



SGSO

Address: LIT by CARDI

Client:

LumCAT: 0017440222 RIO 20W 6500K 2000lm

Luminaire:

Report No:

Voltage(V): 230.3100

Test No: KYZ-A250922053-01-003

Current(A): 0.0933

LampCAT: LED

Power (W): 20.0000

Lamp flux(lm): -1.0

PF: 0.9305

Number of Lamps: 1

Ballast type:

Length(mm): -249

Width(mm): -249

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 2000.00

Efficiency(%): 0.00%

Lumens(lm)/Power(W): 100.00

Central intensity(cd): 1028.712

Maximum intensity(cd): 1038.794

Angle of maximum intensity: C=22.5 γ =5.0

Beam Angle(50%Imax): [C0/180]Total=84.0

[C90/270]Total=83.7

Field angle(10%Imax): [C0/180]Total=143.1

[C90/270]Total=142.8

Maximum s/h(1/2): C0_180=1.09 C90_270=1.13

Maximum s/h(1/4): C0_180=1.15 C90_270=1.18

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 0.00%

Up flux rate of LUM(%): 0.43%

Down flux rate of LUM(%): 99.57%

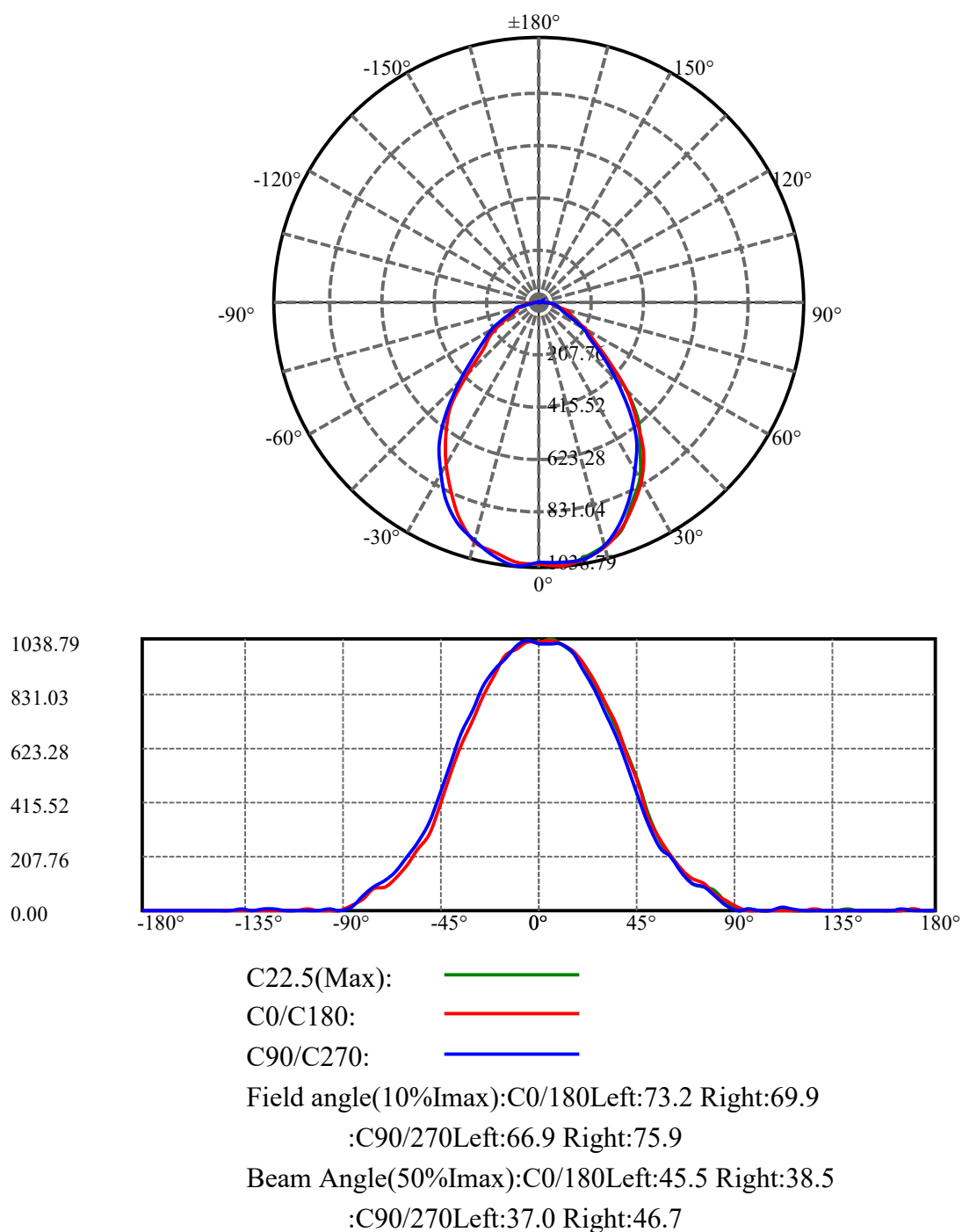
CIE Type : Direct lighting

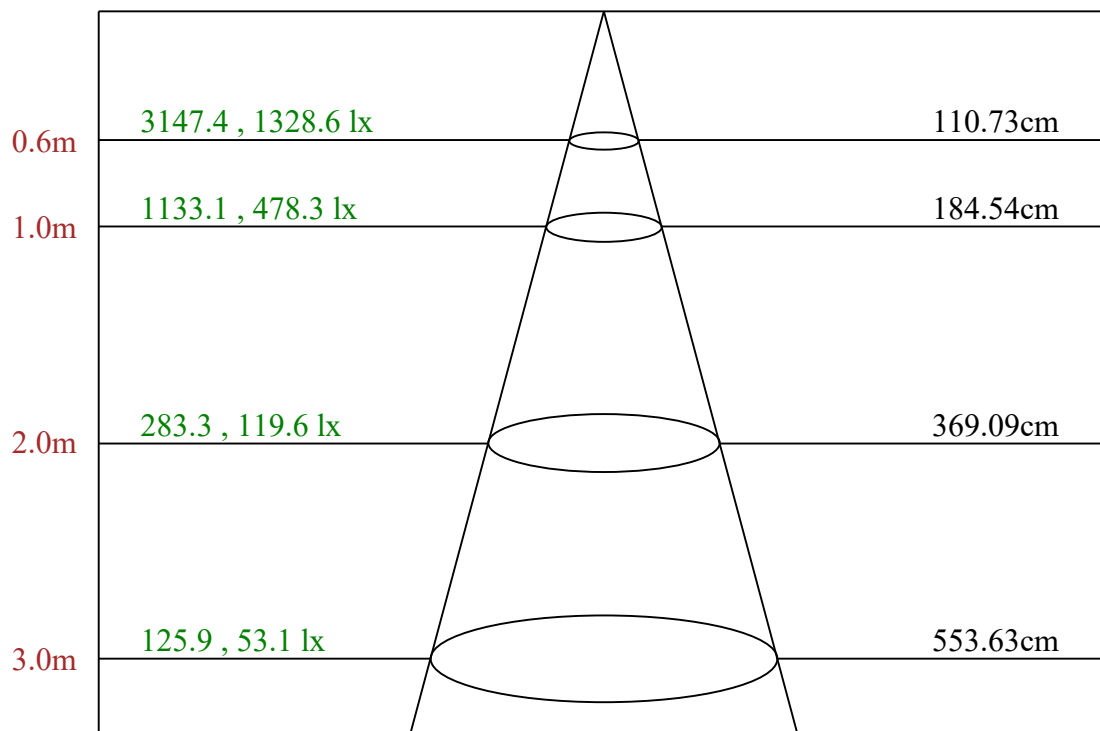
Output flux ratio in π solid angle : 87.028%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1126.292	0.000	0	.000%	.000%
5.0	1124.447	24.500	24.5	.000%	1.225%
10.0	1109.018	72.751	97.251	.000%	4.863%
15.0	1071.931	117.799	215.05	.000%	10.752%
20.0	1017.133	156.767	371.816	.000%	18.591%
25.0	938.423	186.754	558.571	.000%	27.929%
30.0	837.107	204.594	763.165	.000%	38.158%
35.0	730.409	210.179	973.344	.000%	48.667%
40.0	621.327	205.352	1178.696	.000%	58.935%
45.0	485.256	186.564	1365.26	.000%	68.263%
50.0	356.259	154.829	1520.089	.000%	76.004%
55.0	262.786	122.560	1642.649	.000%	82.132%
60.0	202.453	97.919	1740.568	.000%	87.028%
65.0	151.833	78.423	1818.991	.000%	90.949%
70.0	114.054	61.302	1880.292	.000%	94.015%
75.0	88.450	48.196	1928.489	.000%	96.424%
80.0	59.744	36.105	1964.594	.000%	98.230%
85.0	23.375	20.565	1985.159	.000%	99.258%
90.0	1.692	6.249	1991.408	.000%	99.570%
95.0	1.845	0.882	1992.29	.000%	99.614%
100.0	1.589	0.850	1993.14	.000%	99.657%
105.0	1.487	0.749	1993.889	.000%	99.694%
110.0	1.563	0.726	1994.615	.000%	99.731%
115.0	2.076	0.839	1995.454	.000%	99.773%
120.0	1.153	0.715	1996.169	.000%	99.808%
125.0	2.102	0.685	1996.854	.000%	99.843%
130.0	1.948	0.802	1997.656	.000%	99.883%
135.0	0.923	0.528	1998.184	.000%	99.909%
140.0	1.230	0.363	1998.547	.000%	99.927%
145.0	1.512	0.417	1998.963	.000%	99.948%
150.0	0.333	0.247	1999.211	.000%	99.960%
155.0	0.615	0.109	1999.32	.000%	99.966%
160.0	0.820	0.137	1999.457	.000%	99.973%
165.0	2.179	0.225	1999.682	.000%	99.984%
170.0	1.743	0.212	1999.894	.000%	99.995%
175.0	0.615	0.077	1999.971	.000%	99.998%
180.0	2.255	0.031	2000.002	.000%	100.000%

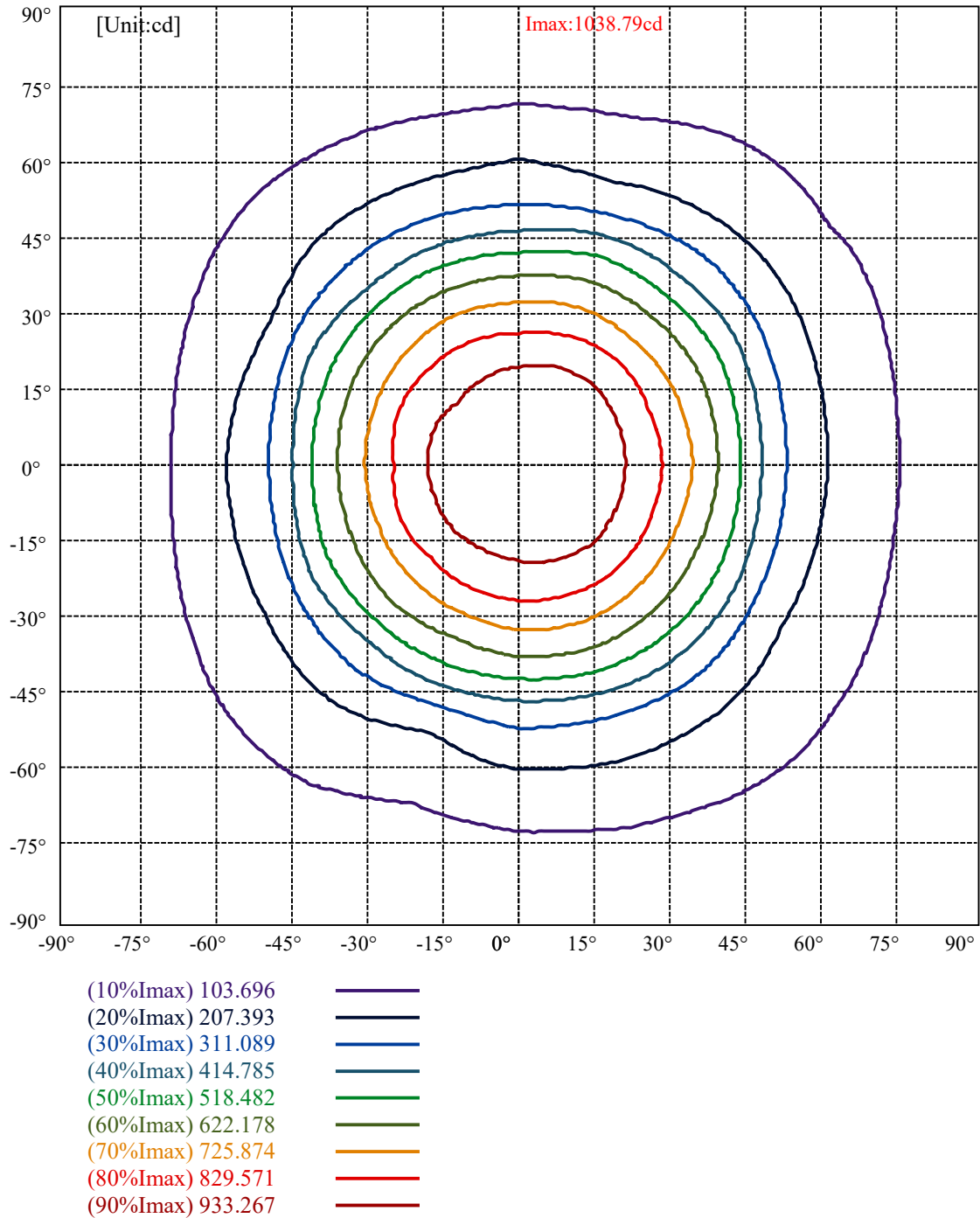
ZONAL LUMEN SUMMARY			
Zone	Lumens	%Lamp	%Fixt
0-30	763.17	N.A.	38.16%
0-40	1178.70	N.A.	58.93%
0-60	1740.57	N.A.	87.03%
0-90	1991.41	N.A.	99.57%
0-120	1996.17	N.A.	99.81%
0-180	2000.00	N.A.	100.00%
60-90	348.76	N.A.	17.44%
90-120	11.01	N.A.	0.55%
90-130	12.50	N.A.	0.62%
90-150	14.05	N.A.	0.70%
90-180	14.81	N.A.	0.74%
0-53.26	1600.00	N.A.	80.00%

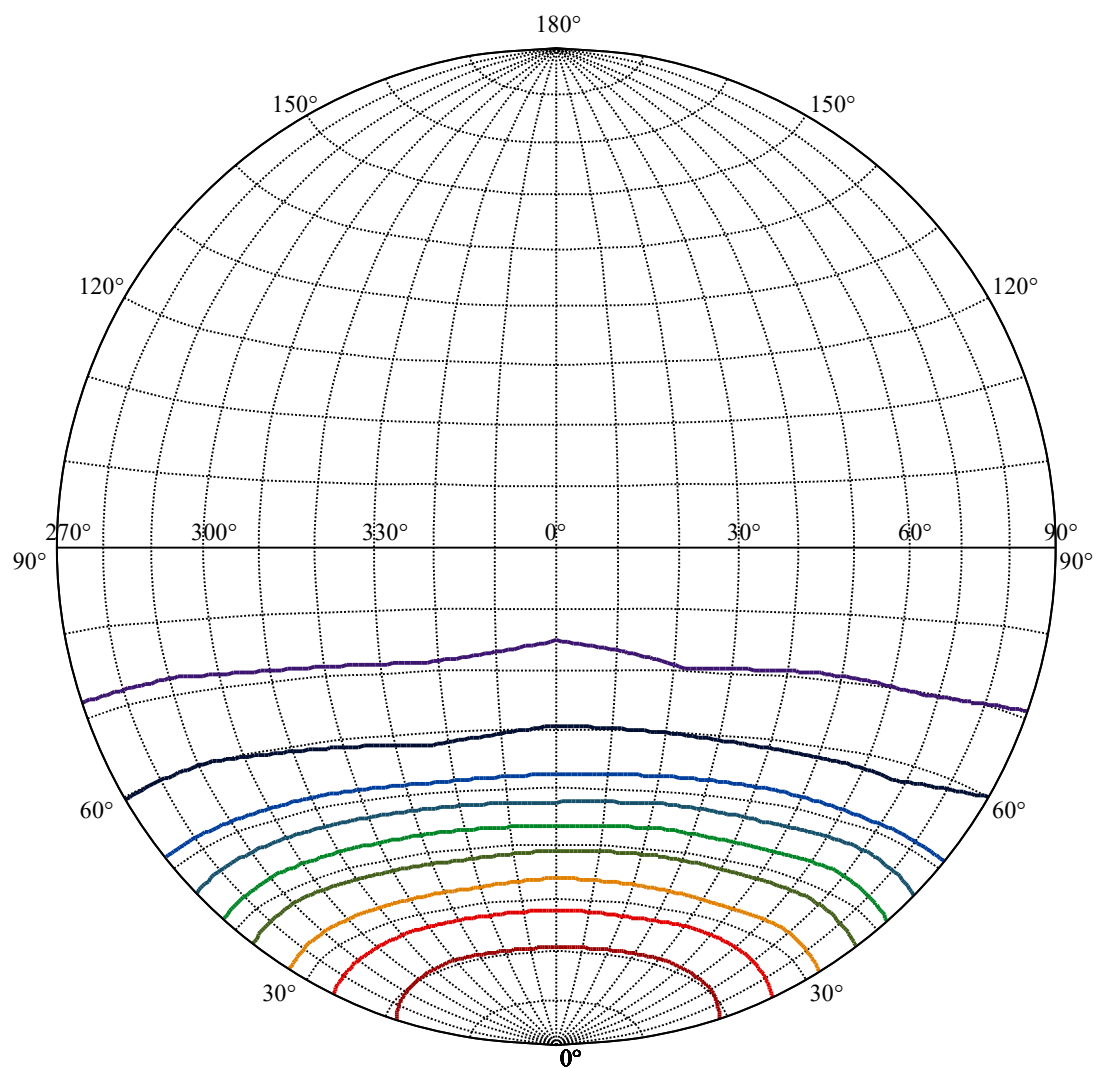
ZONAL LUMEN SUMMARY	
0-10	97.25
10-20	274.57
20-30	391.35
30-40	415.53
40-50	341.39
50-60	220.48
60-70	139.72
70-80	84.30
80-90	26.81
90-100	1.73
100-110	1.48
110-120	1.55
120-130	1.49
130-140	0.89
140-150	0.66
150-160	0.25
160-170	0.44
170-180	0.08





Max , Ave Beam angle of C22.5 plane 85.40





Imax:1038.79

(10%Imax) 94.57726

(20%Imax) 189.1536

(30%Imax) 283.7308

(40%Imax) 378.3072

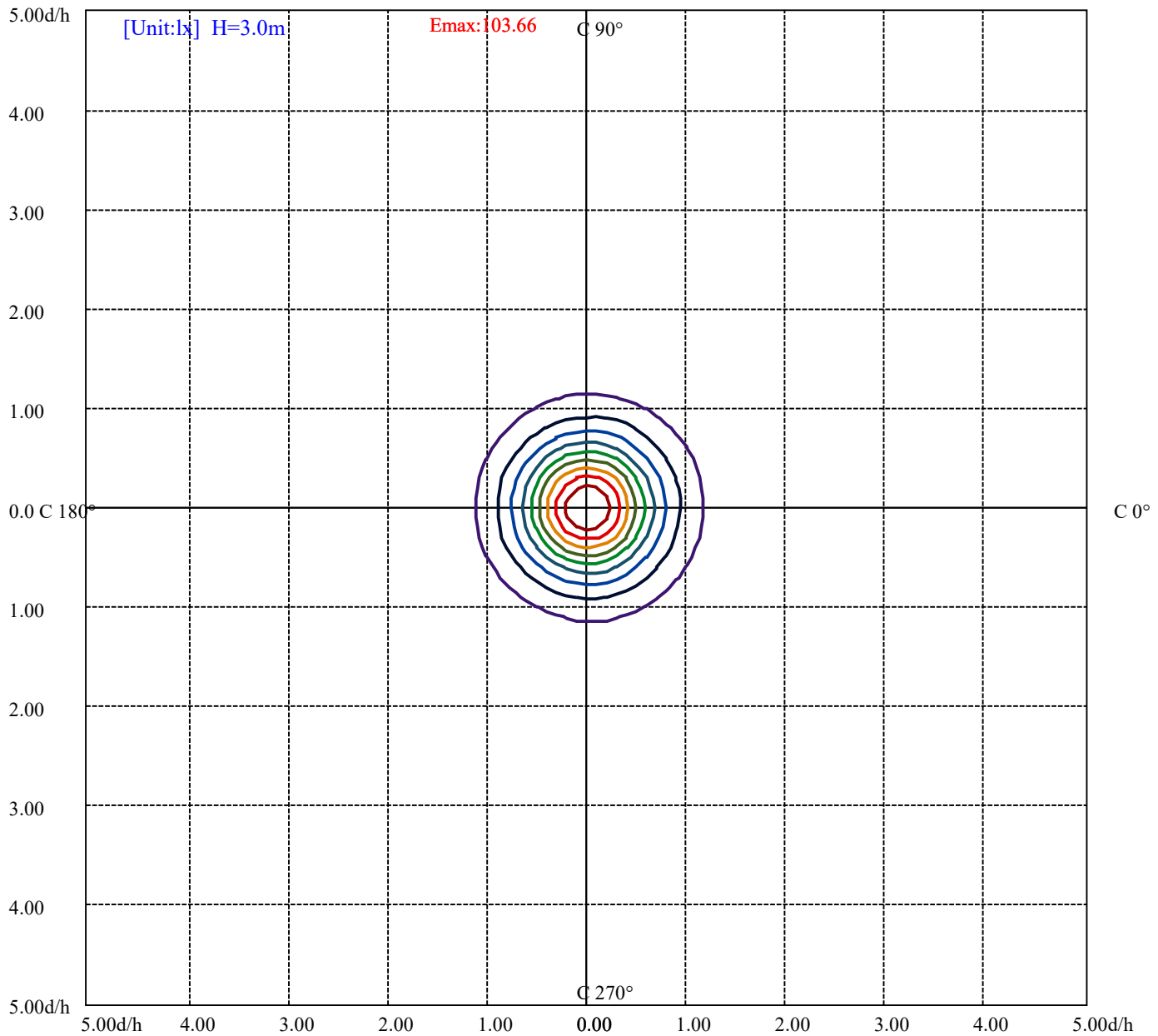
(50%Imax) 472.8845

(60%Imax) 567.4608

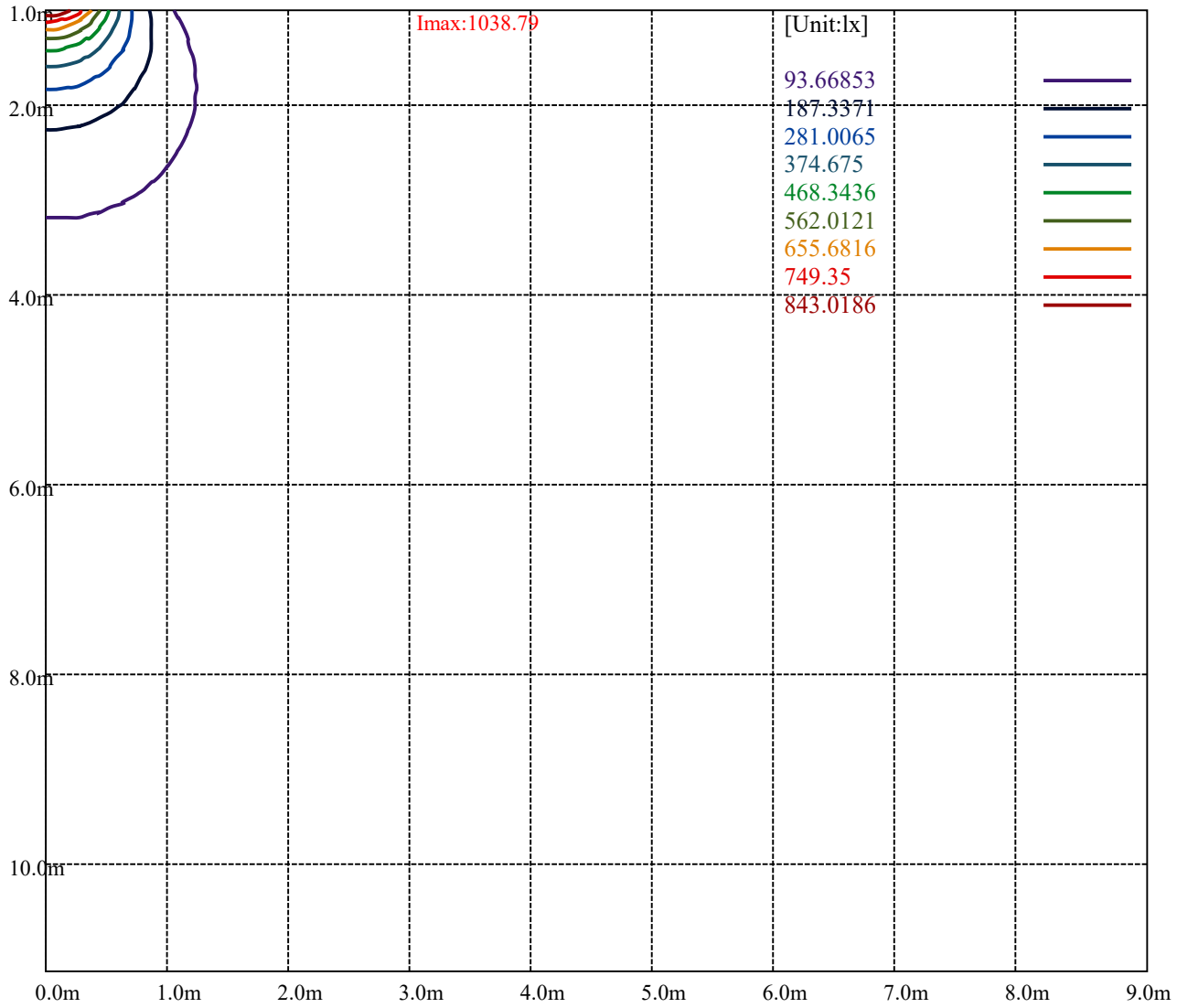
(70%Imax) 662.0381

(80%Imax) 756.6153

(90%Imax) 851.1917



(10%Emax)	10.36613	
(20%Emax)	20.73217	
(30%Emax)	31.0983	
(40%Emax)	41.46434	
(50%Emax)	51.83047	
(60%Emax)	62.1965	
(70%Emax)	72.56264	
(80%Emax)	82.92867	
(90%Emax)	93.29481	



Luminance Table

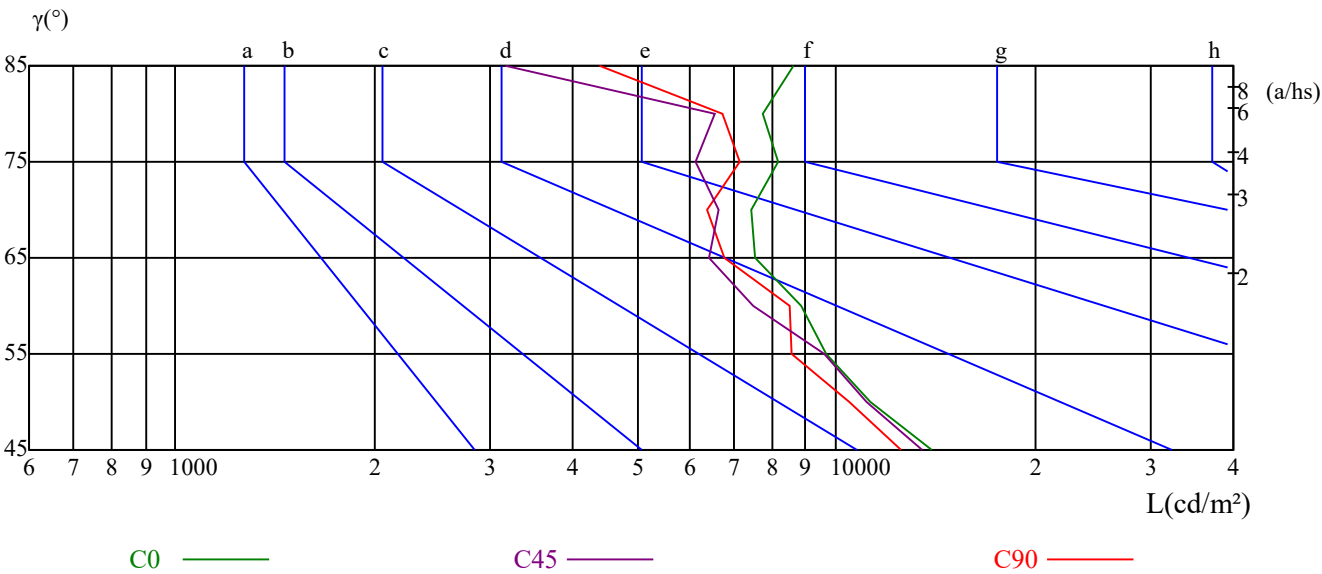
γ	45	50	55	60	65	70	75	80	85
C0	14000	11309	9666	8864	7548	7466	8177	7772	8622
C45	13501	11166	9626	7499	6405	6659	6133	6535	3167
C90	12579	10486	8596	8512	6768	6390	7140	6756	4399

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
6813	6995	6310	7347	7036	5488	6335	3519	3915

Glare Table

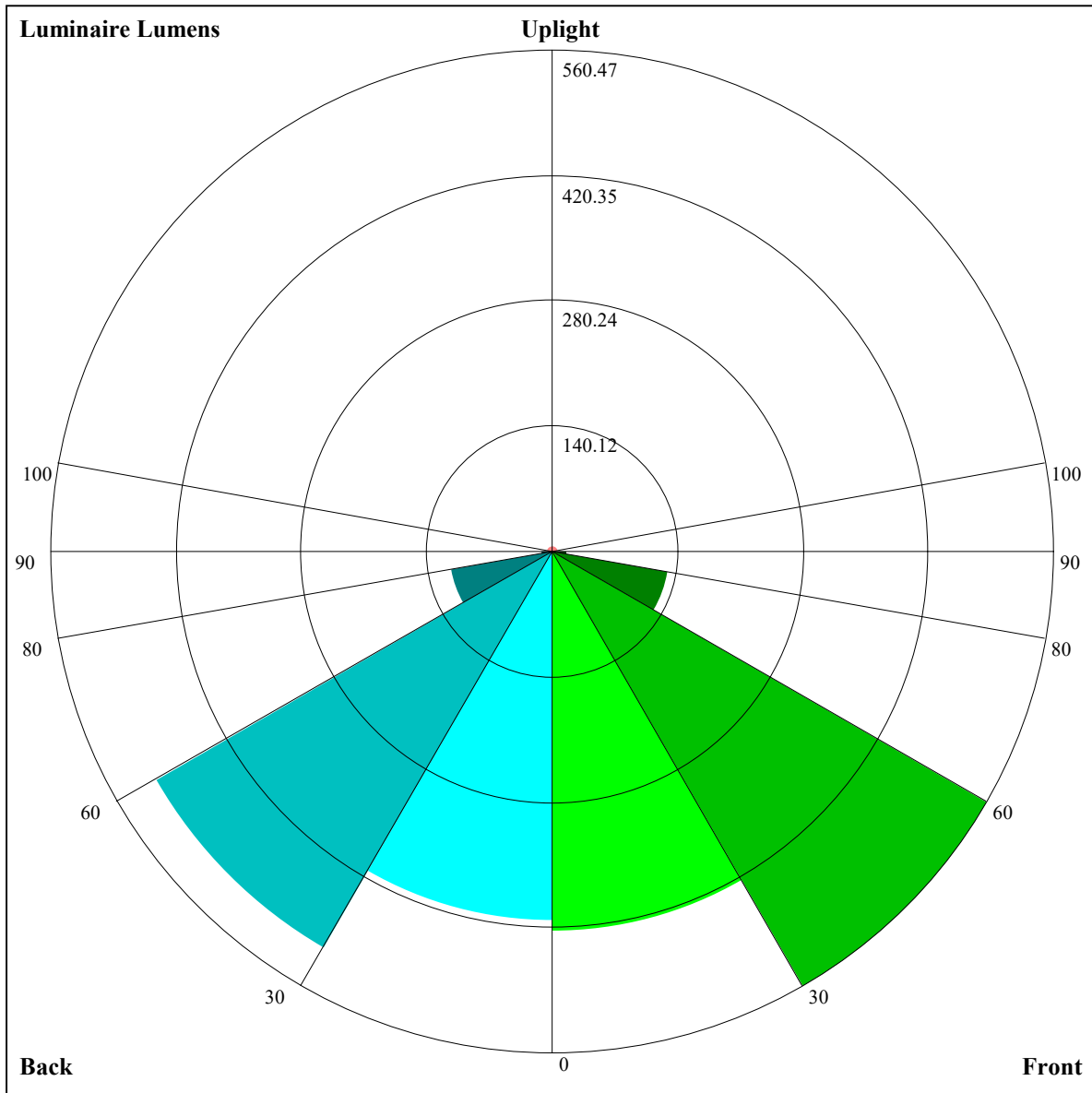
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve



Illumination assessment according UGR											
Rf of Ceiling		70	70	50	50	30	70	70	50	50	30
Rf of Wall		50	30	50	30	30	50	30	50	30	30
Rf of Floor		20	20	20	20	20	20	20	20	20	20
Room dimensions		Viewed crosswise					Viewed endwise				
X	Y										
2H	2H	15.93	17.37	16.30	17.70	18.02	15.48	16.92	15.84	17.24	17.57
	3H	16.97	18.26	17.36	18.61	18.96	16.44	17.74	16.83	18.08	18.44
	4H	17.54	18.76	17.95	19.12	19.49	16.97	18.19	17.37	18.55	18.92
	6H	18.13	19.25	18.55	19.63	20.04	17.50	18.62	17.91	19.00	19.40
	8H	18.34	19.42	18.76	19.81	20.22	17.64	18.72	18.06	19.11	19.52
	12H	18.51	19.54	18.93	19.94	20.36	17.70	18.73	18.12	19.13	19.55
4H	2H	16.24	17.46	16.65	17.82	18.19	15.86	17.08	16.26	17.44	17.81
	3H	17.46	18.48	17.88	18.88	19.30	17.02	18.04	17.44	18.44	18.86
	4H	18.25	19.15	18.69	19.57	20.02	17.75	18.65	18.19	19.08	19.53
	6H	19.01	19.81	19.48	20.26	20.72	18.42	19.22	18.89	19.67	20.12
	8H	19.34	20.09	19.82	20.55	21.02	18.66	19.41	19.14	19.86	20.34
	12H	19.60	20.30	20.09	20.75	21.26	18.78	19.48	19.27	19.93	20.44
8H	4H	18.42	19.17	18.91	19.63	20.10	17.97	18.72	18.46	19.18	19.65
	6H	19.38	20.01	19.88	20.48	20.99	18.81	19.43	19.31	19.91	20.42
	8H	19.88	20.42	20.40	20.94	21.44	19.20	19.74	19.72	20.26	20.76
	12H	20.24	20.70	20.78	21.22	21.74	19.40	19.85	19.93	20.37	20.89
12H	4H	18.45	19.14	18.94	19.59	20.11	18.02	18.72	18.51	19.17	19.68
	6H	19.47	20.02	20.00	20.54	21.04	18.93	19.47	19.45	19.99	20.49
	8H	19.96	20.42	20.50	20.94	21.46	19.30	19.76	19.84	20.28	20.80
Variation with the observer position at spacings:											
S = 1.0H		0.3/-0.8					0.3/-0.7				
S = 1.5H		0.8/-1.0					0.7/-1.0				
S = 2.0H		1.3/-1.2					1.2/-1.0				
Standard tables:		BK3					BK3				
Uncorrected UGR		4.4					5.0				

UGR calculation is based on CIE Publ. 117 ,S/H = 0.25



Luminaire Lumens:

FL=424.35,FM=560.47,FH=132.47,FVH=16.98

BL=412.5,BM=512.34,BH=115.37,BVH=12.12

UL=1.9,UH=7.53

BUG Rating:B1-U1-G1

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	1028.71	1033.94	1021.62	995.11	945.82	876.37	802.06	709.83	601.92
22.5	1021.62	1038.79	1016.76	985.02	951.42	867.78	794.59	696.39	606.03
45.0	1024.60	1023.11	1018.63	988.76	950.67	883.46	787.87	672.12	594.82
67.5	1031.33	1024.23	1019.75	970.84	942.46	860.31	785.63	681.08	591.09
90.0	1016.39	1020.87	1019.75	988.01	923.41	842.76	759.49	665.77	558.60
112.5	1021.24	1013.03	1005.93	965.98	914.83	843.13	760.61	656.06	554.12
135.0	1031.70	1005.93	992.49	949.18	908.48	837.91	741.20	649.34	542.55
157.5	1028.71	1019.38	999.59	964.49	912.59	845.00	729.25	642.24	535.08
180.0	1028.71	1023.86	996.97	972.33	902.13	820.36	728.87	631.04	530.23
202.5	1021.62	1020.12	999.59	960.38	908.48	837.16	719.54	626.19	541.43
225.0	1024.60	1029.09	1001.45	975.69	901.38	825.58	726.63	641.87	529.11
247.5	1031.33	1019.75	1006.31	967.10	910.35	843.88	743.06	635.15	544.79
270.0	1016.39	1034.31	1010.79	962.99	923.41	856.58	769.20	676.97	567.19
292.5	1021.24	1019.75	1014.52	987.27	932.75	868.15	778.54	687.43	586.98
315.0	1031.70	1035.81	1020.12	989.13	945.07	886.45	778.54	686.68	581.75
337.5	1028.71	1019.75	1012.66	994.36	945.07	876.74	790.48	682.95	586.24
360.0	1028.71	1033.94	1021.62	995.11	945.82	876.37	802.06	709.83	601.92
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	482.06	353.98	269.97	215.82	155.33	124.34	103.06	65.72	36.59
22.5	489.90	366.30	263.62	205.74	157.57	104.92	91.11	76.17	32.86
45.0	464.88	349.50	268.85	182.59	131.81	110.90	77.29	55.26	13.44
67.5	479.07	340.91	228.89	185.95	141.89	101.94	84.76	64.22	25.02
90.0	433.14	328.22	240.09	207.24	139.28	106.42	89.99	57.13	18.67
112.5	420.07	321.12	238.60	181.10	141.52	96.71	82.89	45.93	21.28
135.0	396.18	307.31	230.39	161.31	120.98	92.60	54.52	40.33	15.31
157.5	420.45	295.36	196.41	160.19	128.82	84.01	58.62	42.19	20.16
180.0	393.93	287.89	234.12	177.36	125.09	91.48	82.15	43.69	17.18
202.5	417.46	284.90	214.70	156.45	133.68	94.84	84.01	42.57	15.68
225.0	391.69	302.08	227.40	154.59	126.21	101.56	73.56	33.61	16.06
247.5	420.45	286.40	196.41	167.66	115.38	94.47	70.20	58.25	10.83
270.0	439.86	336.06	257.27	203.88	148.61	113.51	87.37	60.86	11.20
292.5	460.03	339.05	254.28	209.85	143.39	111.65	95.22	64.22	29.12
315.0	474.96	343.15	262.87	195.66	140.40	119.49	71.32	56.76	21.66
337.5	485.42	348.01	244.58	184.09	162.05	112.77	82.52	63.48	35.47
360.0	482.06	353.98	269.97	215.82	155.33	124.34	103.06	65.72	36.59
C/γ(°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	11.58	0.00	2.99	0.00	0.00	0.00	0.00	5.60	0.75
22.5	0.00	5.23	1.49	0.00	5.97	0.00	0.00	0.00	0.00
45.0	0.00	0.00	0.00	0.00	0.00	2.24	1.87	0.00	13.82
67.5	0.00	0.00	0.00	4.11	0.00	3.36	0.00	1.12	0.00
90.0	0.00	8.21	1.49	1.87	13.82	6.35	0.00	0.00	0.00
112.5	3.36	0.00	0.00	0.00	0.00	8.59	4.11	7.09	0.00
135.0	9.71	3.73	0.00	0.00	0.00	0.00	4.11	0.00	0.00
157.5	0.00	1.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180.0	0.00	0.00	0.00	6.72	2.24	0.00	0.00	0.00	0.00
202.5	0.00	0.00	0.00	0.00	0.00	8.21	0.00	4.48	0.00
225.0	0.00	0.00	5.97	4.11	0.37	1.49	0.00	0.00	0.00
247.5	0.00	0.00	4.85	0.00	0.00	0.00	0.00	0.00	0.00
270.0	0.00	4.11	0.00	0.00	0.00	0.00	4.48	4.85	0.00
292.5	0.00	3.73	0.00	0.00	0.00	0.00	0.00	0.00	11.58
315.0	0.00	0.00	0.00	0.00	0.37	0.00	0.00	0.00	0.00
337.5	0.00	0.00	6.35	4.85	0.00	0.00	2.24	7.47	2.24
360.0	11.58	0.00	2.99	0.00	0.00	0.00	0.00	5.60	0.75

Intensity data(cd)								Appendix Page: 14 Total:14	
C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	1.49	1.12	0.00	0.00	0.00	0.00	0.00	3.73	0.00
22.5	0.00	3.36	0.00	0.00	0.00	0.00	2.99	8.59	0.00
45.0	0.00	0.00	0.00	2.61	0.00	0.00	0.00	0.00	0.00
67.5	0.00	0.00	5.23	0.00	0.00	0.00	11.58	0.00	0.00
90.0	0.00	0.00	1.12	0.00	2.24	0.75	5.60	2.61	0.00
112.5	0.00	1.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00
135.0	0.00	0.00	7.09	0.00	1.87	0.00	0.00	0.00	0.00
157.5	0.00	0.00	2.99	0.00	0.00	0.00	0.00	0.00	0.00
180.0	0.00	0.00	0.00	1.87	0.00	0.00	0.00	0.37	0.00
202.5	0.00	0.00	0.00	0.00	2.24	0.00	4.85	2.61	2.99
225.0	0.00	1.49	0.00	0.00	0.00	0.00	6.72	0.00	0.00
247.5	0.00	0.00	0.00	0.00	2.61	0.00	0.00	0.00	3.73
270.0	7.47	0.00	0.00	0.37	0.00	2.99	0.00	1.12	2.24
292.5	0.00	0.00	3.36	0.00	0.00	0.00	0.00	5.97	0.00
315.0	0.00	5.60	0.00	0.00	0.00	0.00	0.00	0.37	0.00
337.5	4.48	4.48	2.24	0.00	0.00	8.21	0.00	0.00	0.00
360.0	1.49	1.12	0.00	0.00	0.00	0.00	0.00	3.73	0.00
C/γ(°)	180.0								
0.0	0.00								
22.5	0.00								
45.0	10.08								
67.5	0.00								
90.0	0.00								
112.5	0.00								
135.0	0.75								
157.5	5.60								
180.0	0.00								
202.5	0.00								
225.0	10.08								
247.5	0.00								
270.0	0.00								
292.5	0.00								
315.0	0.75								
337.5	5.60								
360.0	0.00								