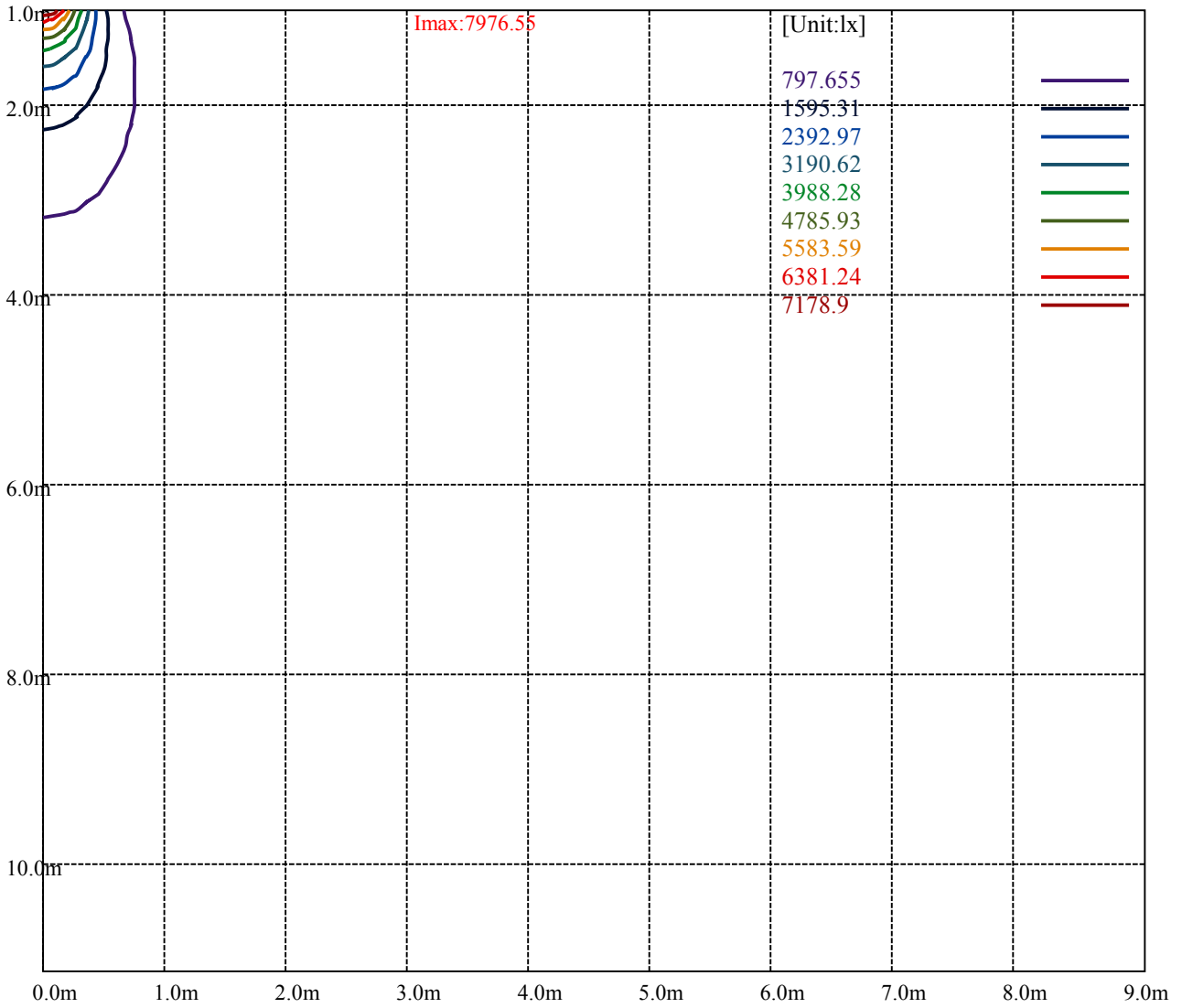
:C90/270Left:17.1 Right:17.1



Max , Ave Beam angle of C0 plane 46.22



(10%Emax) 199.4135	
(20%Emax) 398.8275	
(30%Emax) 598.24	
(40%Emax) 797.655	
(50%Emax) 997.0675	
(60%Emax) 1196.48	
(70%Emax) 1395.895	
(80%Emax) 1595.307	
(90%Emax) 1794.723	



Luminance Table

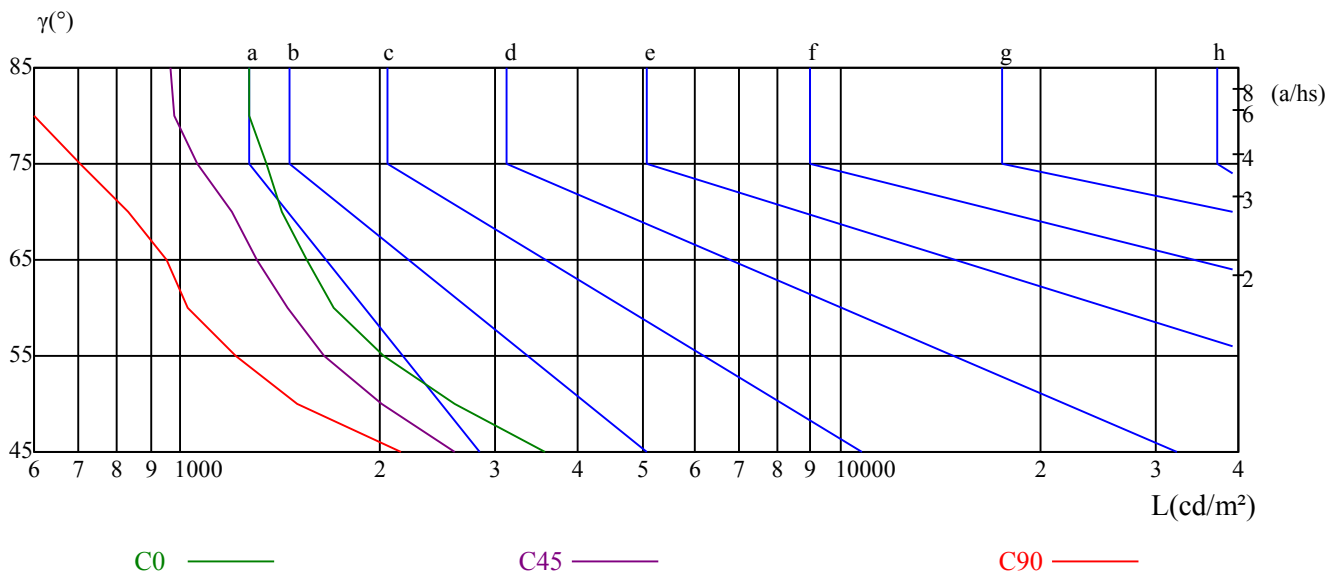
γ	45	50	55	60	65	70	75	80	85
C0	3553	2601	2029	1711	1558	1424	1347	1273	1269
C45	2600	2017	1654	1449	1308	1199	1058	981	966
C90	2162	1500	1209	1024	952	834	706	495	338

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
2933	1075	2245	3417	865	2375	7241	571	4651

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	1.18	1.18	1.18	1.15	1.15	1.15	1.10	1.10	1.10	1.04	1.04	1.04	0.99	0.99	0.99	0.97
1	1.08	1.05	1.02	1.06	1.03	1.00	1.01	0.99	0.97	0.97	0.95	0.93	0.93	0.91	0.90	0.88
2	0.99	0.95	0.91	0.97	0.93	0.89	0.94	0.90	0.87	0.90	0.87	0.85	0.87	0.85	0.83	0.81
3	0.92	0.86	0.82	0.90	0.85	0.81	0.87	0.83	0.79	0.84	0.81	0.78	0.82	0.79	0.76	0.74
4	0.85	0.79	0.75	0.84	0.78	0.74	0.81	0.77	0.73	0.79	0.75	0.72	0.77	0.73	0.71	0.69
5	0.80	0.73	0.69	0.79	0.73	0.68	0.77	0.71	0.67	0.75	0.70	0.67	0.73	0.69	0.66	0.64
6	0.75	0.68	0.64	0.74	0.68	0.64	0.72	0.67	0.63	0.70	0.66	0.62	0.69	0.65	0.62	0.60
7	0.71	0.64	0.60	0.70	0.64	0.59	0.68	0.63	0.59	0.67	0.62	0.58	0.65	0.61	0.58	0.56
8	0.67	0.60	0.56	0.66	0.60	0.56	0.65	0.59	0.55	0.63	0.59	0.55	0.62	0.58	0.55	0.53
9	0.63	0.57	0.53	0.62	0.57	0.53	0.61	0.56	0.52	0.60	0.55	0.52	0.59	0.55	0.52	0.50
10	0.60	0.54	0.50	0.59	0.54	0.50	0.58	0.53	0.50	0.57	0.53	0.49	0.57	0.52	0.49	0.48

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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	7976.55	8534.13	8381.58	7559.03	6374.28	4947.76	3531.06	2378.42	1524.65
15.0	7976.55	8480.07	8256.08	7330.58	6156.90	4700.10	3395.61	2229.10	1399.46
30.0	7976.55	8393.35	8016.89	6959.20	5753.62	4058.64	2798.38	1800.75	1120.43
45.0	7976.55	8261.88	7669.76	6542.78	4919.38	3445.35	2105.49	1283.51	809.46
60.0	7976.55	8102.78	7372.95	5951.52	4277.63	2701.52	1591.22	960.96	649.82
75.0	7976.55	7953.27	7116.84	5558.60	3744.24	2262.13	1302.11	820.31	572.25
90.0	7976.55	7833.86	6869.79	5198.49	3496.88	2062.81	1185.25	769.65	540.45
105.0	7976.55	7699.14	6652.44	5021.68	3376.74	2073.02	1188.51	789.68	548.61
120.0	7976.55	7572.02	6498.83	5045.67	3427.55	2206.06	1313.63	832.76	572.14
135.0	7976.55	7478.23	6399.57	5028.54	3565.88	2319.66	1483.60	934.67	645.80
150.0	7976.55	7425.96	6371.69	5122.88	3689.97	2508.90	1612.68	1079.46	701.69
165.0	7976.55	7364.23	6315.52	5115.89	3712.73	2544.15	1691.21	1146.16	780.49
180.0	7976.55	6959.52	5685.56	4121.65	2881.59	1880.61	1338.20	881.43	628.06
195.0	7976.55	6956.08	5695.49	4172.39	2902.84	1802.63	1360.93	894.15	618.20
210.0	7976.55	7027.32	5723.15	4265.69	2957.03	1814.20	1236.06	814.78	588.90
225.0	7976.55	7047.24	5772.67	4293.28	2766.48	1768.29	1089.42	741.48	508.93
240.0	7976.55	7106.27	5803.96	4034.06	2657.07	1599.22	966.29	648.04	463.14
255.0	7976.55	7289.67	5881.89	3981.56	2521.83	1477.64	885.69	619.71	443.29
270.0	7976.55	7382.59	5985.98	4126.51	2582.75	1487.58	881.13	605.55	423.62
285.0	7976.55	7534.30	6261.59	4424.33	2860.92	1655.58	960.73	626.60	446.69
300.0	7976.55	7628.18	6631.33	4957.92	3277.49	2051.61	1197.80	735.35	515.97
315.0	7976.55	7689.43	6957.23	5501.55	3955.99	2548.31	1601.42	987.03	635.33
330.0	7976.55	7848.02	7079.46	6081.63	4508.90	3148.07	2515.85	1276.60	808.51
345.0	7976.55	7911.01	7147.76	6279.30	4766.61	3532.49	2387.19	1500.62	926.24
360.0	7976.55	8534.13	8381.58	7559.03	6374.28	4947.76	3531.06	2378.42	1524.65
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	929.60	609.33	425.55	321.17	268.53	223.03	191.81	155.23	127.57
15.0	868.17	563.55	401.38	312.68	260.72	218.61	199.79	157.69	131.70
30.0	720.66	479.54	369.29	281.45	232.15	197.20	164.03	128.18	107.56
45.0	560.81	413.23	319.31	252.23	211.09	173.52	135.06	105.54	87.65
60.0	461.37	330.69	244.46	182.23	147.57	114.67	85.34	67.56	52.45
75.0	394.93	255.23	177.32	131.64	105.67	82.39	58.21	40.30	25.97
90.0	363.87	230.09	163.21	119.51	98.10	73.13	49.94	27.65	12.49
105.0	388.19	265.00	188.78	140.92	109.90	84.20	58.49	40.77	25.70
120.0	439.63	317.66	246.58	191.30	153.56	121.10	91.26	70.20	55.28
135.0	475.63	366.54	282.76	230.39	190.25	158.83	127.42	102.11	83.78
150.0	498.48	382.98	306.56	251.85	205.82	172.82	143.29	113.76	94.66
165.0	550.23	453.63	339.79	268.21	229.40	197.49	169.03	141.44	124.19
180.0	469.26	373.80	303.32	256.93	220.36	186.46	157.02	135.60	121.33
195.0	470.37	368.23	293.87	242.80	213.23	182.77	151.41	132.60	112.89
210.0	435.62	337.02	265.32	221.40	180.16	150.59	121.90	99.49	83.36
225.0	383.71	309.47	240.60	203.04	166.36	135.95	105.54	84.97	69.77
240.0	351.14	256.91	200.90	155.57	122.68	92.45	69.34	53.34	41.78
255.0	298.21	203.29	148.66	112.84	90.45	62.69	42.09	26.87	15.22
270.0	275.58	177.47	133.77	103.45	81.16	57.97	38.35	17.84	7.13
285.0	309.31	209.16	149.78	117.88	94.83	70.90	57.61	35.45	23.93
300.0	381.72	286.95	212.36	188.66	134.26	103.55	80.73	64.06	51.77
315.0	514.02	340.36	262.69	216.43	180.65	151.85	116.94	96.00	78.54
330.0	523.66	379.50	283.11	231.00	194.53	166.74	128.53	107.69	91.19
345.0	587.31	410.51	311.33	251.83	212.16	194.05	156.10	129.36	112.12
360.0	929.60	609.33	425.55	321.17	268.53	223.03	191.81	155.23	127.57

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	108.84	106.16	98.13	76.72	56.20	49.96	48.18	48.18	40.15
15.0	112.89	103.93	94.07	71.68	44.80	37.63	33.15	34.05	28.67
30.0	89.63	72.60	66.33	44.82	24.20	18.82	15.24	15.24	13.45
45.0	71.55	60.82	50.98	40.25	19.68	13.42	9.84	8.94	8.05
60.0	40.89	32.89	27.56	21.33	13.33	7.11	5.33	5.33	5.33
75.0	14.33	8.96	5.37	5.37	5.37	2.69	2.69	3.58	3.58
90.0	3.57	0.89	0.89	0.89	0.89	0.89	0.89	1.78	2.68
105.0	15.95	10.64	7.09	5.32	5.32	3.55	3.55	4.43	4.43
120.0	42.12	33.35	27.20	21.06	12.29	7.90	7.02	7.02	7.02
135.0	68.07	54.11	42.76	29.67	18.33	13.09	11.35	10.47	9.60
150.0	75.55	60.79	48.63	33.00	26.05	22.58	21.71	18.24	13.89
165.0	106.94	94.00	80.21	62.09	54.33	50.88	47.43	35.36	23.29
180.0	113.30	101.70	87.43	80.29	77.62	74.05	57.10	33.01	21.41
195.0	97.66	85.11	65.40	55.55	51.07	47.48	38.53	24.19	17.02
210.0	64.54	51.99	35.85	25.99	21.51	19.72	17.03	13.45	10.76
225.0	55.45	44.72	33.99	19.68	13.42	10.73	9.84	8.05	7.16
240.0	31.11	24.89	19.56	14.22	8.00	7.11	6.22	5.33	5.33
255.0	8.06	5.37	4.48	4.48	3.58	3.58	3.58	3.58	3.58
270.0	3.57	0.89	0.89	1.78	1.78	1.78	1.78	1.78	1.78
285.0	15.95	10.64	8.86	8.86	5.32	3.55	3.55	2.66	2.66
300.0	43.00	35.98	30.71	21.94	10.53	6.14	6.14	5.27	5.27
315.0	68.07	55.85	47.13	27.05	17.45	10.47	9.60	8.73	6.98
330.0	74.69	66.87	48.63	27.79	22.58	17.37	17.37	15.63	12.16
345.0	101.77	97.45	75.03	48.30	42.26	34.50	35.36	31.05	20.70
360.0	108.84	106.16	98.13	76.72	56.20	49.96	48.18	48.18	40.15
C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	24.09	15.17	13.38	14.27	16.06	16.95	16.95	16.06	14.27
15.0	18.81	12.54	12.54	13.44	15.23	17.02	17.02	15.23	14.34
30.0	10.76	8.96	9.86	11.65	14.34	16.13	16.13	15.24	15.24
45.0	7.16	7.16	8.05	10.73	12.52	14.31	15.21	15.21	15.21
60.0	4.44	5.33	7.11	8.89	11.56	13.33	14.22	14.22	15.11
75.0	3.58	4.48	6.27	8.06	10.75	12.54	13.43	14.33	15.22
90.0	2.68	3.57	5.35	8.03	10.70	12.49	13.38	14.27	15.16
105.0	4.43	5.32	7.09	8.86	11.52	13.29	14.18	15.07	15.07
120.0	6.14	7.02	8.78	10.53	12.29	14.04	14.92	14.92	14.92
135.0	8.73	9.60	10.47	13.09	14.84	15.71	15.71	14.84	14.84
150.0	12.16	12.16	13.89	15.63	16.50	17.37	16.50	15.63	14.76
165.0	16.39	15.52	16.39	18.11	18.11	18.11	17.25	16.39	15.52
180.0	16.95	16.95	16.95	16.95	16.95	16.06	15.17	14.27	15.17
195.0	15.23	15.23	16.13	16.13	16.13	16.13	15.23	14.34	14.34
210.0	10.76	11.65	12.55	12.55	14.34	14.34	13.45	13.45	14.34
225.0	7.16	8.05	9.84	10.73	12.52	12.52	12.52	13.42	14.31
240.0	5.33	6.22	7.11	8.89	10.67	11.56	12.45	13.33	14.22
255.0	3.58	4.48	6.27	7.16	8.96	10.75	11.64	13.43	14.33
270.0	2.68	3.57	5.35	7.13	8.92	9.81	11.59	13.38	14.27
285.0	3.55	4.43	6.20	7.09	8.86	10.64	11.52	12.41	14.18
300.0	5.27	5.27	7.02	7.90	10.53	11.41	12.29	13.16	14.04
315.0	6.11	6.98	7.85	9.60	11.35	12.22	12.22	13.09	13.96
330.0	9.55	8.68	9.55	11.29	12.16	13.03	13.03	13.03	13.89
345.0	12.94	10.35	11.21	12.07	12.94	13.80	12.94	12.94	13.80
360.0	24.09	15.17	13.38	14.27	16.06	16.95	16.95	16.06	14.27

Intensity data(cd)

C/γ(°)	180.0
0.0	15.17
15.0	14.34
30.0	15.24
45.0	15.21
60.0	15.11
75.0	15.22
90.0	15.16
105.0	15.07
120.0	14.92
135.0	14.84
150.0	14.76
165.0	14.66
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	15.17