
Client:

LumCAT: LRS-F

Luminaire: LED outdoor fixture

Report No:

Ballast type:

Test No: LCZP20120152

Voltage(V): 119.990

LampCAT:

Current(A): 0.109

Lamp flux(lm): 631.5

Power (W): 11.700

Number of Lamps: 1

PF: 0.892

Length(mm): 125

Width(mm): 60

Phm Type: C

Height(mm): 125

Photometric Results

Lumens(lm): 631.45, Efficiency(%): 100.00% , Luminous Efficacy(lm/W): 53.97

Central intensity(cd): 60.241, Maximum intensity(cd): 148.821

Angle of maximum intensity: C=90.0 γ =65.0

Beam Angle(50% I_{max}): [C0/180]Total=181.2

[C90/270]Total=157.5

Field angle(10% I_{max}): [C0/180]Total=248.2

[C90/270]Total=208.2

Maximum s/h(1/2): C0_180=1.50 C90_270=2.73

Maximum s/h(1/4): C0_180=1.65 C90_270=2.70

Up flux rate of lamp(%): 36.17%

Down flux rate of lamp(%): 63.83%

Up flux rate of LUM(%): 36.17%

Down flux rate of LUM(%): 63.83%

CIE Type : Semidirect lighting

Output flux ratio in π solid angle : 32.704%

Zonal flux distribution table

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$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	60.241	0.000	0	0.00%	0.00%
5.0	59.949	1.437	1.437	0.23%	0.23%
10.0	59.957	4.289	5.726	0.68%	0.91%
15.0	60.558	7.149	12.875	1.13%	2.04%
20.0	61.793	10.083	22.959	1.60%	3.64%
25.0	63.336	13.124	36.082	2.08%	5.71%
30.0	64.942	16.234	52.316	2.57%	8.29%
35.0	66.163	19.306	71.622	3.06%	11.34%
40.0	67.114	22.236	93.858	3.52%	14.86%
45.0	67.668	24.956	118.814	3.95%	18.82%
50.0	67.685	27.350	146.164	4.33%	23.15%
55.0	67.326	29.356	175.52	4.65%	27.80%
60.0	66.745	30.990	206.51	4.91%	32.70%
65.0	65.775	32.216	238.726	5.10%	37.81%
70.0	64.630	33.019	271.746	5.23%	43.04%
75.0	63.164	33.403	305.149	5.29%	48.33%
80.0	61.361	33.319	338.468	5.28%	53.60%
85.0	59.289	32.783	371.252	5.19%	58.79%
90.0	56.972	31.833	403.085	5.04%	63.83%
95.0	54.668	30.568	433.653	4.84%	68.68%
100.0	52.175	29.032	462.685	4.60%	73.27%
105.0	49.497	27.205	489.889	4.31%	77.58%
110.0	46.513	25.095	514.985	3.97%	81.56%
115.0	43.168	22.708	537.692	3.60%	85.15%
120.0	39.518	20.101	557.794	3.18%	88.34%
125.0	35.737	17.395	575.189	2.75%	91.09%
130.0	31.890	14.704	589.893	2.33%	93.42%
135.0	27.902	12.082	601.975	1.91%	95.33%
140.0	23.901	9.592	611.567	1.52%	96.85%
145.0	20.014	7.327	618.894	1.16%	98.01%
150.0	15.933	5.294	624.187	0.84%	98.85%
155.0	11.978	3.532	627.719	0.56%	99.41%
160.0	8.256	2.122	629.842	0.34%	99.75%
165.0	4.907	1.085	630.926	0.17%	99.92%
170.0	2.142	0.418	631.345	0.07%	99.98%
175.0	0.588	0.098	631.442	0.02%	100.00%
180.0	0.178	0.009	631.451	0.00%	100.00%

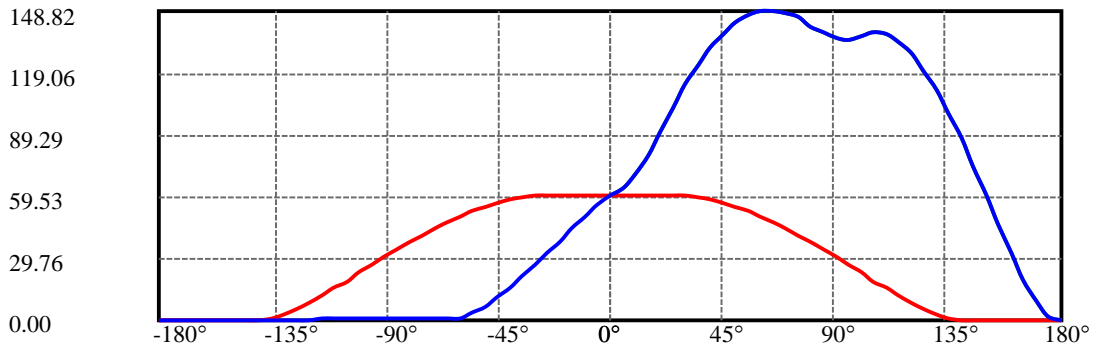
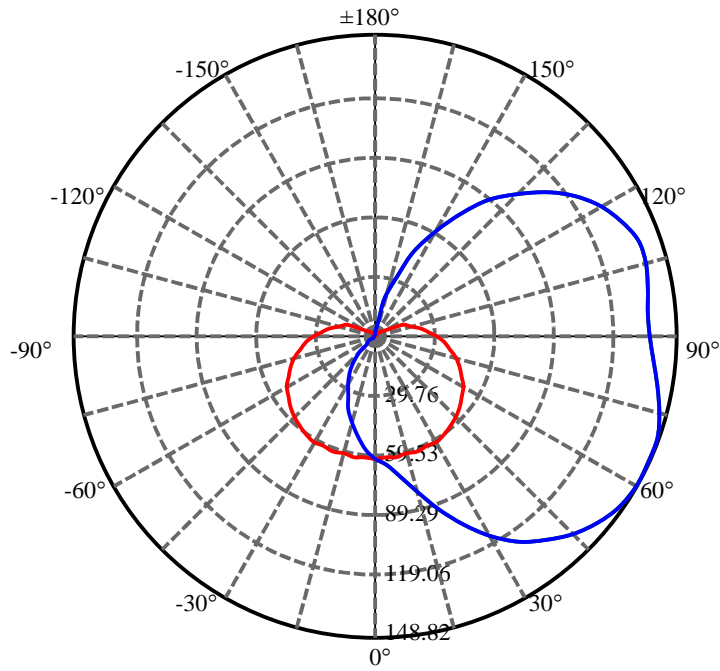
Zonal flux distribution table

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	52.32	8.29%	8.29%
0-40	93.86	14.86%	14.86%
0-60	206.51	32.70%	32.70%
0-90	403.08	63.83%	63.83%
0-120	557.79	88.34%	88.34%
0-180	631.45	100.00%	100.00%
60-90	196.57	31.13%	31.13%
90-120	154.71	24.50%	24.50%
90-130	186.81	29.58%	29.58%
90-150	221.10	35.02%	35.01%
90-180	228.36	36.16%	36.16%
0-108.04	505.16	80.00%	80.00%

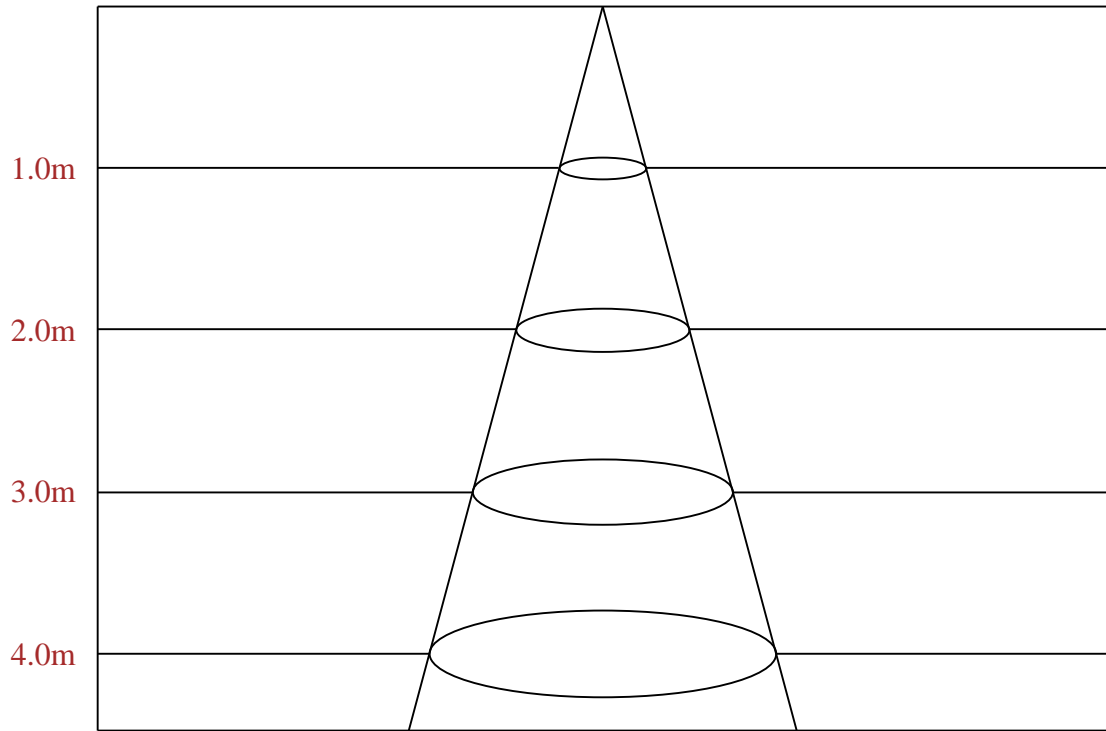
ZONAL LUMEN SUMMARY

0-10	5.73
10-20	17.23
20-30	29.36
30-40	41.54
40-50	52.31
50-60	60.35
60-70	65.24
70-80	66.72
80-90	64.62
90-100	59.60
100-110	52.30
110-120	42.81
120-130	32.10
130-140	21.67
140-150	12.62
150-160	5.65
160-170	1.50
170-180	0.10

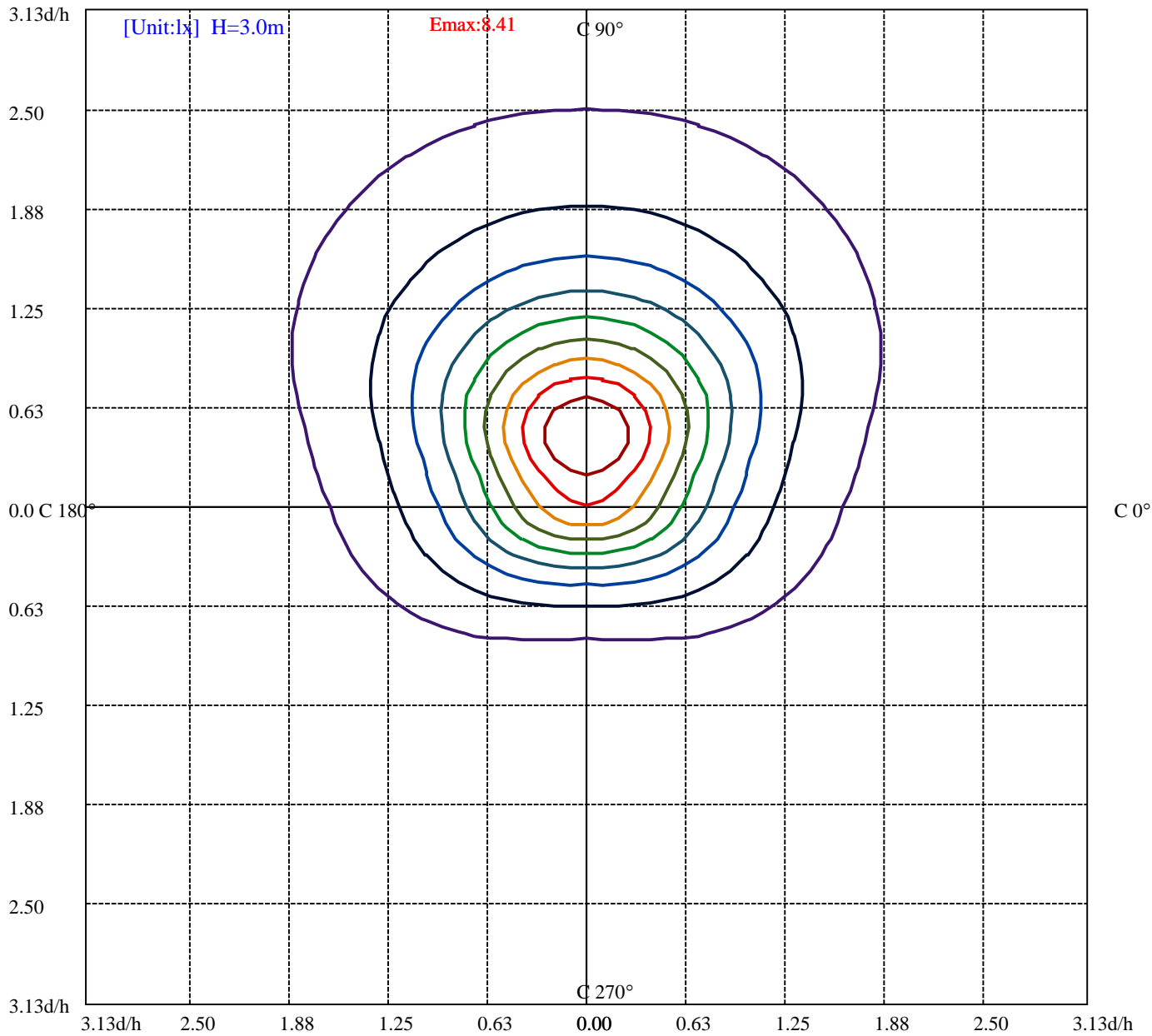


C90(Max): ———
 C0/C180: ———
 C90/C270: ———

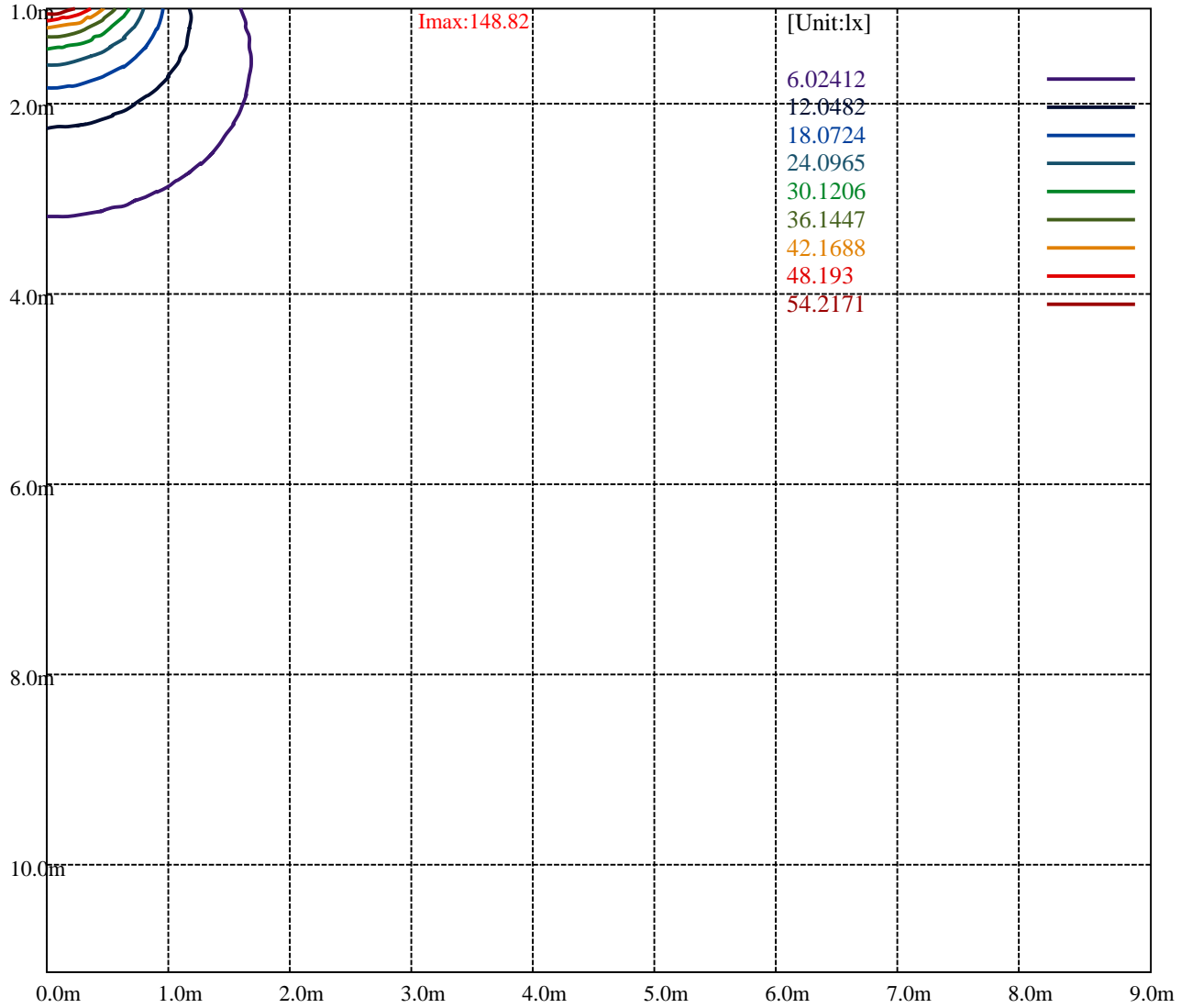
Field angle(10%Imax):C0/180Left:124.1 Right:124.1
 :C90/270Left:41.0 Right:167.2
 Beam Angle(50%Imax):C0/180Left:90.6 Right:90.6
 :C90/270Left:12.5 Right:145.0



Max , Ave Beam angle of C90 plane 190.68



- (10% Emax) 0.8412978
- (20% Emax) 1.6826
- (30% Emax) 2.5239
- (40% Emax) 3.365189
- (50% Emax) 4.206489
- (60% Emax) 5.047789
- (70% Emax) 5.889089
- (80% Emax) 6.730389
- (90% Emax) 7.571689



Luminance Limiting Curve(no luminous side)

Luminance Table

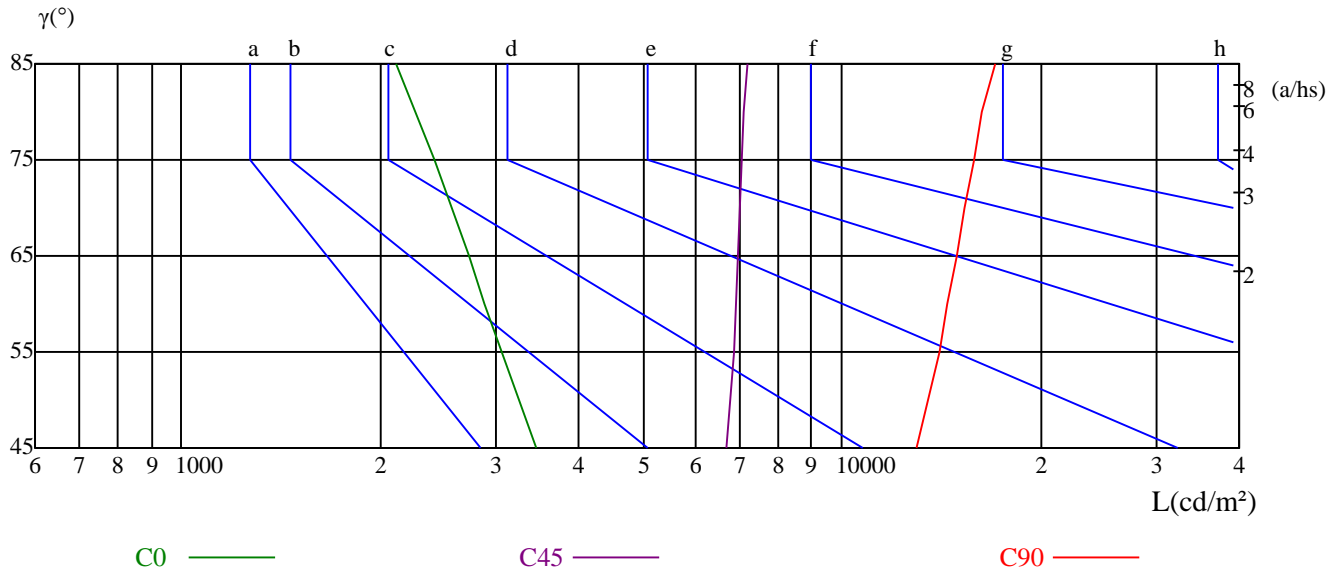
γ	45	50	55	60	65	70	75	80	85
C0	3457	3250	3063	2883	2718	2563	2414	2265	2111
C45	6682	6788	6870	6935	6983	7029	7078	7121	7178
C90	13023	13548	14029	14499	14931	15377	15853	16329	17034

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
14861	23606	22315	21180	37768	35324	52369	106843	99399

Glare Table

Glare	Quality	Service Values Illuminance(lx)							
		a	b	c	d	e	f	g	h
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	1.10	1.10	1.10	1.04	1.04	1.04	0.91	0.91	0.91	0.79	0.79	0.79	0.69	0.69	0.69	0.64
1	0.89	0.83	0.78	0.83	0.78	0.73	0.72	0.68	0.64	0.62	0.59	0.56	0.53	0.50	0.48	0.43
2	0.75	0.67	0.60	0.70	0.63	0.56	0.61	0.55	0.49	0.52	0.47	0.43	0.44	0.40	0.37	0.32
3	0.64	0.55	0.48	0.60	0.52	0.45	0.52	0.45	0.39	0.44	0.39	0.34	0.37	0.33	0.29	0.25
4	0.56	0.46	0.39	0.52	0.43	0.37	0.45	0.38	0.32	0.38	0.33	0.28	0.32	0.28	0.24	0.20
5	0.49	0.40	0.33	0.46	0.37	0.31	0.40	0.33	0.27	0.34	0.28	0.23	0.29	0.24	0.20	0.17
6	0.44	0.34	0.28	0.41	0.32	0.26	0.36	0.28	0.23	0.30	0.24	0.20	0.26	0.21	0.17	0.14
7	0.39	0.30	0.24	0.37	0.28	0.22	0.32	0.25	0.20	0.27	0.22	0.17	0.23	0.18	0.15	0.12
8	0.36	0.27	0.21	0.33	0.25	0.20	0.29	0.22	0.17	0.25	0.19	0.15	0.21	0.16	0.13	0.10
9	0.32	0.24	0.18	0.30	0.23	0.17	0.26	0.20	0.15	0.23	0.17	0.13	0.19	0.15	0.11	0.09
10	0.30	0.22	0.16	0.28	0.20	0.15	0.24	0.18	0.14	0.21	0.16	0.12	0.18	0.13	0.10	0.08

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	60.24	60.24	60.33	60.33	60.42	60.42	60.33	59.26	57.83
15.0	60.24	61.05	61.95	63.11	64.55	65.99	67.33	68.23	68.41
30.0	60.24	61.59	63.75	66.63	70.06	74.47	79.15	84.01	87.89
45.0	60.24	62.42	66.05	70.95	77.57	85.01	92.90	100.43	107.87
60.0	60.24	63.07	67.71	74.82	84.21	94.05	104.17	113.46	121.48
75.0	60.24	63.54	69.30	77.91	88.62	100.43	111.33	121.21	129.64
90.0	60.24	63.71	69.93	79.07	90.32	102.20	113.44	123.32	131.36
105.0	60.24	63.34	69.35	77.47	88.58	99.52	110.55	120.03	128.59
120.0	60.24	63.07	67.81	74.55	83.21	93.23	102.89	112.19	120.03
135.0	60.24	62.52	65.90	70.65	76.58	83.97	91.37	98.94	105.70
150.0	60.24	61.61	63.61	66.07	69.16	72.98	77.44	81.63	86.36
165.0	60.24	60.88	61.70	62.42	63.42	64.60	65.51	66.78	68.06
180.0	60.24	60.15	60.06	59.88	59.70	59.26	59.17	58.72	58.27
195.0	60.24	59.43	58.36	57.10	55.84	54.50	52.97	51.71	50.37
210.0	60.24	58.35	55.92	53.31	50.43	47.63	44.93	42.14	39.71
225.0	60.24	57.52	53.80	49.81	45.73	41.55	37.74	33.75	30.30
240.0	60.24	56.69	51.77	46.75	41.74	36.55	31.81	26.98	22.42
255.0	60.24	55.94	50.54	44.86	39.09	33.42	27.74	22.61	17.58
270.0	60.24	55.76	50.09	44.06	38.30	32.27	26.60	21.21	15.91
285.0	60.24	55.96	50.58	44.84	39.19	33.81	28.16	22.88	17.86
300.0	60.24	56.50	51.77	46.94	41.92	37.00	32.35	27.71	23.33
315.0	60.24	57.50	53.94	50.20	46.28	42.44	38.61	35.14	31.58
330.0	60.24	58.51	56.15	53.78	51.32	48.87	47.68	43.41	40.31
345.0	60.24	59.42	58.61	57.88	56.79	55.88	54.43	52.15	49.88
360.0	60.24	60.24	60.33	60.33	60.42	60.42	60.33	59.26	57.83

C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	55.86	53.63	51.21	48.44	45.49	42.19	38.97	35.48	31.64
15.0	68.32	68.05	67.33	66.08	64.46	62.40	59.79	56.74	53.24
30.0	91.13	93.92	95.99	97.34	97.61	97.25	95.81	93.56	90.59
45.0	113.59	118.21	121.57	123.93	125.29	125.56	124.84	123.02	120.57
60.0	128.41	134.34	138.44	141.26	142.72	143.18	142.81	141.53	139.71
75.0	136.50	141.72	145.38	147.76	149.05	149.05	147.86	146.03	143.74
90.0	138.13	143.15	146.54	148.55	148.82	147.81	145.62	141.87	138.40
105.0	135.06	140.17	143.81	146.37	147.73	147.73	147.00	145.27	143.54
120.0	126.95	132.24	136.52	139.80	141.99	143.08	142.99	142.26	140.26
135.0	111.81	117.29	121.58	124.50	125.96	126.51	126.23	124.86	122.67
150.0	90.54	94.18	96.37	97.91	98.64	98.64	97.82	96.19	93.73
165.0	69.05	69.24	68.60	67.87	66.69	64.97	63.06	60.60	57.70
180.0	57.20	55.50	53.54	51.21	48.71	46.21	43.26	40.13	36.82
195.0	48.75	46.42	44.26	41.75	39.23	36.54	34.03	31.42	28.73
210.0	37.46	34.85	32.24	29.72	27.19	24.85	22.60	20.44	18.28
225.0	26.76	23.86	20.96	18.33	15.88	13.70	11.70	10.25	8.80
240.0	18.32	14.58	11.12	8.20	5.74	4.10	3.01	2.37	1.91
255.0	12.82	8.61	5.04	2.47	1.10	1.01	1.10	1.19	1.19
270.0	10.97	6.76	3.38	1.28	0.82	0.82	1.01	1.19	1.28
285.0	13.12	9.02	5.65	2.83	1.37	1.09	1.09	1.09	1.18
300.0	19.32	15.68	12.30	10.66	7.02	5.10	3.65	2.73	2.19
315.0	29.48	24.55	21.27	18.53	15.79	13.51	11.50	9.68	7.85
330.0	37.22	34.03	31.12	28.30	25.39	22.93	20.29	17.93	15.38
345.0	47.25	44.43	41.61	38.80	35.89	32.89	29.89	26.80	23.53
360.0	55.86	53.63	51.21	48.44	45.49	42.19	38.97	35.48	31.64

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	27.62	23.51	19.48	15.55	12.07	8.67	5.45	2.86	0.72
15.0	48.93	44.35	39.59	34.74	29.99	25.32	20.65	16.52	12.66
30.0	86.35	81.58	75.82	70.33	64.38	58.08	52.05	45.83	40.16
45.0	116.94	112.77	107.51	101.61	95.53	89.09	81.92	75.12	68.59
60.0	136.98	133.61	129.96	125.31	120.21	114.10	107.36	100.07	91.59
75.0	141.63	140.44	139.62	138.15	135.22	130.64	124.05	116.09	106.84
90.0	135.66	134.83	136.57	138.67	137.94	134.19	128.25	120.57	111.07
105.0	141.35	139.71	138.25	136.16	132.88	128.14	121.67	113.74	104.72
120.0	137.80	134.97	130.78	125.77	120.39	113.74	106.17	98.06	89.50
135.0	119.75	115.83	111.08	105.06	98.76	91.46	84.34	75.94	67.63
150.0	90.45	86.81	81.81	76.17	70.07	63.79	56.97	50.05	43.04
165.0	54.52	50.88	46.70	41.98	36.98	31.98	26.80	21.99	16.99
180.0	33.52	30.12	26.19	22.34	18.50	15.02	11.44	8.13	5.18
195.0	25.95	23.16	20.11	17.06	14.18	11.31	8.62	6.02	3.59
210.0	16.21	14.23	12.16	10.18	8.28	6.30	4.59	2.79	1.35
225.0	7.62	6.44	5.35	4.26	3.18	2.27	1.36	0.64	0.18
240.0	1.73	1.55	1.28	1.18	0.91	0.73	0.64	0.36	0.27
255.0	1.19	1.28	1.10	1.01	0.92	0.64	0.46	0.37	0.18
270.0	1.28	1.19	1.10	1.01	0.82	0.64	0.37	0.27	0.18
285.0	1.18	1.18	1.18	1.00	0.82	0.73	0.46	0.46	0.27
300.0	1.73	1.37	1.09	1.00	0.73	0.64	0.55	0.36	0.18
315.0	6.21	4.84	3.56	2.46	1.46	0.73	0.37	0.37	0.18
330.0	12.74	10.56	8.19	6.19	4.28	2.55	1.09	0.27	0.18
345.0	19.99	16.81	13.72	10.72	7.81	5.27	2.82	0.82	0.09
360.0	27.62	23.51	19.48	15.55	12.07	8.67	5.45	2.86	0.72
C/ γ (°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	0.18	0.18	0.09	0.09	0.18	0.27	0.27	0.27	0.27
15.0	10.32	8.44	6.55	4.76	3.05	1.89	1.08	0.63	0.45
30.0	35.21	29.72	24.31	18.82	13.24	8.37	4.23	1.62	0.63
45.0	60.97	52.71	44.09	35.11	26.22	17.51	9.71	3.72	1.00
60.0	82.02	71.63	60.70	49.12	37.73	25.88	15.22	6.29	1.28
75.0	95.67	83.77	71.41	57.77	44.22	30.85	18.68	8.33	1.65
90.0	99.73	87.39	74.41	59.88	45.80	32.54	19.65	8.87	1.74
105.0	93.96	82.30	69.81	56.05	42.56	29.89	18.32	8.02	1.64
120.0	79.84	69.54	58.78	46.75	35.27	24.06	14.40	6.11	1.18
135.0	59.15	50.57	41.99	32.95	24.10	16.16	9.22	3.56	0.73
150.0	35.49	28.03	22.29	16.83	11.56	7.10	3.64	1.27	0.45
165.0	12.27	8.09	5.18	3.45	2.18	1.27	0.73	0.45	0.36
180.0	2.50	0.54	0.09	0.00	0.18	0.27	0.27	0.27	0.18
195.0	1.35	0.09	0.09	0.18	0.09	0.27	0.18	0.27	0.27
210.0	0.18	0.09	0.09	0.09	0.09	0.18	0.27	0.18	0.18
225.0	0.18	0.09	0.00	0.09	0.09	0.27	0.18	0.18	0.18
240.0	0.09	0.09	0.00	0.09	0.18	0.27	0.18	0.18	0.18
255.0	0.09	0.09	0.00	0.09	0.00	0.09	0.18	0.00	0.09
270.0	0.09	0.00	0.00	0.09	0.00	0.09	0.18	0.09	0.18
285.0	0.18	0.09	0.09	0.00	0.18	0.09	0.18	0.18	0.27
300.0	0.09	0.09	0.09	0.09	0.18	0.18	0.27	0.18	0.27
315.0	0.09	0.00	0.09	0.09	0.09	0.27	0.27	0.18	0.37
330.0	0.00	0.09	0.09	0.00	0.18	0.18	0.27	0.27	0.27
345.0	0.00	0.00	0.09	0.00	0.09	0.18	0.18	0.27	0.27
360.0	0.18	0.18	0.09	0.09	0.18	0.27	0.27	0.27	0.27

Intensity data(cd)

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C/γ(°)	180.0
0.0	0.18
15.0	0.27
30.0	0.27
45.0	0.36
60.0	0.46
75.0	0.46
90.0	0.46
105.0	0.36
120.0	0.36
135.0	0.37
150.0	0.36
165.0	0.36
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	0.18