
Client:

LumCAT: M16215MW

Luminaire: LED

Report No:

Ballast type:

Test No: LCZP23020182

Voltage(V): 120.090

LampCAT:

Current(A): 0.206

Lamp flux(lm): 1121.8

Power (W): 21.720

Number of Lamps: 1

PF: 0.877

Length(mm): -360 Phm

Width(mm): -360

Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 1121.83, Efficiency(%): 100.00% , Luminous Efficacy(lm/W): 51.65

Central intensity(cd): 359.280, Maximum intensity(cd): 359.280

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=118.6

[C90/270]Total=118.6

Field angle(10%Imax): [C0/180]Total=165.0

[C90/270]Total=164.8

Maximum s/h(1/2): C0_180=1.32 C90_270=1.32

Maximum s/h(1/4): C0_180=1.43 C90_270=1.43

Up flux rate of lamp(%): 0.43%

Down flux rate of lamp(%): 99.57%

Up flux rate of LUM(%): 0.43%

Down flux rate of LUM(%): 99.57%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 76.899%

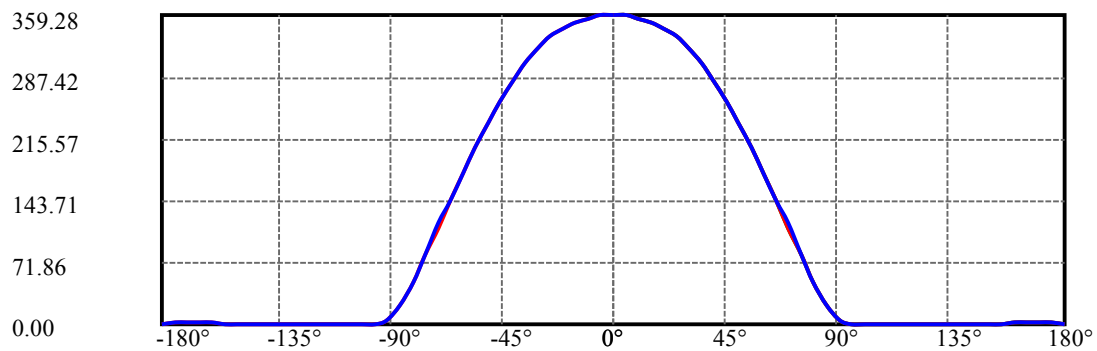
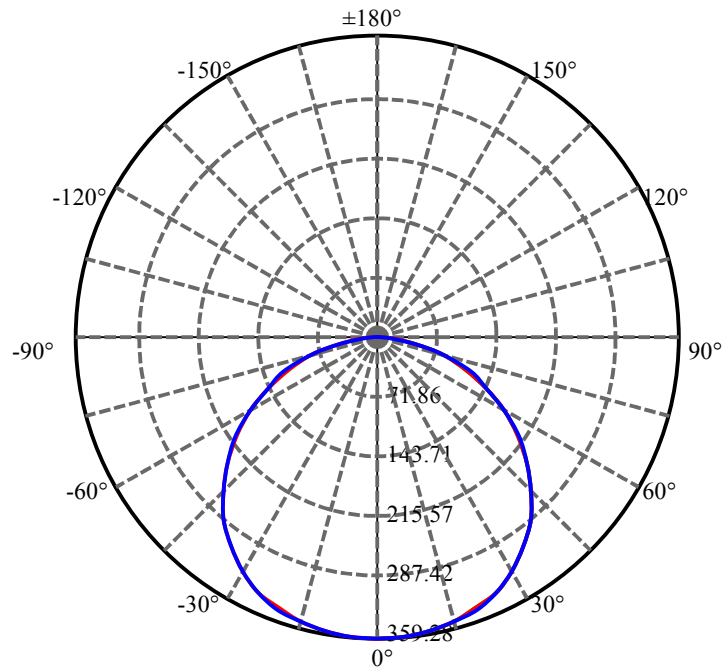
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	359.280	0.000	0	0.00%	0.00%
5.0	358.315	8.579	8.579	0.76%	0.76%
10.0	355.504	25.536	34.114	2.28%	3.04%
15.0	351.013	41.910	76.024	3.74%	6.78%
20.0	344.636	57.331	133.356	5.11%	11.89%
25.0	335.718	71.357	204.712	6.36%	18.25%
30.0	322.192	83.259	287.971	7.42%	25.67%
35.0	304.426	92.274	380.245	8.23%	33.90%
40.0	283.985	98.172	478.417	8.75%	42.65%
45.0	259.834	100.693	579.11	8.98%	51.62%
50.0	233.637	99.713	678.823	8.89%	60.51%
55.0	206.213	95.638	774.461	8.53%	69.04%
60.0	175.403	88.209	862.67	7.86%	76.90%
65.0	143.817	77.603	940.273	6.92%	83.82%
70.0	112.425	64.882	1005.155	5.78%	89.60%
75.0	79.883	50.266	1055.422	4.48%	94.08%
80.0	49.222	34.545	1089.967	3.08%	97.16%
85.0	22.560	19.505	1109.471	1.74%	98.90%
90.0	5.008	7.548	1117.02	0.67%	99.57%
95.0	0.505	1.510	1118.529	0.13%	99.71%
100.0	0.404	0.247	1118.776	0.02%	99.73%
105.0	0.400	0.215	1118.992	0.02%	99.75%
110.0	0.400	0.209	1119.201	0.02%	99.77%
115.0	0.367	0.194	1119.395	0.02%	99.78%
120.0	0.393	0.185	1119.58	0.02%	99.80%
125.0	0.464	0.198	1119.778	0.02%	99.82%
130.0	0.498	0.209	1119.987	0.02%	99.84%
135.0	0.498	0.201	1120.188	0.02%	99.85%
140.0	0.580	0.200	1120.388	0.02%	99.87%
145.0	0.704	0.214	1120.602	0.02%	99.89%
150.0	0.853	0.229	1120.831	0.02%	99.91%
155.0	1.059	0.242	1121.073	0.02%	99.93%
160.0	1.216	0.239	1121.312	0.02%	99.95%
165.0	1.355	0.212	1121.524	0.02%	99.97%
170.0	1.452	0.167	1121.69	0.01%	99.99%
175.0	1.576	0.108	1121.799	0.01%	100.00%
180.0	0.823	0.029	1121.827	0.00%	100.00%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	287.97	25.67%	25.67%
0-40	478.42	42.65%	42.65%
0-60	862.67	76.90%	76.90%
0-90	1117.02	99.57%	99.57%
0-120	1119.58	99.80%	99.80%
0-180	1121.83	100.00%	100.00%
60-90	254.35	22.67%	22.67%
90-120	2.56	0.23%	0.23%
90-130	2.97	0.26%	0.26%
90-150	3.81	0.34%	0.34%
90-180	4.78	0.43%	0.43%
0-62.24	897.46	80.00%	80.00%

ZONAL LUMEN SUMMARY

0-10	34.11
10-20	99.24
20-30	154.62
30-40	190.45
40-50	200.41
50-60	183.85
60-70	142.49
70-80	84.81
80-90	27.05
90-100	1.76
100-110	0.42
110-120	0.38
120-130	0.41
130-140	0.40
140-150	0.44
150-160	0.48
160-170	0.38
170-180	0.11



C0(Max):

C0/C180:

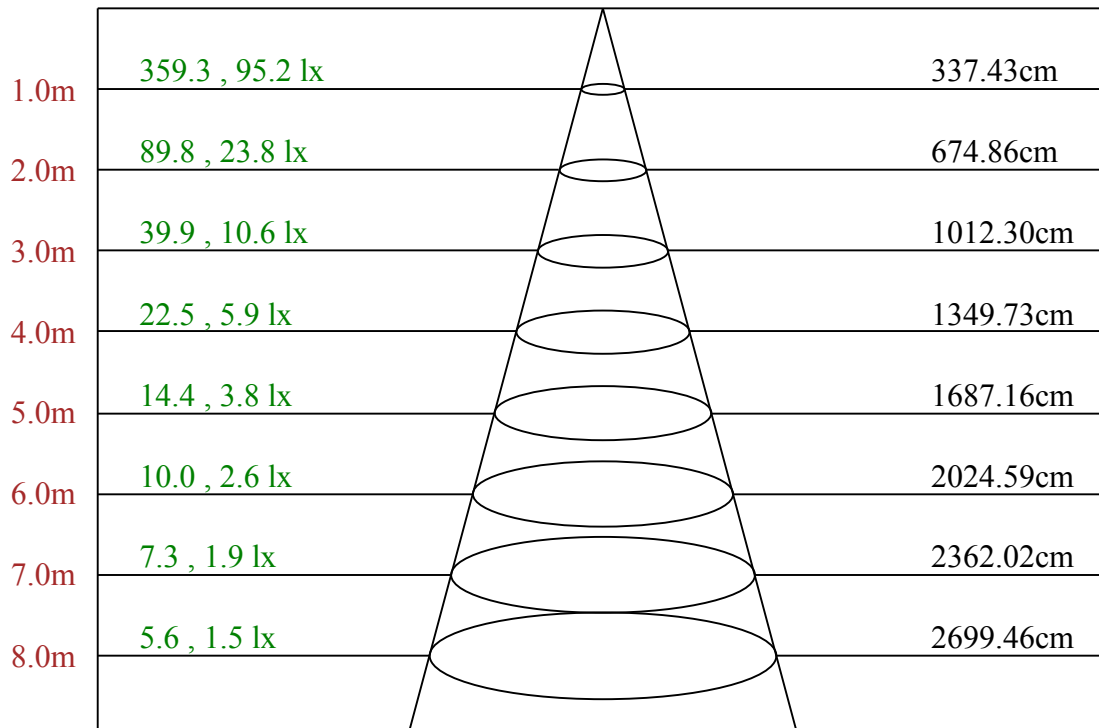
C90/C270:

Field angle(10%Imax):C0/180Left:82.5 Right:82.5

:C90/270Left:82.4 Right:82.4

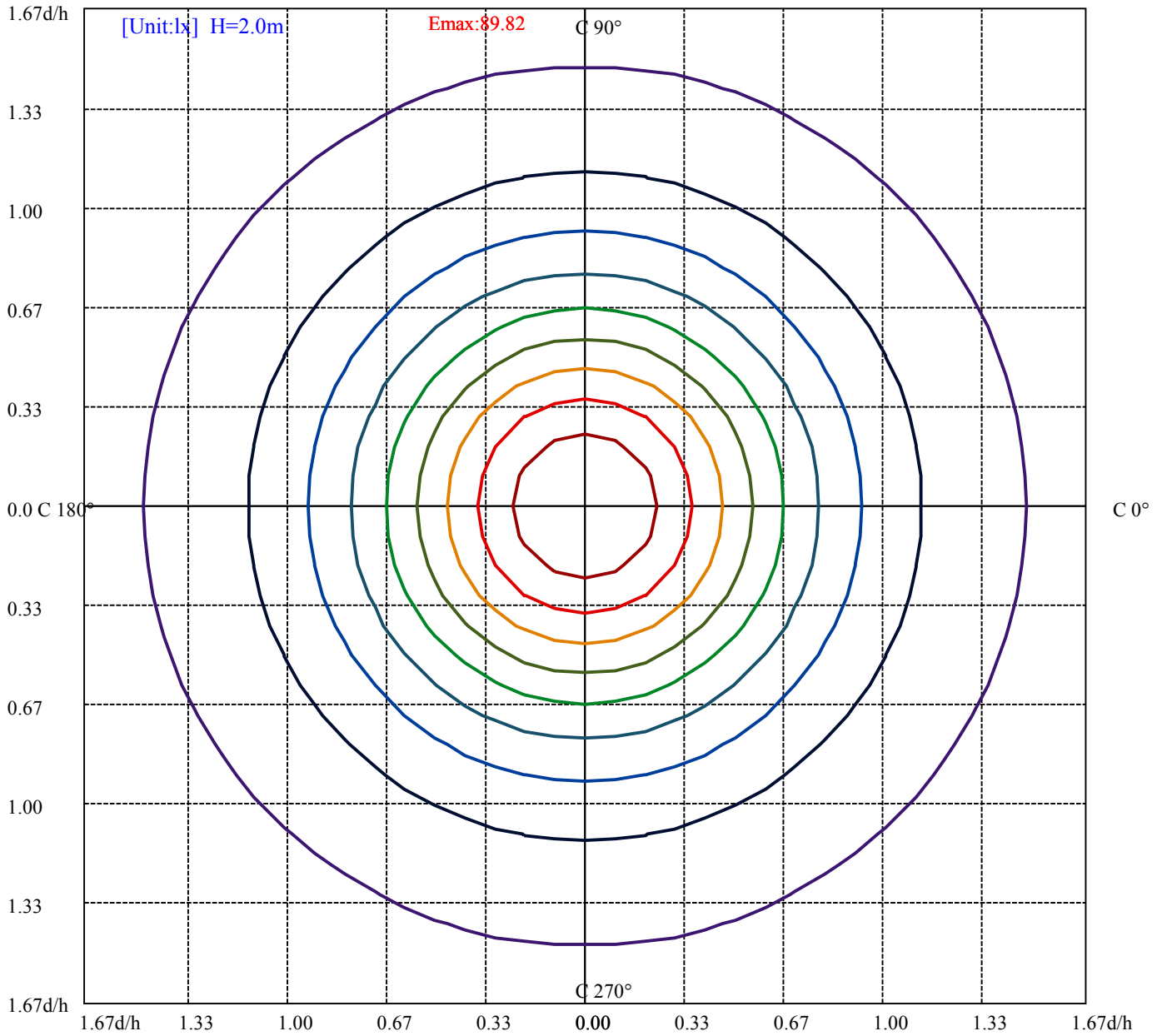
Beam Angle(50%Imax):C0/180Left:59.3 Right:59.3

:C90/270Left:59.3 Right:59.3

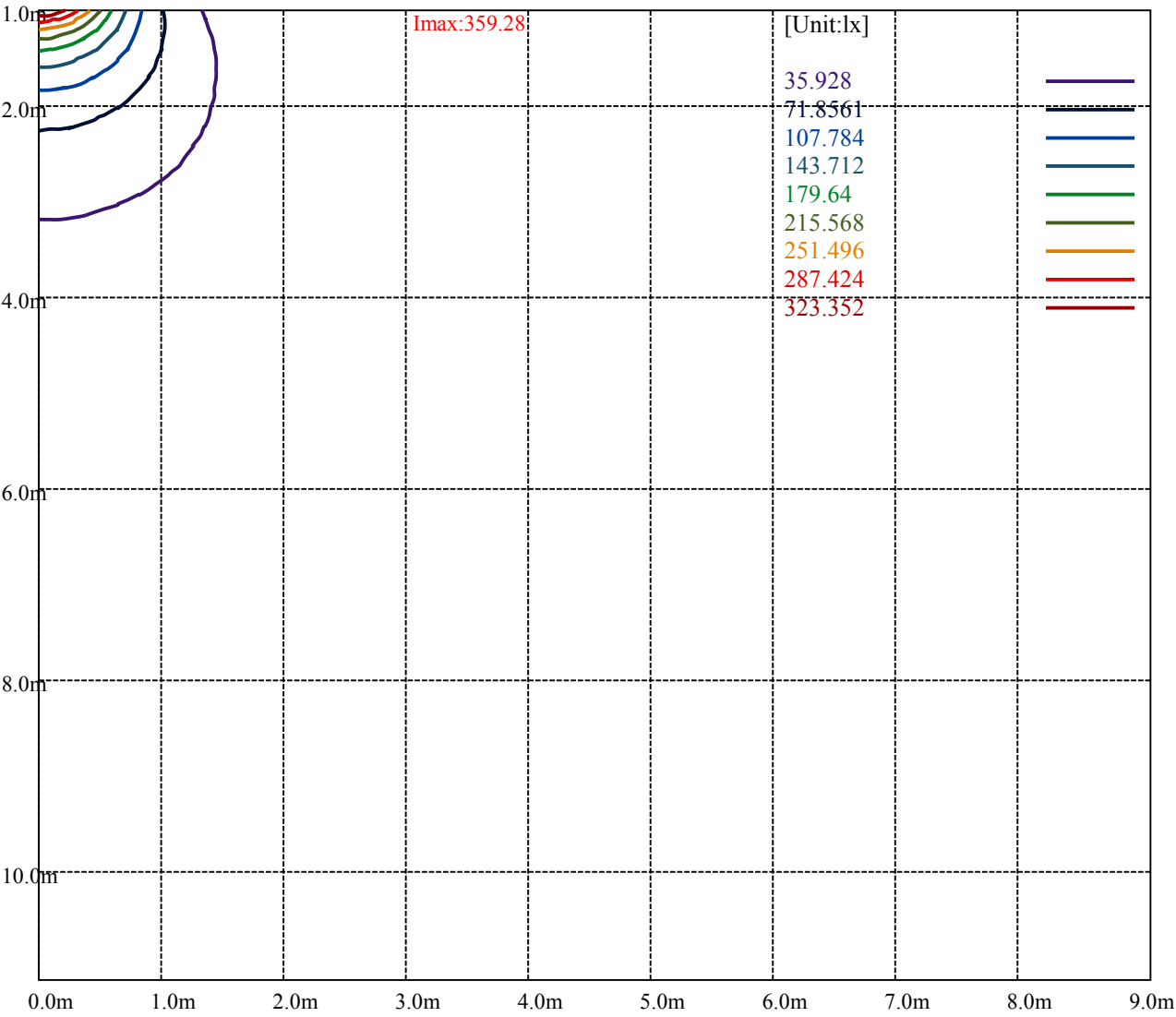


Max , Ave

Beam angle of C0 plane 118.69



(10%Emax) 8.982	—
(20%Emax) 17.96403	—
(30%Emax) 26.946	—
(40%Emax) 35.928	—
(50%Emax) 44.91	—
(60%Emax) 53.892	—
(70%Emax) 62.874	—
(80%Emax) 71.856	—
(90%Emax) 80.838	—



Luminance Table

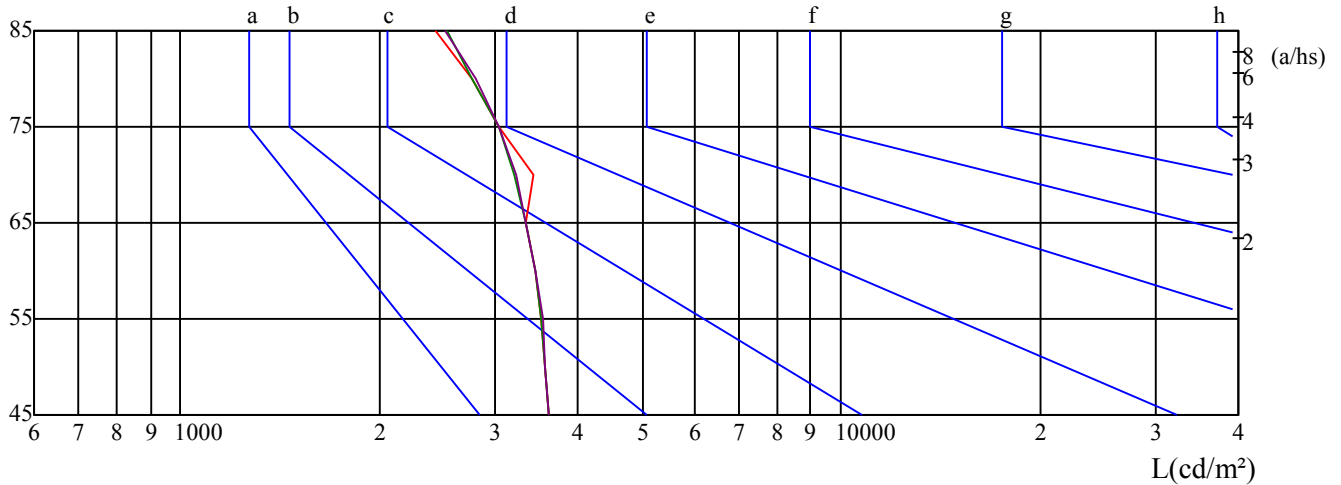
γ	45	50	55	60	65	70	75	80	85
C0	3606	3568	3515	3443	3344	3208	3043	2768	2529
C45	3610	3575	3530	3452	3341	3216	3032	2793	2515
C90	3612	3571	3527	3447	3337	3426	3032	2772	2437

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3344	3337	3341	3043	3032	3032	2529	2437	2515

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 ———

RHOC	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	1.19	1.19	1.19	1.16	1.16	1.16	1.11	1.11	1.11	1.06	1.06	1.06	1.02	1.02	1.02	1.00
1	1.03	0.99	0.95	1.01	0.97	0.93	0.97	0.93	0.90	0.93	0.90	0.87	0.89	0.87	0.85	0.82
2	0.90	0.83	0.77	0.88	0.81	0.76	0.84	0.79	0.74	0.81	0.76	0.72	0.77	0.74	0.70	0.68
3	0.78	0.70	0.63	0.77	0.69	0.63	0.74	0.67	0.61	0.71	0.65	0.60	0.68	0.63	0.59	0.57
4	0.69	0.60	0.53	0.68	0.59	0.53	0.65	0.58	0.52	0.63	0.57	0.51	0.61	0.55	0.51	0.48
5	0.62	0.53	0.46	0.61	0.52	0.45	0.58	0.51	0.45	0.56	0.50	0.44	0.54	0.49	0.44	0.42
6	0.55	0.46	0.40	0.54	0.46	0.40	0.53	0.45	0.39	0.51	0.44	0.39	0.49	0.43	0.38	0.36
7	0.50	0.41	0.35	0.49	0.41	0.35	0.48	0.40	0.35	0.46	0.39	0.34	0.45	0.39	0.34	0.32
8	0.46	0.37	0.31	0.45	0.37	0.31	0.44	0.36	0.31	0.42	0.35	0.31	0.41	0.35	0.30	0.28
9	0.42	0.34	0.28	0.41	0.33	0.28	0.40	0.33	0.28	0.39	0.32	0.27	0.38	0.32	0.27	0.25
10	0.39	0.31	0.25	0.38	0.30	0.25	0.37	0.30	0.25	0.36	0.29	0.25	0.35	0.29	0.25	0.23

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Intensity data(cd)

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C/γ(°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	359.28	358.57	355.88	351.68	345.87	337.65	325.94	309.95	289.75
15.0	359.28	358.56	356.24	352.21	346.03	338.24	326.15	309.32	289.54
30.0	359.28	358.83	356.59	352.46	346.54	338.65	326.99	310.22	290.13
45.0	359.28	359.19	356.95	353.09	347.34	339.44	327.14	310.62	290.42
60.0	359.28	359.10	357.30	353.26	347.79	340.15	327.94	311.42	290.59
75.0	359.28	359.01	357.39	353.80	348.15	340.60	328.75	311.78	291.75
90.0	359.28	359.37	357.84	354.34	349.12	341.30	328.99	312.54	292.40
105.0	359.28	359.64	358.20	354.69	349.66	342.19	330.22	313.85	293.34
120.0	359.28	359.73	358.29	354.96	350.10	342.64	331.21	314.48	294.87
135.0	359.28	359.91	358.65	355.59	350.64	343.17	331.74	315.36	296.10
150.0	359.28	359.91	357.39	355.95	350.73	343.35	332.54	316.43	297.25
165.0	359.28	360.09	359.01	355.86	350.90	343.25	332.89	317.76	298.93
180.0	359.28	358.03	354.90	349.81	342.93	332.83	317.45	298.24	276.70
195.0	359.28	358.03	354.89	349.88	342.90	332.42	318.01	299.12	277.72
210.0	359.28	357.94	354.71	349.41	342.69	332.73	318.47	299.82	277.76
225.0	359.28	357.84	354.34	349.32	342.22	332.26	317.53	298.86	277.67
240.0	359.28	357.30	353.98	348.41	341.41	331.44	316.99	298.22	277.21
255.0	359.28	356.95	353.53	347.88	340.60	330.63	316.36	297.41	275.50
270.0	359.28	357.21	353.35	347.77	340.22	329.80	315.06	296.09	274.88
285.0	359.28	357.12	353.07	347.41	340.21	329.24	314.39	295.32	273.19
300.0	359.28	356.76	352.62	346.87	339.22	328.52	313.85	294.06	282.46
315.0	359.28	356.85	352.26	346.59	338.76	333.18	312.12	292.41	270.09
330.0	359.28	356.85	352.44	346.50	338.76	327.05	311.30	291.76	268.99
345.0	359.28	356.76	352.26	346.58	338.47	326.50	310.55	291.19	268.40
360.0	359.28	358.57	355.88	351.68	345.87	337.65	325.94	309.95	289.75
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	267.32	241.75	213.87	185.00	154.71	122.17	90.62	58.81	30.39
15.0	266.89	240.92	213.71	183.80	153.01	120.33	88.63	57.66	28.38
30.0	266.55	240.45	213.00	183.50	151.84	118.83	86.91	54.98	26.82
45.0	267.44	241.32	213.58	183.14	151.00	118.86	86.81	54.76	26.39
60.0	267.69	241.29	213.45	182.83	151.58	118.17	86.12	54.87	25.68
75.0	267.78	241.29	213.45	183.73	151.40	118.08	85.76	53.61	25.32
90.0	269.48	242.88	215.10	184.27	152.00	119.55	87.19	54.83	26.25
105.0	270.31	244.05	216.07	185.49	154.09	120.63	88.25	55.86	27.17
120.0	271.30	245.04	217.42	186.75	155.62	122.25	89.87	58.38	28.61
135.0	272.61	247.41	219.96	189.54	157.50	125.37	91.89	60.57	31.41
150.0	274.75	249.09	221.91	191.84	160.96	128.19	95.78	63.20	33.76
165.0	276.24	250.75	223.64	193.83	163.20	130.60	98.35	65.75	36.12
180.0	251.76	225.13	196.53	165.43	132.99	101.17	69.71	39.06	14.48
195.0	252.92	226.60	198.40	167.33	135.19	103.41	71.09	41.27	15.49
210.0	253.90	226.90	198.74	168.07	136.14	105.47	73.09	43.23	16.95
225.0	253.35	227.31	199.39	168.87	136.91	105.49	74.33	44.44	17.87
240.0	252.96	226.29	198.36	168.91	137.12	105.87	73.81	44.18	17.69
255.0	252.06	226.11	197.47	167.47	135.77	104.52	73.72	44.09	29.09
270.0	250.43	224.36	196.76	166.56	135.10	119.01	72.54	43.15	16.99
285.0	249.45	223.45	208.25	164.80	133.22	103.09	71.24	42.10	16.19
300.0	247.47	221.38	193.40	163.00	131.42	100.39	68.64	39.76	15.02
315.0	245.88	219.51	191.52	161.10	129.42	98.10	66.51	37.71	13.59
330.0	244.59	217.94	188.78	158.08	127.20	95.78	64.19	35.56	11.52
345.0	242.91	216.07	186.35	156.36	124.20	92.86	62.15	33.51	10.27
360.0	267.32	241.75	213.87	185.00	154.71	122.17	90.62	58.81	30.39

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Intensity data(cd)

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C/ $\gamma(^{\circ})$	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	8.31	0.80	0.27	0.18	0.18	0.18	0.27	0.45	0.45
15.0	7.16	0.54	0.27	0.18	0.09	0.18	0.27	0.45	0.54
30.0	6.73	0.45	0.18	0.18	0.18	0.18	0.18	0.36	0.54
45.0	6.10	0.27	0.36	0.18	0.18	0.18	0.27	0.36	0.54
60.0	5.57	0.36	0.18	0.27	0.18	0.09	0.27	0.45	0.45
75.0	5.66	0.27	0.27	0.27	0.27	0.18	0.27	0.36	0.54
90.0	5.66	0.18	0.18	0.27	0.18	0.18	0.27	0.36	0.54
105.0	6.12	0.27	0.18	0.18	0.27	0.18	0.18	0.45	0.45
120.0	7.38	0.27	0.18	0.18	0.18	0.18	0.27	0.36	0.54
135.0	8.46	0.36	0.18	0.18	0.18	0.18	0.27	0.36	0.54
150.0	9.99	0.63	0.18	0.18	0.27	0.09	0.27	0.36	0.54
165.0	12.16	0.99	0.09	0.18	0.27	0.18	0.18	0.36	0.45
180.0	1.97	0.54	0.63	0.63	0.63	0.54	0.54	0.54	0.54
195.0	2.60	0.54	0.54	0.63	0.54	0.54	0.54	0.54	0.45
210.0	2.78	0.54	0.54	0.63	0.54	0.63	0.63	0.54	0.54
225.0	3.14	0.54	0.63	0.54	0.63	0.54	0.54	0.54	0.45
240.0	3.32	0.54	0.63	0.63	0.63	0.63	0.45	0.54	0.54
255.0	3.23	0.54	0.63	0.63	0.63	0.54	0.54	0.54	0.45
270.0	3.15	0.54	0.63	0.54	0.54	0.63	0.54	0.54	0.45
285.0	2.97	0.54	0.54	0.54	0.63	0.54	0.54	0.54	0.63
300.0	2.61	0.54	0.63	0.54	0.54	0.54	0.54	0.54	0.45
315.0	2.07	0.63	0.63	0.63	0.63	0.63	0.54	0.54	0.45
330.0	1.71	0.63	0.54	0.63	0.63	0.54	0.54	0.54	0.45
345.0	1.35	0.63	0.63	0.63	0.63	0.54	0.54	0.54	0.45
360.0	8.31	0.80	0.27	0.18	0.18	0.18	0.27	0.45	0.45
C/ $\gamma(^{\circ})$	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	0.45	0.63	0.80	0.98	1.16	1.34	1.52	1.52	1.61
15.0	0.54	0.72	0.72	0.98	1.25	1.34	1.52	1.52	1.52
30.0	0.54	0.63	0.90	1.08	1.17	1.43	1.52	1.52	1.61
45.0	0.63	0.72	0.81	0.99	1.26	1.35	1.53	1.62	1.53
60.0	0.54	0.72	0.81	0.99	1.26	1.44	1.53	1.62	1.62
75.0	0.54	0.63	0.81	1.08	1.17	1.44	1.62	1.62	1.62
90.0	0.54	0.54	0.81	0.90	1.17	1.35	1.53	1.53	1.62
105.0	0.54	0.63	0.81	0.99	1.26	1.35	1.53	1.53	1.53
120.0	0.54	0.63	0.90	0.99	1.17	1.35	1.53	1.53	1.62
135.0	0.54	0.72	0.81	0.99	1.17	1.35	1.44	1.53	1.53
150.0	0.45	0.63	0.81	0.99	1.17	1.35	1.53	1.53	1.62
165.0	0.54	0.63	0.81	0.99	1.26	1.44	1.53	1.62	1.62
180.0	0.54	0.54	0.54	0.71	0.89	0.98	1.25	1.34	1.52
195.0	0.45	0.45	0.63	0.81	0.90	1.07	1.16	1.34	1.52
210.0	0.45	0.54	0.63	0.72	0.90	1.08	1.17	1.35	1.61
225.0	0.45	0.45	0.54	0.63	0.99	1.08	1.17	1.35	1.53
240.0	0.45	0.45	0.54	0.72	0.90	0.99	1.17	1.44	1.53
255.0	0.54	0.54	0.54	0.72	0.90	1.08	1.17	1.35	1.53
270.0	0.45	0.54	0.63	0.72	0.99	1.08	1.17	1.35	1.53
285.0	0.45	0.54	0.63	0.72	0.99	1.08	1.26	1.26	1.62
300.0	0.45	0.45	0.63	0.72	0.90	1.08	1.17	1.35	1.62
315.0	0.45	0.54	0.63	0.72	0.90	1.08	1.17	1.35	1.62
330.0	0.45	0.54	0.63	0.63	0.81	1.08	1.17	1.35	1.62
345.0	0.45	0.54	0.54	0.72	0.90	0.99	1.17	1.35	1.53
360.0	0.45	0.63	0.80	0.98	1.16	1.34	1.52	1.52	1.61

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Intensity data(cd)

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C/ γ (°)	180.0
0.0	1.70
15.0	1.61
30.0	1.61
45.0	1.62
60.0	1.62
75.0	1.62
90.0	1.71
105.0	1.71
120.0	1.71
135.0	1.53
150.0	1.71
165.0	1.62
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	1.70