
Client:

LumCAT: LRS-H

Luminaire: LED outdoor fixture

Report No:

Ballast type:

Test No: LCZP20120154

Voltage(V): 120.000

LampCAT:

Current(A): 0.108

Lamp flux(lm): 609.3

Power (W): 11.660

Number of Lamps: 1

PF: 0.901

Length(mm): 125

Width(mm): 60

Phm Type: C

Height(mm): 125

Photometric Results

Lumens(lm): 609.29, Efficiency(%): 100.00% , Luminous Efficacy(lm/W): 52.25

Central intensity(cd): 50.384, Maximum intensity(cd): 149.790

Angle of maximum intensity: C=75.0 γ =70.0

Beam Angle(50% I_{max}): [C0/180]Total=171.7
[C90/270]Total=161.7

Field angle(10% I_{max}): [C0/180]Total=227.6
[C90/270]Total=208.4

Maximum s/h(1/2): C0_180=1.15 C90_270=2.99

Maximum s/h(1/4): C0_180=1.25 C90_270=2.91

Up flux rate of lamp(%): 41.71%

Down flux rate of lamp(%): 58.29%

Up flux rate of LUM(%): 41.71%

Down flux rate of LUM(%): 58.29%

CIE Type : General diffuse lighting

Output flux ratio in π solid angle : 29.436%

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	49.317	0.000	0	0.00%	0.00%
5.0	49.582	1.182	1.182	0.19%	0.19%
10.0	50.134	3.567	4.749	0.59%	0.78%
15.0	51.118	6.006	10.756	0.99%	1.77%
20.0	52.752	8.560	19.316	1.40%	3.17%
25.0	54.620	11.261	30.577	1.85%	5.02%
30.0	56.406	14.050	44.628	2.31%	7.32%
35.0	57.794	16.817	61.444	2.76%	10.08%
40.0	58.702	19.436	80.881	3.19%	13.27%
45.0	59.258	21.841	102.722	3.58%	16.86%
50.0	59.220	23.940	126.662	3.93%	20.79%
55.0	58.800	25.661	152.324	4.21%	25.00%
60.0	58.123	27.026	179.35	4.44%	29.44%
65.0	57.276	28.054	207.404	4.60%	34.04%
70.0	56.708	28.861	236.265	4.74%	38.78%
75.0	56.046	29.472	265.737	4.84%	43.61%
80.0	55.339	29.804	295.541	4.89%	48.51%
85.0	54.624	29.880	325.421	4.90%	53.41%
90.0	54.060	29.759	355.179	4.88%	58.29%
95.0	53.883	29.556	384.735	4.85%	63.15%
100.0	54.265	29.386	414.121	4.82%	67.97%
105.0	53.871	28.934	443.055	4.75%	72.72%
110.0	52.449	27.790	470.846	4.56%	77.28%
115.0	49.922	25.921	496.767	4.25%	81.53%
120.0	46.692	23.487	520.254	3.85%	85.39%
125.0	42.989	20.729	540.984	3.40%	88.79%
130.0	38.805	17.785	558.768	2.92%	91.71%
135.0	34.247	14.761	573.53	2.42%	94.13%
140.0	29.489	11.801	585.331	1.94%	96.07%
145.0	24.515	9.010	594.341	1.48%	97.55%
150.0	19.329	6.456	600.798	1.06%	98.61%
155.0	14.272	4.252	605.05	0.70%	99.30%
160.0	9.438	2.487	607.536	0.41%	99.71%
165.0	5.228	1.209	608.745	0.20%	99.91%
170.0	2.114	0.436	609.181	0.07%	99.98%
175.0	0.594	0.097	609.277	0.02%	100.00%
180.0	0.166	0.009	609.287	0.00%	100.00%

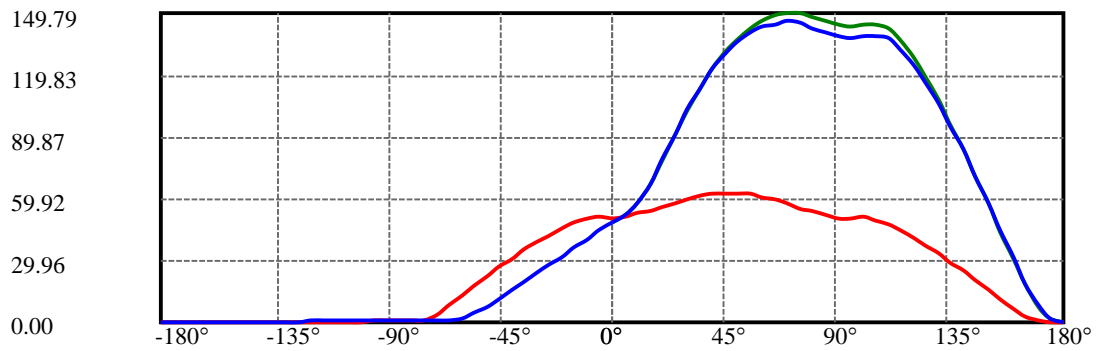
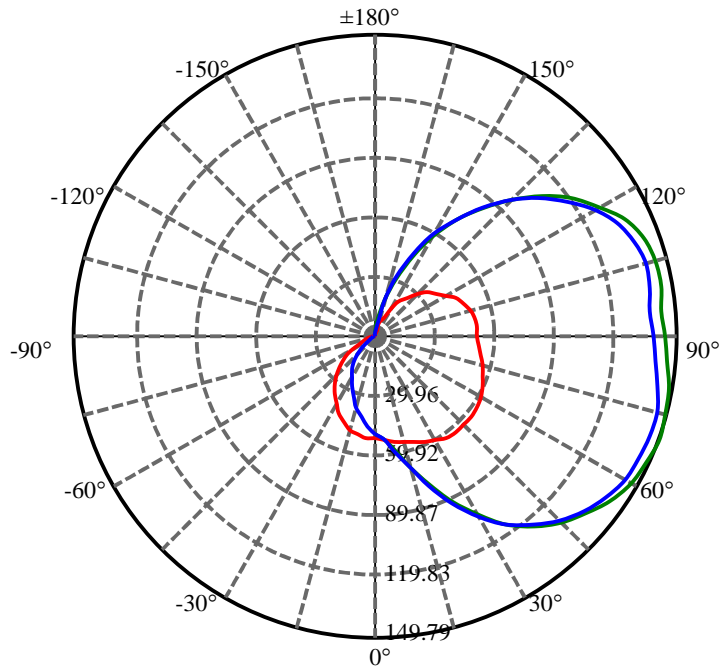
Zonal flux distribution table

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	44.63	7.32%	7.32%
0-40	80.88	13.27%	13.27%
0-60	179.35	29.44%	29.44%
0-90	355.18	58.29%	58.29%
0-120	520.25	85.39%	85.39%
0-180	609.29	100.00%	100.00%
60-90	175.83	28.86%	28.86%
90-120	165.07	27.09%	27.09%
90-130	203.59	33.41%	33.41%
90-150	245.62	40.31%	40.31%
90-180	254.10	41.70%	41.70%
0-113.20	487.43	80.00%	80.00%

ZONAL LUMEN SUMMARY

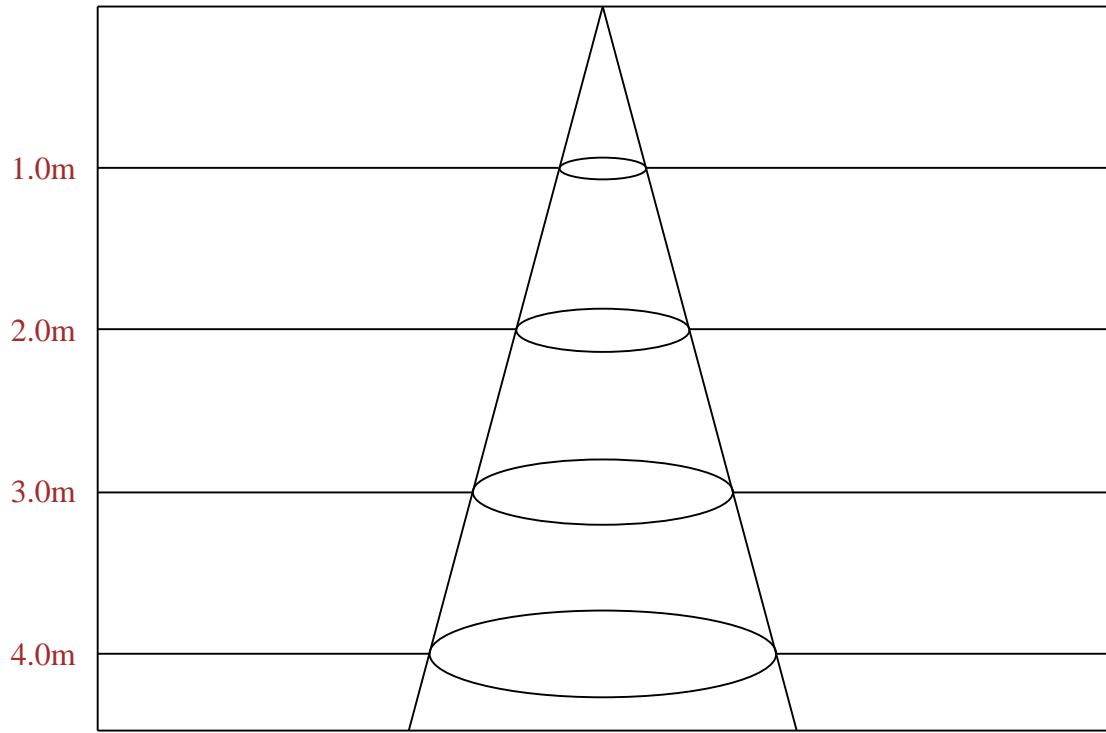
0-10	4.75
10-20	14.57
20-30	25.31
30-40	36.25
40-50	45.78
50-60	52.69
60-70	56.92
70-80	59.28
80-90	59.64
90-100	58.94
100-110	56.72
110-120	49.41
120-130	38.51
130-140	26.56
140-150	15.47
150-160	6.74
160-170	1.64
170-180	0.10



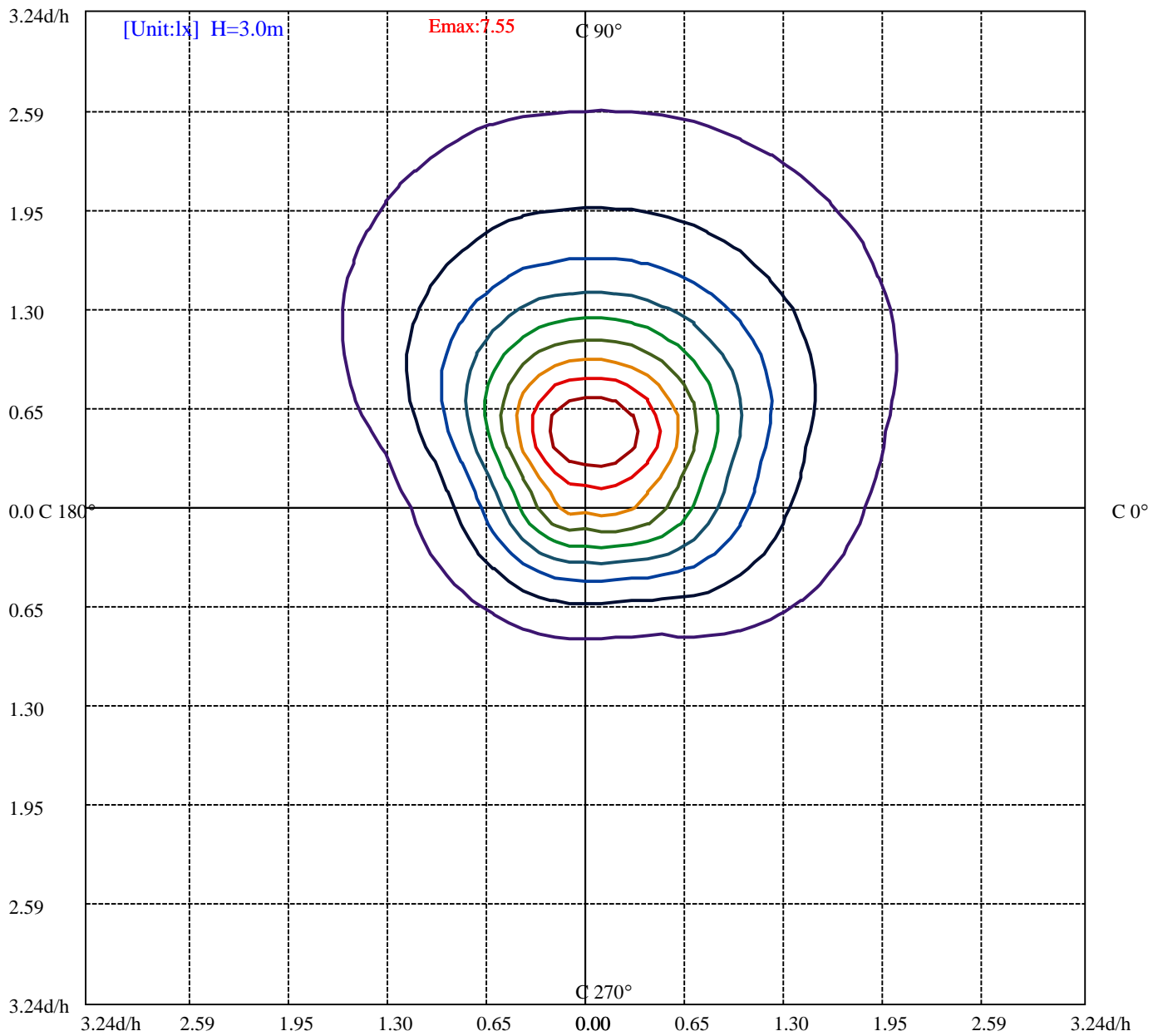
C75(Max): —
 C0/C180: —
 C90/C270: —

Field angle(10% I_{max}):C0/180Left:67.1 Right:160.5
 :C90/270Left:41.3 Right:167.1

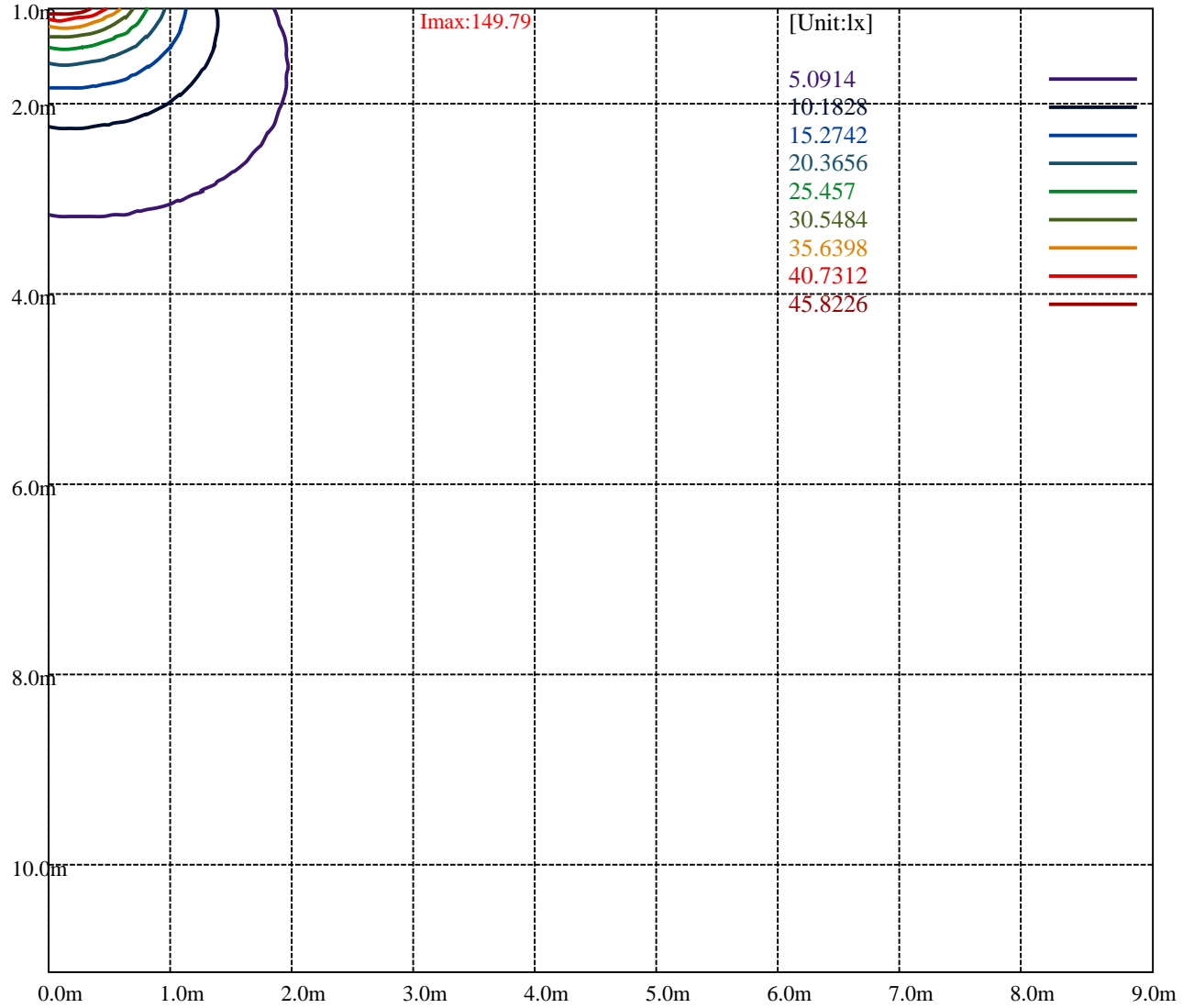
Beam Angle(50% I_{max}):C0/180Left:39.3 Right:132.4
 :C90/270Left:17.4 Right:144.3



Max , Ave Beam angle of C75 plane 196.09



- (10% Emax) 0.7551767
- (20% Emax) 1.510355
- (30% Emax) 2.265533
- (40% Emax) 3.0207
- (50% Emax) 3.775878
- (60% Emax) 4.531055
- (70% Emax) 5.286233
- (80% Emax) 6.041411
- (90% Emax) 6.796589



Luminance Limiting Curve(no luminous side)

Luminance Table

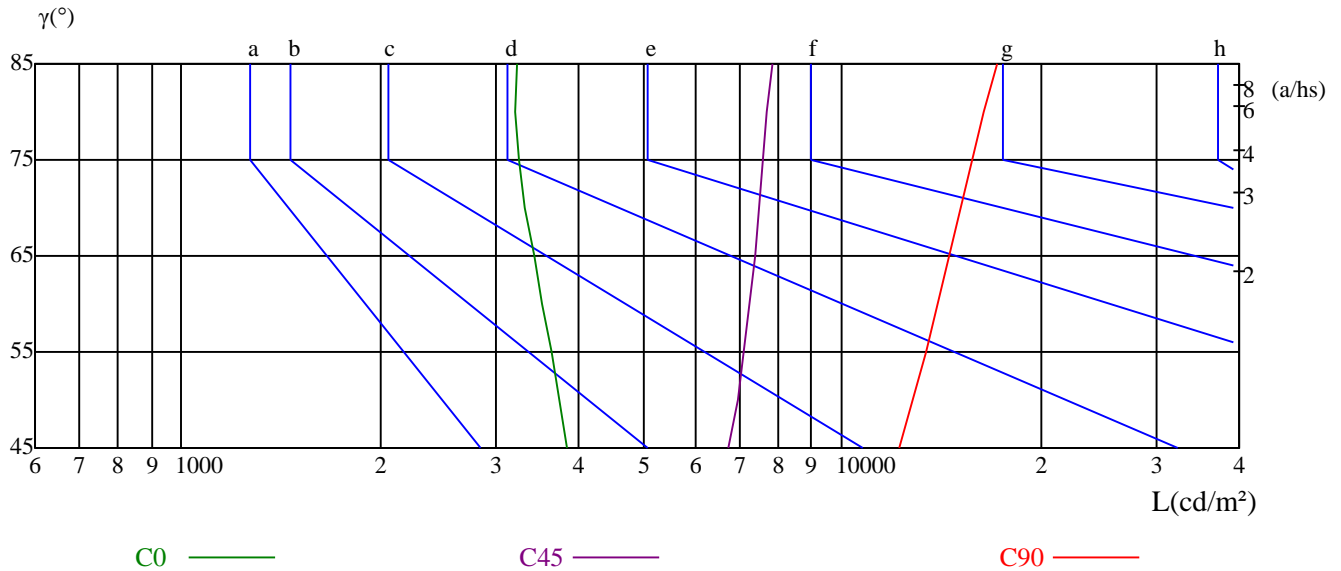
γ	45	50	55	60	65	70	75	80	85
C0	3836	3731	3626	3520	3421	3321	3246	3209	3213
C45	6750	6950	7100	7243	7373	7513	7611	7714	7844
C90	12239	12845	13410	13956	14509	15148	15763	16404	17251

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
10612	22970	19225	14568	37554	31287	40275	108118	91314

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	1.09	1.09	1.09	1.02	1.02	1.02	0.88	0.88	0.88	0.75	0.75	0.75	0.64	0.64	0.64	0.58
1	0.88	0.83	0.77	0.82	0.77	0.72	0.70	0.66	0.62	0.59	0.56	0.53	0.49	0.46	0.44	0.39
2	0.75	0.66	0.60	0.69	0.62	0.56	0.59	0.53	0.48	0.49	0.45	0.41	0.40	0.37	0.34	0.29
3	0.64	0.55	0.48	0.59	0.51	0.44	0.50	0.44	0.38	0.42	0.37	0.32	0.34	0.30	0.27	0.23
4	0.56	0.46	0.39	0.52	0.43	0.36	0.44	0.37	0.31	0.37	0.31	0.27	0.30	0.25	0.22	0.18
5	0.49	0.40	0.33	0.46	0.37	0.30	0.39	0.32	0.26	0.32	0.27	0.22	0.26	0.22	0.18	0.15
6	0.44	0.34	0.28	0.41	0.32	0.26	0.34	0.28	0.22	0.29	0.23	0.19	0.24	0.19	0.16	0.13
7	0.39	0.30	0.24	0.36	0.28	0.22	0.31	0.24	0.19	0.26	0.21	0.16	0.21	0.17	0.13	0.11
8	0.35	0.27	0.21	0.33	0.25	0.19	0.28	0.22	0.17	0.24	0.18	0.14	0.19	0.15	0.12	0.09
9	0.32	0.24	0.18	0.30	0.22	0.17	0.26	0.19	0.15	0.22	0.16	0.13	0.18	0.14	0.10	0.08
10	0.29	0.21	0.16	0.27	0.20	0.15	0.24	0.17	0.13	0.20	0.15	0.11	0.17	0.12	0.09	0.07

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	50.38	51.47	52.93	54.29	56.10	58.10	59.83	61.28	62.19
15.0	50.02	52.02	54.20	56.38	59.28	62.37	65.45	68.54	71.17
30.0	49.75	52.20	55.20	59.01	63.91	69.90	76.17	82.88	89.06
45.0	49.29	52.20	56.47	62.46	69.99	78.89	88.78	97.77	106.49
60.0	49.02	52.11	57.46	65.09	75.53	86.79	98.23	108.67	117.93
75.0	48.66	52.02	57.56	66.82	78.34	91.05	102.76	113.75	122.83
90.0	48.75	52.11	57.65	67.09	78.89	91.24	103.22	113.57	122.56
105.0	48.93	51.84	57.19	65.64	76.98	88.78	100.50	110.57	119.11
120.0	48.93	51.75	56.38	62.91	71.45	80.98	89.96	98.50	105.49
135.0	49.11	51.38	54.74	58.55	63.27	68.81	74.44	79.43	83.88
150.0	49.29	51.02	52.83	54.02	55.10	56.28	57.56	58.74	59.64
165.0	49.66	50.47	51.38	50.57	49.29	47.48	45.30	42.67	39.76
180.0	50.38	50.93	49.84	47.93	45.39	42.30	38.76	34.95	30.77
195.0	50.02	49.66	47.93	45.03	41.85	38.40	34.59	30.50	26.24
210.0	49.75	48.39	45.75	42.58	38.85	35.04	30.87	26.60	22.33
225.0	49.29	47.12	44.12	40.31	36.49	32.32	28.05	23.78	19.52
240.0	49.02	45.84	42.49	38.49	34.41	30.32	26.15	21.79	17.52
255.0	48.66	44.85	40.94	37.13	32.95	28.78	24.60	20.52	16.25
270.0	48.75	44.57	40.31	36.13	32.05	27.87	23.78	19.70	15.61
285.0	48.93	45.12	41.49	37.31	33.32	29.05	24.96	20.79	16.43
300.0	48.93	46.21	43.03	39.49	35.59	31.86	27.96	24.06	20.24
315.0	49.11	47.57	45.21	42.49	39.94	37.40	34.77	32.32	29.69
330.0	49.29	48.84	47.66	46.48	45.66	44.76	44.30	42.67	41.31
345.0	49.66	50.29	50.47	50.66	51.38	52.11	52.74	53.02	52.83
360.0	50.38	51.47	52.93	54.29	56.10	58.10	59.83	61.28	62.19
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	62.73	62.64	62.00	60.82	59.28	57.28	55.29	53.56	52.11
15.0	73.71	75.62	76.89	77.62	77.89	77.71	76.98	76.08	75.08
30.0	94.69	99.77	103.67	106.67	109.03	110.39	111.21	110.84	110.03
45.0	113.84	120.56	125.64	129.73	132.63	134.72	134.99	134.27	132.90
60.0	125.82	132.72	138.08	142.35	145.16	146.79	146.98	145.89	143.89
75.0	130.73	137.08	142.44	146.25	148.52	149.79	149.61	147.79	145.70
90.0	129.82	135.72	140.08	142.98	144.62	145.61	144.80	142.53	140.17
105.0	126.55	132.54	137.26	140.62	142.62	143.80	143.34	141.71	139.71
120.0	111.30	115.66	119.01	121.47	122.83	123.10	122.37	120.92	119.01
135.0	87.33	89.78	91.42	92.05	92.23	91.96	90.78	89.42	88.15
150.0	60.01	59.83	59.19	58.10	56.65	54.83	53.11	51.75	51.38
165.0	36.68	33.32	29.69	26.05	22.15	18.34	15.25	13.71	13.62
180.0	26.60	22.06	17.34	12.71	7.99	3.90	1.27	0.54	0.54
195.0	22.15	17.70	13.53	9.35	5.27	2.45	0.82	0.73	0.64
210.0	18.34	14.07	10.17	6.45	3.27	1.36	0.64	0.82	0.82
225.0	15.34	11.44	7.63	4.27	1.91	0.91	0.91	1.00	1.09
240.0	13.53	9.53	5.90	2.91	0.91	0.82	1.00	1.00	1.09
255.0	12.35	8.44	4.90	2.09	1.00	0.91	1.00	1.09	1.18
270.0	11.53	7.90	4.54	1.82	1.00	0.82	1.00	1.09	1.18
285.0	12.53	8.72	5.08	2.27	0.91	0.82	0.91	1.09	1.09
300.0	16.52	12.98	9.62	8.08	4.63	4.72	4.90	5.08	5.27
315.0	28.23	24.33	21.70	19.06	16.98	16.07	16.25	16.52	16.61
330.0	39.67	37.77	35.77	33.41	31.32	29.78	29.14	28.96	28.78
345.0	52.20	51.11	49.66	47.84	45.84	44.12	42.58	41.76	40.94
360.0	62.73	62.64	62.00	60.82	59.28	57.28	55.29	53.56	52.11

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	50.38	50.57	50.75	49.48	47.21	44.30	40.94	37.40	33.41
15.0	73.81	73.81	74.17	72.53	69.18	64.73	59.55	53.74	47.48
30.0	108.76	108.30	108.67	106.94	102.67	96.23	89.24	81.16	72.26
45.0	131.45	130.73	131.45	130.36	126.82	119.56	111.39	102.22	92.42
60.0	142.53	141.62	142.53	142.16	139.26	133.18	124.19	114.57	103.58
75.0	144.16	143.07	144.25	144.34	142.07	136.63	128.37	119.29	108.30
90.0	138.53	137.26	138.53	139.08	137.26	132.18	125.10	116.56	106.21
105.0	138.17	137.17	138.53	138.81	136.63	131.54	124.19	115.57	105.13
120.0	117.83	117.29	118.92	119.11	117.02	112.48	106.49	98.59	90.33
135.0	87.15	87.42	88.78	88.78	86.88	83.16	78.34	72.53	66.36
150.0	51.20	51.75	52.47	52.20	50.57	48.21	45.03	41.40	37.13
165.0	13.89	14.34	14.71	14.53	14.16	13.44	12.44	11.26	9.90
180.0	0.64	0.54	0.45	0.45	0.36	0.27	0.27	0.18	0.18
195.0	0.73	0.64	0.64	0.64	0.45	0.36	0.27	0.18	0.09
210.0	0.82	0.91	0.82	0.73	0.64	0.45	0.36	0.27	0.18
225.0	1.09	1.09	1.00	0.91	0.82	0.64	0.45	0.36	0.18
240.0	1.18	1.18	1.09	1.00	0.82	0.64	0.64	0.36	0.18
255.0	1.36	1.18	1.18	1.00	0.73	0.73	0.54	0.36	0.27
270.0	1.18	1.18	1.18	1.09	0.91	0.73	0.54	0.45	0.18
285.0	1.09	1.09	1.09	0.91	0.82	0.64	0.45	0.36	0.36
300.0	5.36	5.36	5.17	4.99	4.54	4.18	3.72	3.18	2.63
315.0	16.61	16.61	16.61	15.98	15.16	14.07	12.80	11.53	9.99
330.0	28.96	29.05	28.78	27.78	26.60	24.96	23.06	20.97	18.52
345.0	40.58	41.03	40.58	39.13	37.22	34.86	32.23	29.23	26.05
360.0	50.38	50.57	50.75	49.48	47.21	44.30	40.94	37.40	33.41
C/ γ (°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	29.23	24.96	20.43	15.52	10.89	6.63	3.00	0.73	0.36
15.0	40.67	33.86	26.96	20.06	13.71	7.90	3.54	1.00	0.36
30.0	62.37	52.38	42.03	31.77	21.70	12.89	5.90	1.82	0.54
45.0	80.98	68.81	56.65	43.85	31.68	20.15	10.35	3.63	1.00
60.0	91.69	79.25	66.36	52.93	39.58	26.42	15.07	5.90	1.36
75.0	96.23	83.97	70.99	57.56	44.12	30.87	18.52	7.81	1.54
90.0	95.23	83.43	71.08	57.92	44.94	31.77	18.97	8.35	1.82
105.0	94.41	82.97	70.72	57.46	44.21	30.41	18.25	7.63	1.63
120.0	81.07	71.26	60.55	48.75	36.95	25.42	14.53	6.08	1.27
135.0	59.28	51.29	43.03	33.95	25.06	16.70	9.17	3.54	1.00
150.0	32.59	27.42	22.15	16.89	11.89	7.35	3.72	1.45	0.64
165.0	8.35	6.90	5.36	3.90	2.54	1.45	1.00	0.64	0.45
180.0	0.18	0.09	0.00	0.09	0.18	0.18	0.27	0.27	0.09
195.0	0.09	0.09	0.09	0.09	0.09	0.27	0.27	0.09	0.09
210.0	0.09	0.09	0.09	0.09	0.09	0.18	0.18	0.18	0.18
225.0	0.09	0.09	0.00	0.09	0.09	0.18	0.09	0.09	0.18
240.0	0.09	0.09	0.00	0.00	0.09	0.09	0.18	0.09	0.18
255.0	0.09	0.09	0.00	0.00	0.09	0.09	0.09	0.18	0.18
270.0	0.09	0.09	0.09	0.09	0.09	0.18	0.09	0.09	0.09
285.0	0.09	0.09	0.00	0.09	0.09	0.18	0.18	0.18	0.27
300.0	2.09	1.63	1.18	0.73	0.36	0.27	0.18	0.27	0.18
315.0	8.44	6.81	5.27	3.63	2.18	0.91	0.27	0.18	0.27
330.0	16.07	13.34	10.44	7.63	4.81	2.27	0.54	0.27	0.27
345.0	22.42	18.70	14.89	10.80	7.08	3.72	1.09	0.27	0.27
360.0	29.23	24.96	20.43	15.52	10.89	6.63	3.00	0.73	0.36

Intensity data(cd)

Appendix Page: 12 Total:12

C/γ(°)	180.0
0.0	0.18
15.0	0.27
30.0	0.36
45.0	0.36
60.0	0.27
75.0	0.36
90.0	0.45
105.0	0.45
120.0	0.36
135.0	0.36
150.0	0.27
165.0	0.27
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