
ZhongShan Halcon Lighting & Electrical Co., Ltd

Client:

LumCAT: HG-L203-404F-40W

Luminaire: LED lamp

Report No:

Ballast type:

Test No:

Voltage(V): 120.000

LampCAT:

Current(A): 0.320

Lamp flux(lm): 5229.2

Power (W): 37.520

Number of Lamps: 1

PF: 0.978

Length(mm): 1160

Width(mm): 170

Phm Type: C

Height(mm): 70

Photometric Results

Lumens(lm): 5229.15, Efficiency(%): 100.00% , Luminous Efficacy(lm/W): 139.37

Central intensity(cd): 8041.531, Maximum intensity(cd): 8041.531

Angle of maximum intensity: C=75.0 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(%): 2.82%

Down flux rate of lamp(%): 97.18%

Up flux rate of LUM(%): 2.82%

Down flux rate of LUM(%): 97.18%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 90.034%

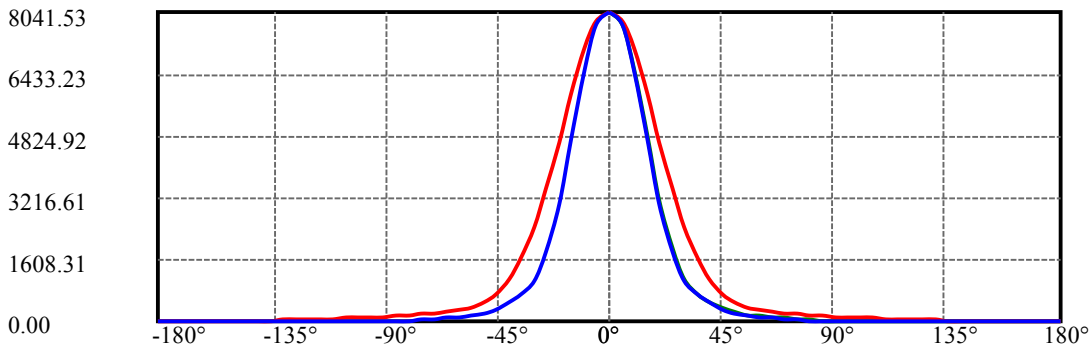
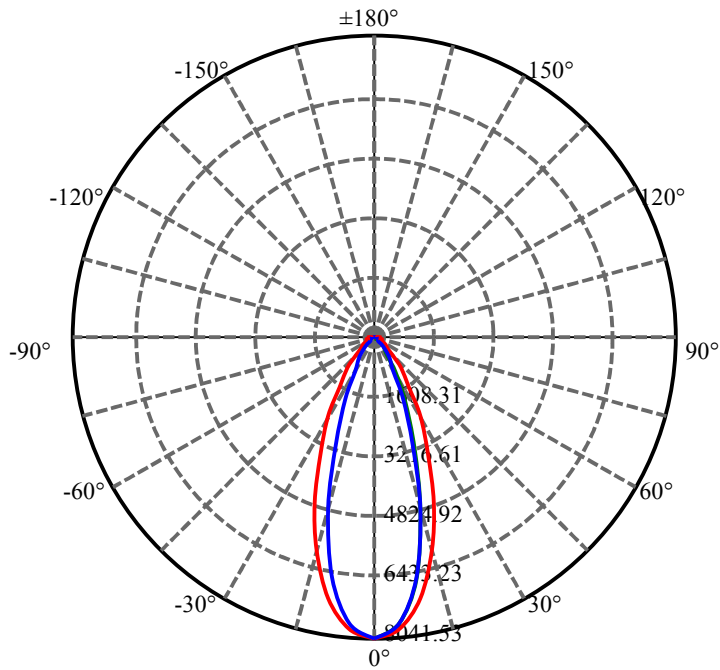
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	8041.531	0.000	0	0.00%	0.00%
5.0	7707.226	188.272	188.272	3.60%	3.60%
10.0	6744.081	516.969	705.241	9.89%	13.49%
15.0	5321.144	715.701	1420.942	13.69%	27.17%
20.0	3828.167	754.032	2174.973	14.42%	41.59%
25.0	2545.417	668.471	2843.445	12.78%	54.38%
30.0	1664.263	532.738	3376.183	10.19%	64.56%
35.0	1065.160	401.927	3778.11	7.69%	72.25%
40.0	708.758	295.965	4074.074	5.66%	77.91%
45.0	489.460	221.860	4295.934	4.24%	82.15%
50.0	349.474	169.519	4465.453	3.24%	85.40%
55.0	263.380	133.255	4598.708	2.55%	87.94%
60.0	209.384	109.278	4707.986	2.09%	90.03%
65.0	172.383	92.808	4800.794	1.77%	91.81%
70.0	141.793	79.551	4880.345	1.52%	93.33%
75.0	113.352	66.691	4947.036	1.28%	94.61%
80.0	89.529	54.285	5001.322	1.04%	95.64%
85.0	72.970	44.155	5045.477	0.84%	96.49%
90.0	59.995	36.407	5081.883	0.70%	97.18%
95.0	51.299	30.473	5112.357	0.58%	97.77%
100.0	42.225	25.413	5137.769	0.49%	98.25%
105.0	31.358	19.689	5157.458	0.38%	98.63%
110.0	23.273	14.280	5171.738	0.27%	98.90%
115.0	19.412	10.808	5182.546	0.21%	99.11%
120.0	17.223	8.906	5191.452	0.17%	99.28%
125.0	14.389	7.307	5198.759	0.14%	99.42%
130.0	11.456	5.620	5204.379	0.11%	99.53%
135.0	9.102	4.154	5208.533	0.08%	99.61%
140.0	8.695	3.295	5211.828	0.06%	99.67%
145.0	9.801	3.086	5214.914	0.06%	99.73%
150.0	11.200	3.093	5218.007	0.06%	99.79%
155.0	12.864	3.045	5221.052	0.06%	99.85%
160.0	13.898	2.807	5223.859	0.05%	99.90%
165.0	14.122	2.309	5226.168	0.04%	99.94%
170.0	14.235	1.682	5227.85	0.03%	99.98%
175.0	14.605	1.032	5228.882	0.02%	99.99%
180.0	7.487	0.264	5229.146	0.01%	100.00%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	3376.18	64.56%	64.56%
0-40	4074.07	77.91%	77.91%
0-60	4707.99	90.03%	90.03%
0-90	5081.88	97.18%	97.18%
0-120	5191.45	99.28%	99.28%
0-180	5229.15	100.00%	100.00%
60-90	373.90	7.15%	7.15%
90-120	109.57	2.10%	2.10%
90-130	122.50	2.34%	2.34%
90-150	136.12	2.60%	2.60%
90-180	147.00	2.81%	2.81%
0-42.46	4183.32	80.00%	80.00%

ZONAL LUMEN SUMMARY

0-10	705.24
10-20	1469.73
20-30	1201.21
30-40	697.89
40-50	391.38
50-60	242.53
60-70	172.36
70-80	120.98
80-90	80.56
90-100	55.89
100-110	33.97
110-120	19.71
120-130	12.93
130-140	7.45
140-150	6.18
150-160	5.85
160-170	3.99
170-180	1.03



C75(Max): ——

C0/C180: ——

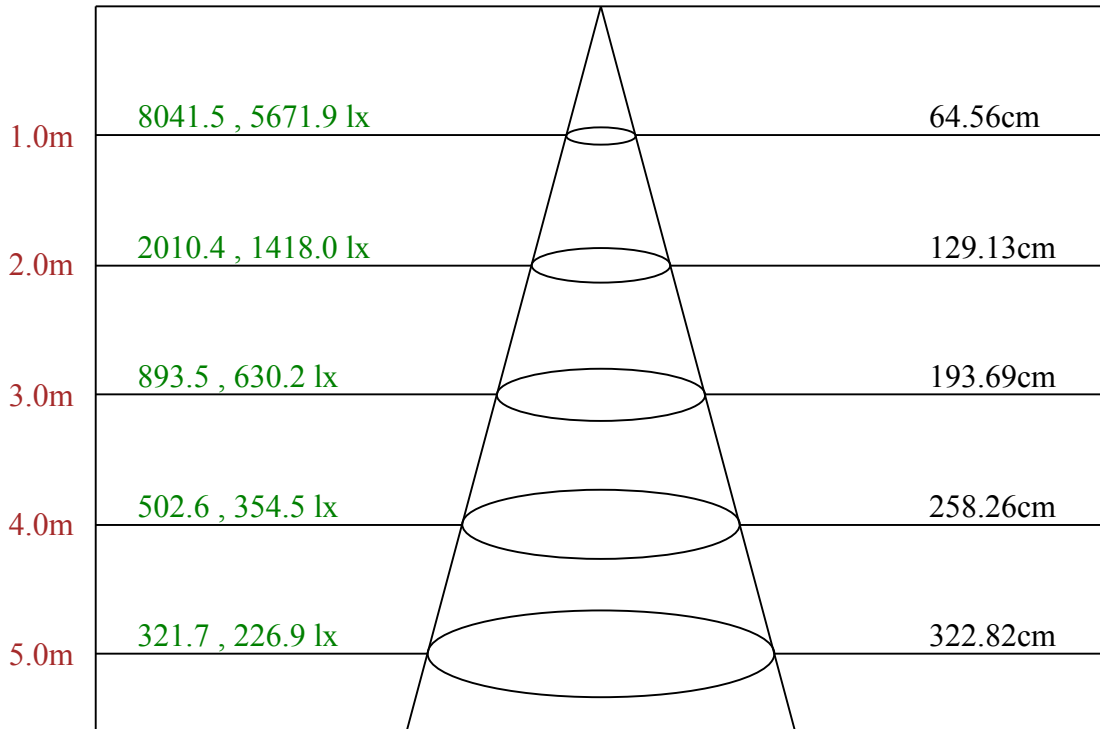
C90/C270: ——

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

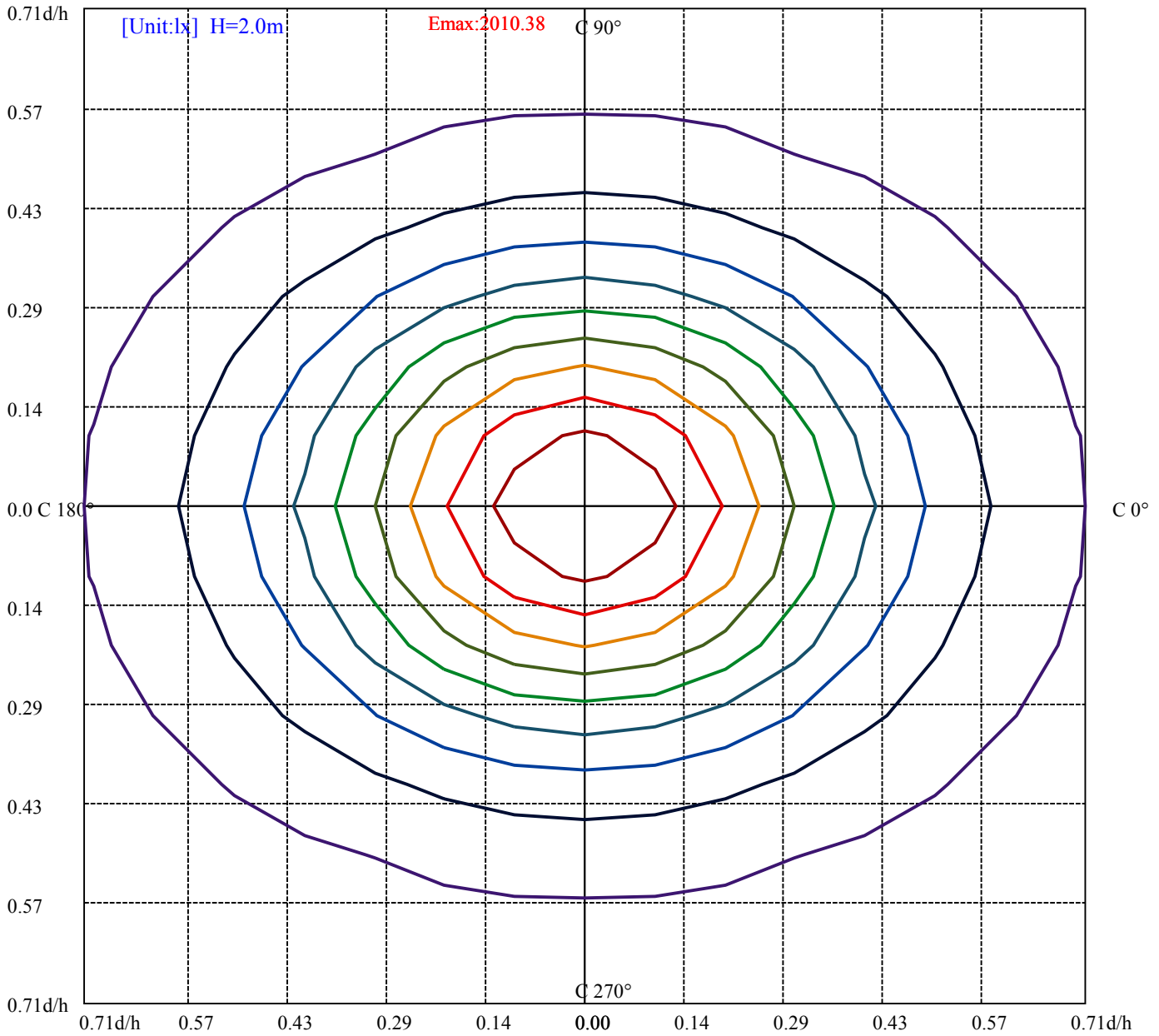
:C90/270Left:33.4 Right:33.4

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

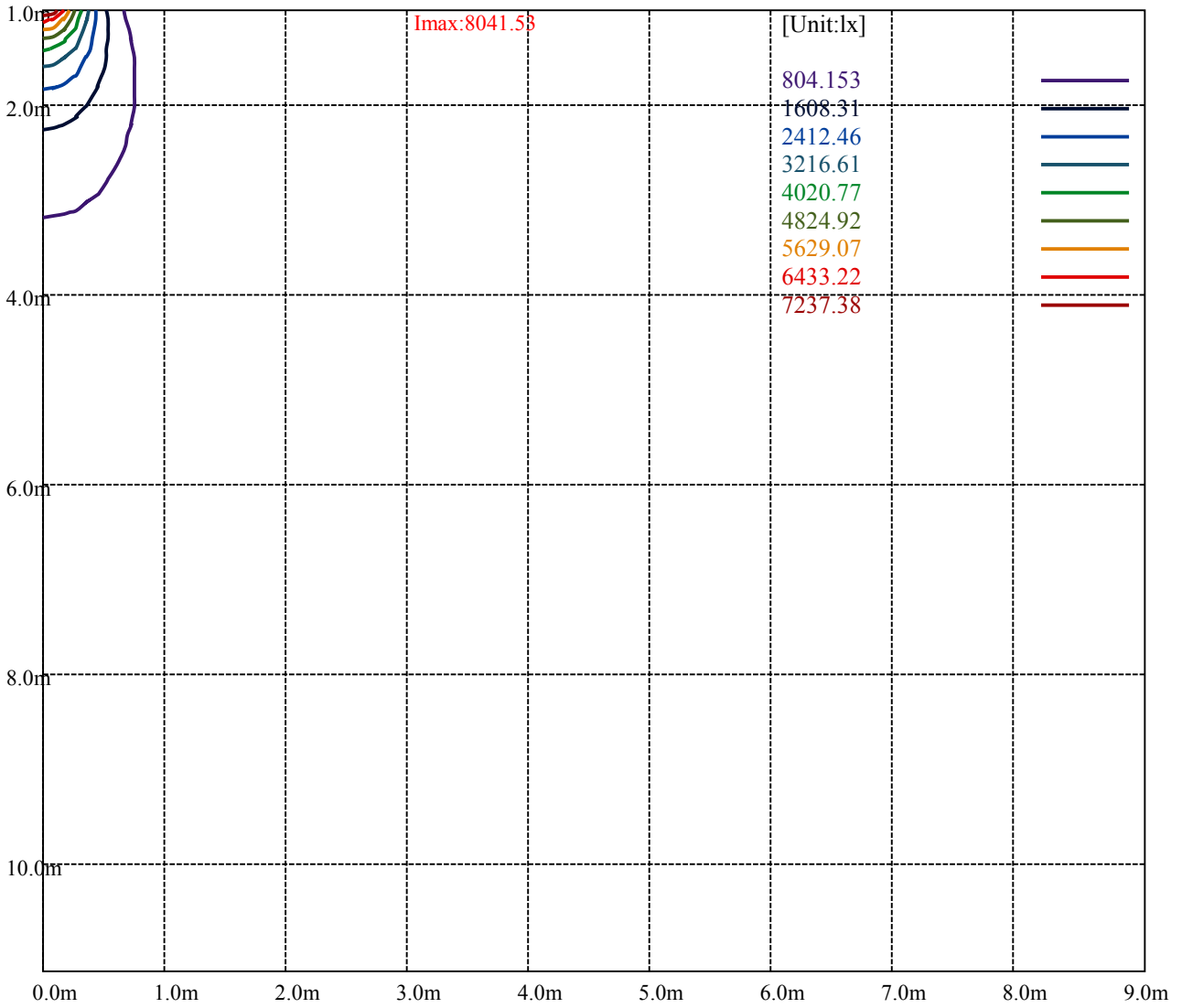
:C90/270Left:17.1 Right:17.1



Max , Ave Beam angle of C75 plane 35.78



(10%Emax) 201.038	
(20%Emax) 402.075	
(30%Emax) 603.115	
(40%Emax) 804.1525	
(50%Emax) 1005.19	
(60%Emax) 1206.228	
(70%Emax) 1407.265	
(80%Emax) 1608.305	
(90%Emax) 1809.343	



Luminance Table

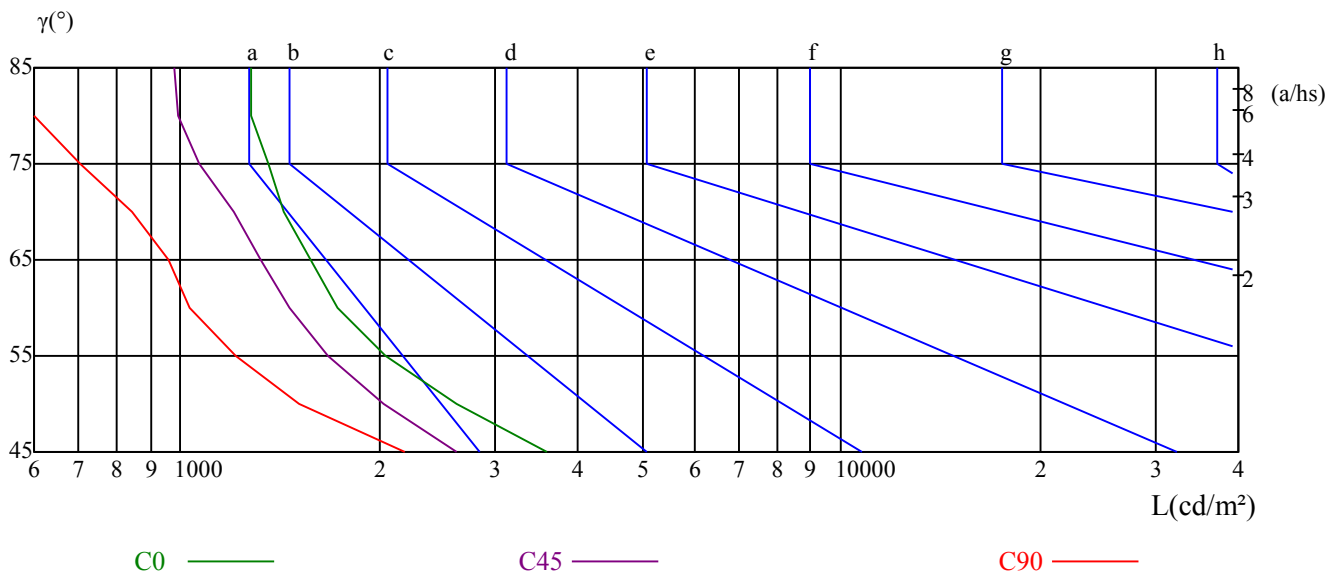
γ	45	50	55	60	65	70	75	80	85
C0	3580	2623	2046	1724	1569	1437	1357	1281	1278
C45	2620	2033	1668	1461	1321	1208	1065	990	976
C90	2180	1513	1216	1032	962	845	706	495	338

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
2954	1086	2266	3443	865	2393	7293	571	4702

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	0.82	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

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	8041.53	8603.56	8450.12	7620.45	6425.91	4987.82	3559.54	2398.01	1537.12
15.0	8041.53	8548.61	8322.84	7390.22	6206.74	4738.38	3423.21	2246.90	1411.03
30.0	8041.53	8461.94	8082.76	7016.06	5800.55	4092.03	2820.95	1815.19	1129.45
45.0	8041.53	8328.63	7732.07	6596.18	4959.44	3472.95	2122.41	1294.19	815.69
60.0	8041.53	8168.65	7433.48	6000.48	4312.34	2723.77	1604.57	968.97	655.16
75.0	8041.53	8017.35	7174.69	5604.00	3774.50	2280.82	1312.79	826.54	576.70
90.0	8041.53	7897.95	6925.86	5240.33	3525.36	2079.72	1195.04	775.88	544.90
105.0	8041.53	7762.34	6706.74	5062.63	3404.33	2089.93	1198.30	795.91	553.06
120.0	8041.53	7633.49	6551.51	5086.94	3455.65	2223.62	1324.17	839.78	576.53
135.0	8041.53	7539.70	6452.25	5069.81	3594.86	2338.97	1495.90	942.57	651.07
150.0	8041.53	7486.61	6423.67	5164.47	3720.29	2529.70	1625.67	1088.13	707.76
165.0	8041.53	7424.88	6367.51	5157.48	3743.05	2564.94	1705.07	1155.69	786.56
180.0	8041.53	7016.49	5731.84	4155.47	2904.73	1895.75	1348.88	888.55	633.40
195.0	8041.53	7012.15	5741.77	4206.22	2925.98	1816.87	1371.61	901.27	623.54
210.0	8041.53	7085.08	5770.07	4300.89	2981.40	1828.64	1245.98	821.09	593.41
225.0	8041.53	7104.20	5819.85	4327.99	2788.73	1782.53	1098.32	747.72	513.38
240.0	8041.53	7164.13	5851.13	4066.99	2678.44	1612.57	974.30	653.39	466.70
255.0	8041.53	7348.42	5929.06	4013.60	2542.31	1489.21	892.81	625.05	446.85
270.0	8041.53	7442.23	6034.94	4160.33	2604.11	1500.04	888.25	610.90	427.18
285.0	8041.53	7595.71	6313.22	4460.82	2884.07	1668.93	968.74	631.94	450.25
300.0	8041.53	7690.53	6685.77	4998.32	3303.84	2068.30	1207.46	741.50	520.37
315.0	8041.53	7752.65	7014.30	5546.33	3988.47	2569.38	1614.59	994.94	640.60
330.0	8041.53	7912.14	7136.64	6131.02	4545.29	3174.06	2536.64	1286.99	815.44
345.0	8041.53	7975.98	7205.81	6330.42	4805.60	3561.08	2407.11	1512.75	934.04
360.0	8041.53	8603.56	8450.12	7620.45	6425.91	4987.82	3559.54	2398.01	1537.12
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	936.72	614.67	429.11	323.84	270.31	224.81	193.59	156.12	128.46
15.0	875.29	568.00	404.94	315.35	262.50	220.39	201.58	158.57	132.59
30.0	726.97	483.16	372.00	284.16	233.96	199.00	164.94	129.08	108.46
45.0	565.26	416.79	321.98	254.01	212.87	175.30	135.95	106.43	88.55
60.0	464.93	333.36	246.24	184.01	148.46	115.56	86.23	68.45	52.45
75.0	398.49	257.01	179.10	132.53	106.56	83.28	59.10	40.30	25.97
90.0	366.54	231.87	164.09	120.40	98.99	74.02	49.94	27.65	12.49
105.0	391.75	266.78	190.56	141.81	110.79	85.09	59.38	40.77	25.70
120.0	443.14	320.29	248.34	193.05	154.44	121.97	92.14	71.08	56.16
135.0	479.14	369.17	285.39	232.15	192.01	159.71	128.29	102.98	84.66
150.0	502.81	386.45	309.16	253.58	207.55	174.55	144.16	114.63	95.53
165.0	554.56	457.10	342.39	270.81	231.14	199.23	170.77	142.31	125.06
180.0	472.82	376.47	306.00	258.71	222.14	188.24	157.90	136.49	122.22
195.0	473.93	370.90	296.54	244.58	215.01	184.55	152.30	133.49	113.78
210.0	439.23	339.73	267.12	223.20	181.97	151.49	122.81	100.40	84.26
225.0	386.38	312.14	242.38	204.82	168.15	136.84	106.43	85.86	70.66
240.0	353.81	258.69	202.68	156.46	123.57	93.34	70.23	53.34	41.78
255.0	300.89	205.07	149.55	113.73	91.34	63.58	42.09	26.86	15.22
270.0	278.25	179.26	134.66	104.34	82.05	58.86	38.35	17.84	7.13
285.0	311.98	210.94	150.67	118.77	95.72	71.79	58.50	35.45	23.93
300.0	385.23	289.58	214.11	190.42	135.14	104.42	81.61	64.94	51.77
315.0	518.41	342.99	264.44	218.19	182.41	152.73	117.82	96.88	79.42
330.0	528.00	382.97	285.71	232.74	196.26	168.47	129.39	108.55	92.05
345.0	592.51	413.98	313.93	253.56	213.89	195.78	156.97	130.23	112.98
360.0	936.72	614.67	429.11	323.84	270.31	224.81	193.59	156.12	128.46

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	109.73	107.05	99.02	77.61	57.10	49.96	48.17	48.17	40.15
15.0	113.78	104.82	94.96	72.57	44.79	37.63	33.15	34.04	28.67
30.0	90.54	73.50	67.23	44.82	24.20	18.82	15.24	15.24	13.45
45.0	72.45	61.71	50.98	40.25	19.68	13.42	9.84	8.94	8.05
60.0	40.89	32.89	27.56	21.34	13.33	7.11	5.33	5.33	5.33
75.0	14.33	8.95	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	68.95	54.98	42.76	29.67	18.33	13.09	11.35	10.47	9.60
150.0	76.42	61.66	48.63	33.00	26.05	22.58	21.71	18.24	13.89
165.0	107.81	94.87	81.07	62.96	55.20	50.88	47.44	35.36	23.29
180.0	114.19	102.59	88.32	81.18	78.51	74.94	57.99	33.01	21.41
195.0	98.55	86.01	66.30	56.44	51.07	47.48	38.52	24.19	17.02
210.0	65.44	51.99	35.86	26.00	21.51	19.72	17.03	13.45	10.76
225.0	56.35	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	68.95	56.73	47.13	27.06	17.46	10.47	9.60	8.73	6.98
330.0	75.55	67.74	48.63	27.79	22.58	17.37	17.37	15.63	12.16
345.0	102.63	98.32	75.90	48.30	42.26	34.50	35.36	31.05	20.70
360.0	109.73	107.05	99.02	77.61	57.10	49.96	48.17	48.17	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	14.33
30.0	10.76	8.96	9.86	11.65	14.34	16.14	16.14	15.24	15.24
45.0	7.16	7.16	8.05	10.73	12.52	14.31	15.20	15.20	15.20
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	14.33	14.33
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	8.95	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	14.33
30.0	15.24
45.0	15.20
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