



SGSO

Address: LIT by CARDI

Client:

LumCAT: 0017440222 RIO 20W 3000K 2000lm

Luminaire:

Report No:

Voltage(V): 230.3700

Test No: KYZ-A250922053-01-001

Current(A): 0.0934

LampCAT: LED

Power (W): 20.0000

Lamp flux(lm): -1.0

PF: 0.9300

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): 1033.329

Maximum intensity(cd): 1033.329

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=83.5

[C90/270]Total=85.1

Field angle(10%Imax): [C0/180]Total=143.3

[C90/270]Total=143.9

Maximum s/h(1/2): C0_180=1.14 C90_270=1.11

Maximum s/h(1/4): C0_180=1.19 C90_270=1.18

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 0.00%

Up flux rate of LUM(%): 0.40%

Down flux rate of LUM(%): 99.60%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 86.964%

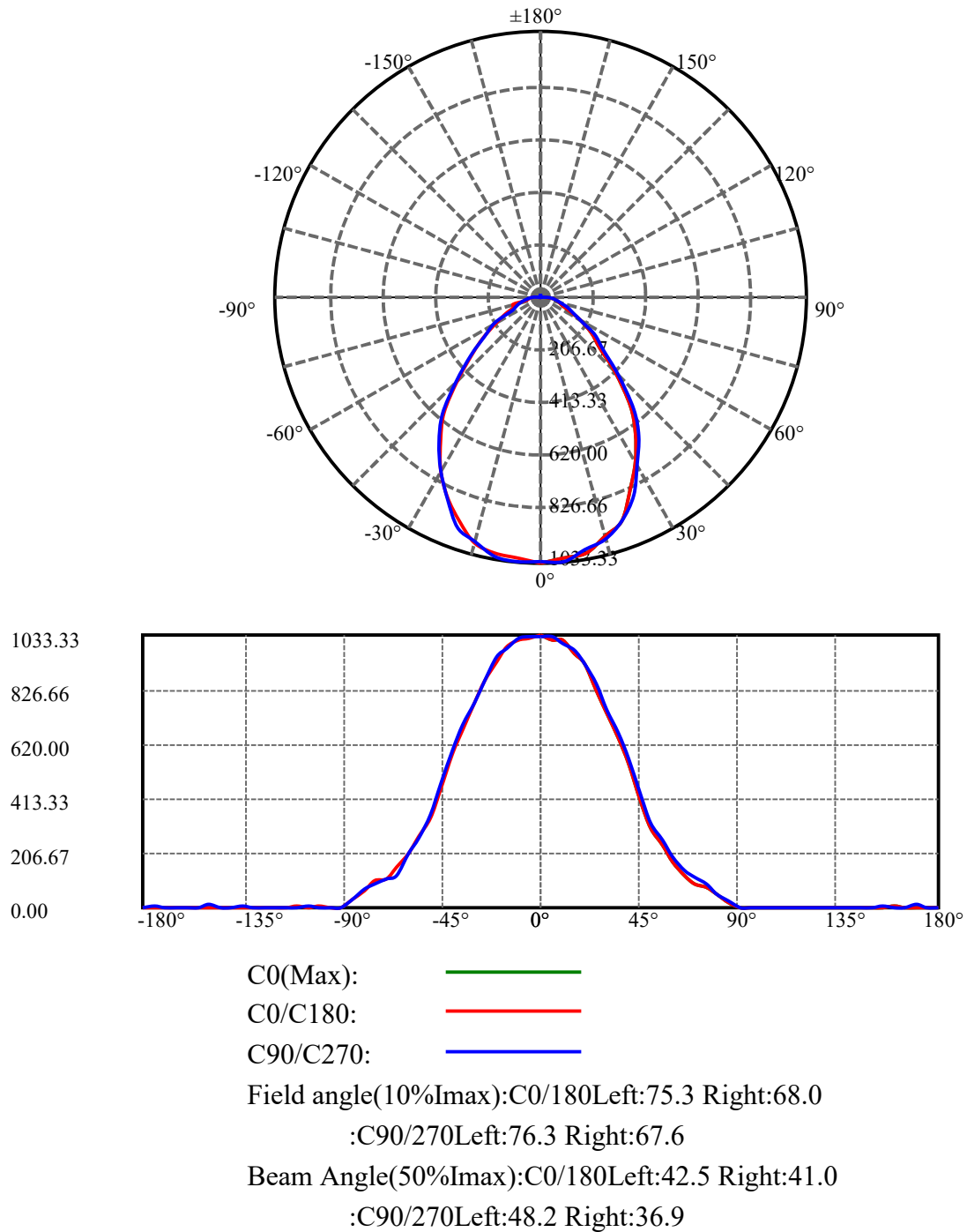
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1106.557	0.000	0	.000%	.000%
5.0	1102.072	24.478	24.478	.000%	1.224%
10.0	1088.026	72.634	97.112	.000%	4.856%
15.0	1056.860	117.955	215.067	.000%	10.753%
20.0	1000.166	157.166	372.233	.000%	18.612%
25.0	916.099	186.325	558.559	.000%	27.928%
30.0	820.140	203.700	762.259	.000%	38.113%
35.0	721.566	210.472	972.732	.000%	48.637%
40.0	608.178	205.680	1178.412	.000%	58.921%
45.0	475.799	186.072	1364.483	.000%	68.224%
50.0	348.545	154.424	1518.908	.000%	75.946%
55.0	260.121	122.694	1641.601	.000%	82.080%
60.0	195.661	97.670	1739.272	.000%	86.964%
65.0	148.706	77.612	1816.883	.000%	90.844%
70.0	111.850	61.164	1878.047	.000%	93.903%
75.0	88.373	48.519	1926.566	.000%	96.329%
80.0	60.769	36.996	1963.562	.000%	98.178%
85.0	25.681	21.778	1985.34	.000%	99.267%
90.0	0.179	6.565	1991.905	.000%	99.595%
95.0	0.231	0.104	1992.009	.000%	99.601%
100.0	1.640	0.471	1992.48	.000%	99.624%
105.0	1.384	0.750	1993.23	.000%	99.662%
110.0	0.795	0.528	1993.758	.000%	99.688%
115.0	1.666	0.578	1994.336	.000%	99.717%
120.0	0.974	0.595	1994.931	.000%	99.747%
125.0	0.359	0.286	1995.216	.000%	99.761%
130.0	1.358	0.346	1995.562	.000%	99.778%
135.0	2.255	0.677	1996.239	.000%	99.812%
140.0	2.409	0.801	1997.04	.000%	99.852%
145.0	0.666	0.476	1997.516	.000%	99.876%
150.0	2.845	0.479	1997.995	.000%	99.900%
155.0	3.614	0.758	1998.753	.000%	99.938%
160.0	1.922	0.538	1999.291	.000%	99.965%
165.0	1.820	0.286	1999.577	.000%	99.979%
170.0	2.717	0.249	1999.827	.000%	99.992%
175.0	1.333	0.134	1999.961	.000%	99.998%
180.0	1.794	0.035	1999.996	.000%	100.000%

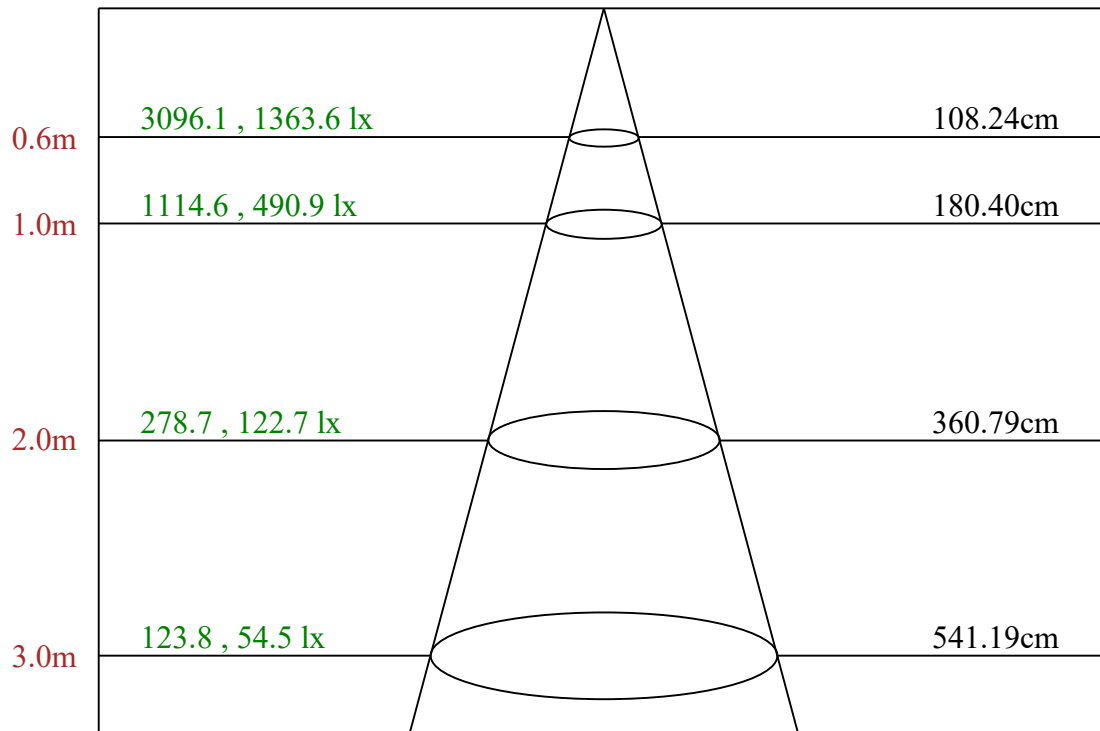
ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	762.26	N.A.	38.11%
0-40	1178.41	N.A.	58.92%
0-60	1739.27	N.A.	86.96%
0-90	1991.90	N.A.	99.60%
0-120	1994.93	N.A.	99.75%
0-180	2000.00	N.A.	100.00%
60-90	350.30	N.A.	17.52%
90-120	9.59	N.A.	0.48%
90-130	10.22	N.A.	0.51%
90-150	12.66	N.A.	0.63%
90-180	14.62	N.A.	0.73%
0-53.30	1600.00	N.A.	80.00%

ZONAL LUMEN SUMMARY

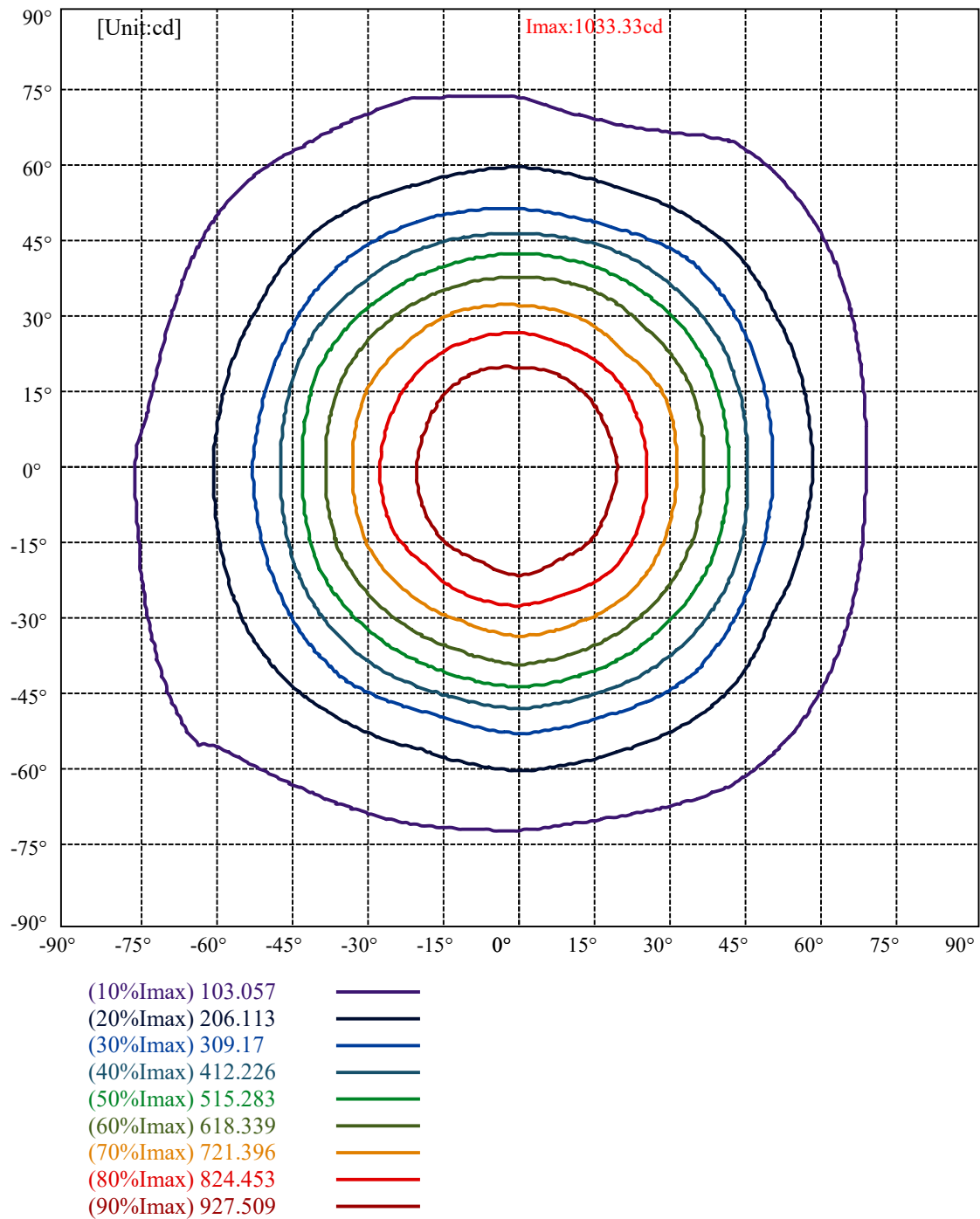
0-10	97.11
10-20	275.12
20-30	390.03
30-40	416.15
40-50	340.50
50-60	220.36
60-70	138.78
70-80	85.52
80-90	28.34
90-100	0.58
100-110	1.28
110-120	1.17
120-130	0.63
130-140	1.48
140-150	0.96
150-160	1.30
160-170	0.54
170-180	0.13

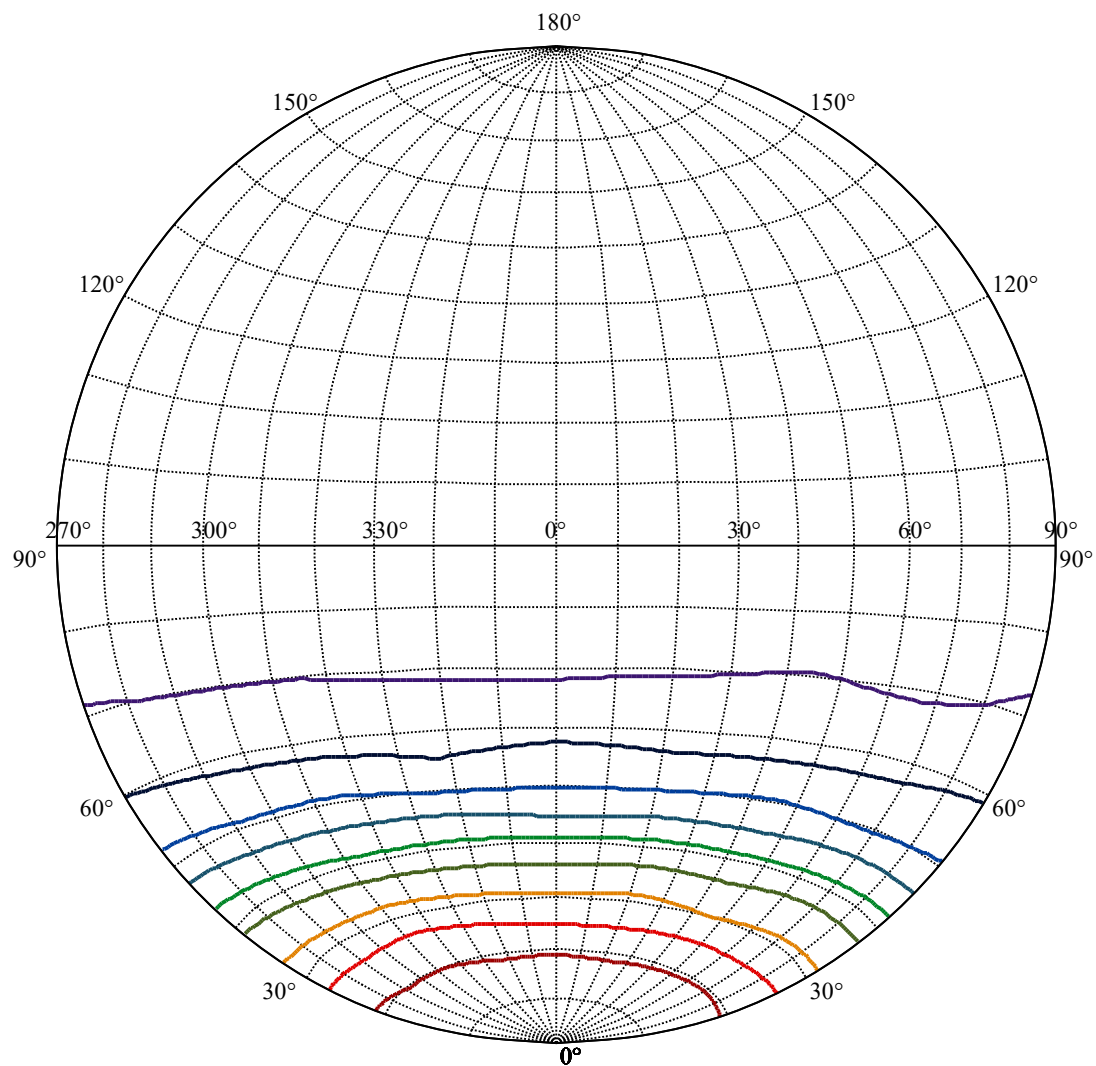




Max , Ave

Beam angle of C0 plane 84.10





House

[Unit:cd]

Road

Imax:1033.33

(10%Imax) 95.79801

(20%Imax) 191.596

(30%Imax) 287.394

(40%Imax) 383.1911

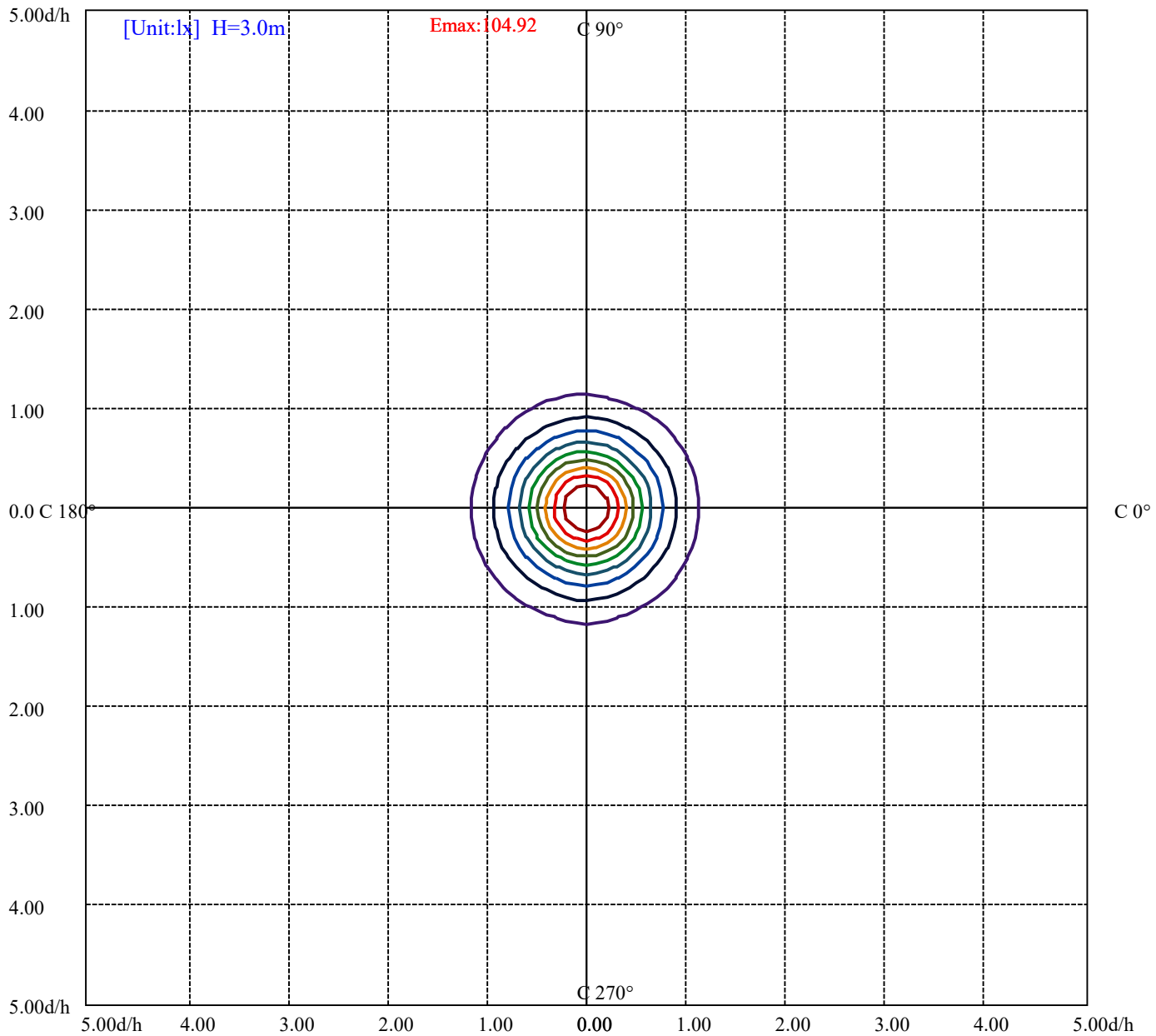
(50%Imax) 478.9891

(60%Imax) 574.7872

(70%Imax) 670.5851

(80%Imax) 766.3832

(90%Imax) 862.1812



(10%Emax) 10.49146

(20%Emax) 20.98292

(30%Emax) 31.47449

(40%Emax) 41.96595

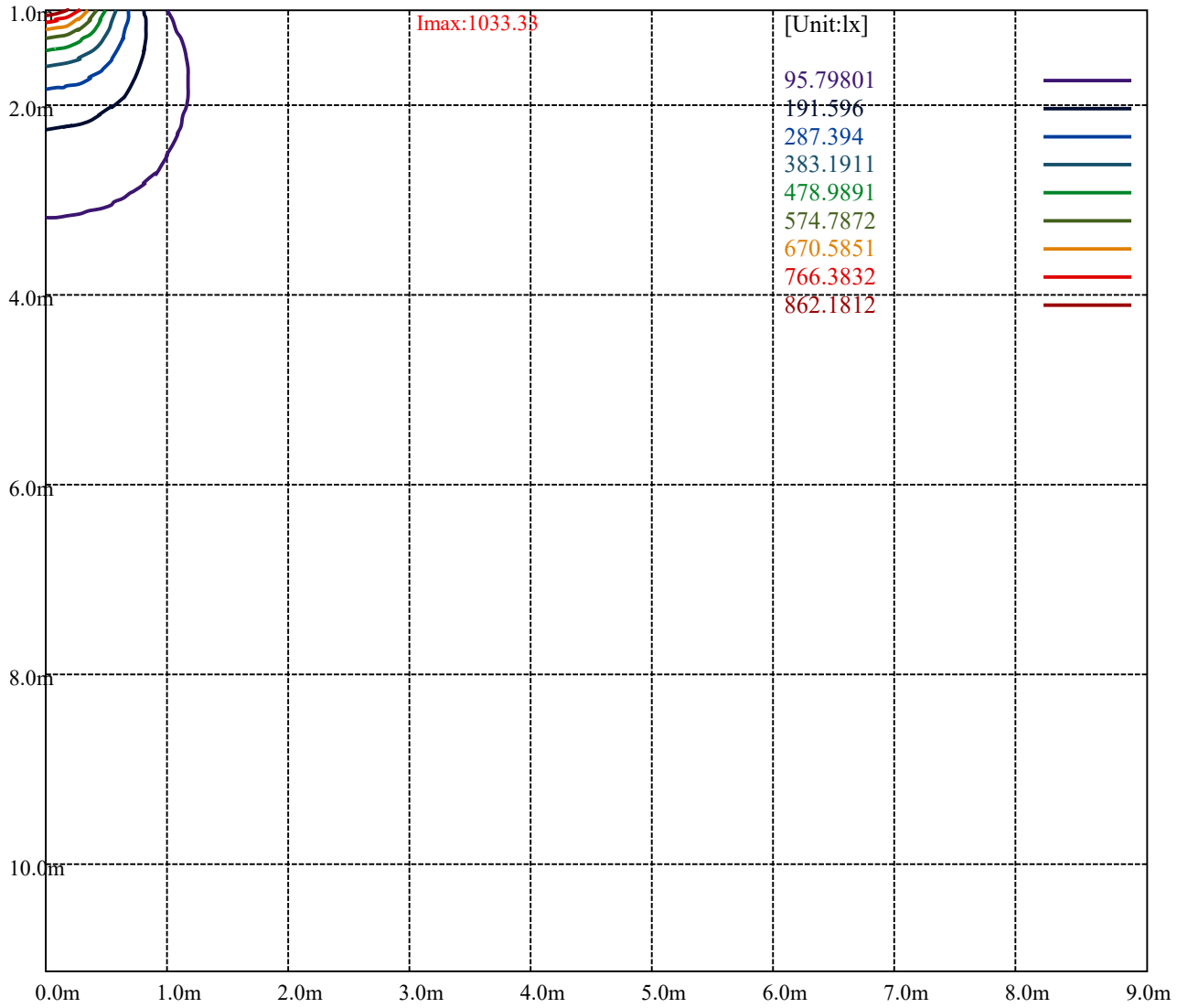
(50%Emax) 52.45741

(60%Emax) 62.94888

(70%Emax) 73.44033

(80%Emax) 83.93189

(90%Emax) 94.42336



Luminance Table

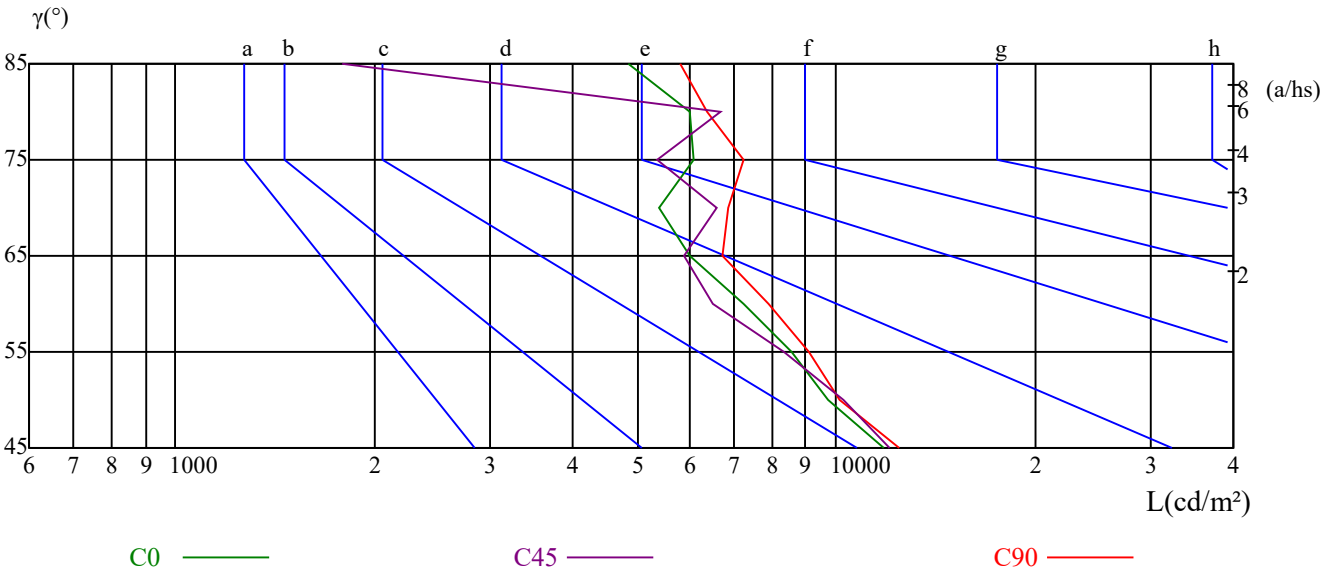
γ	45	50	55	60	65	70	75	80	85
C0	11792	9729	8575	7230	6004	5387	6093	6025	4837
C45	12068	10276	8330	6527	5893	6597	5369	6699	1792
C90	12499	10166	9093	7917	6743	6894	7270	6384	5823

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
6687	6346	6318	7240	7194	5897	6539	6674	4770

Glare Table

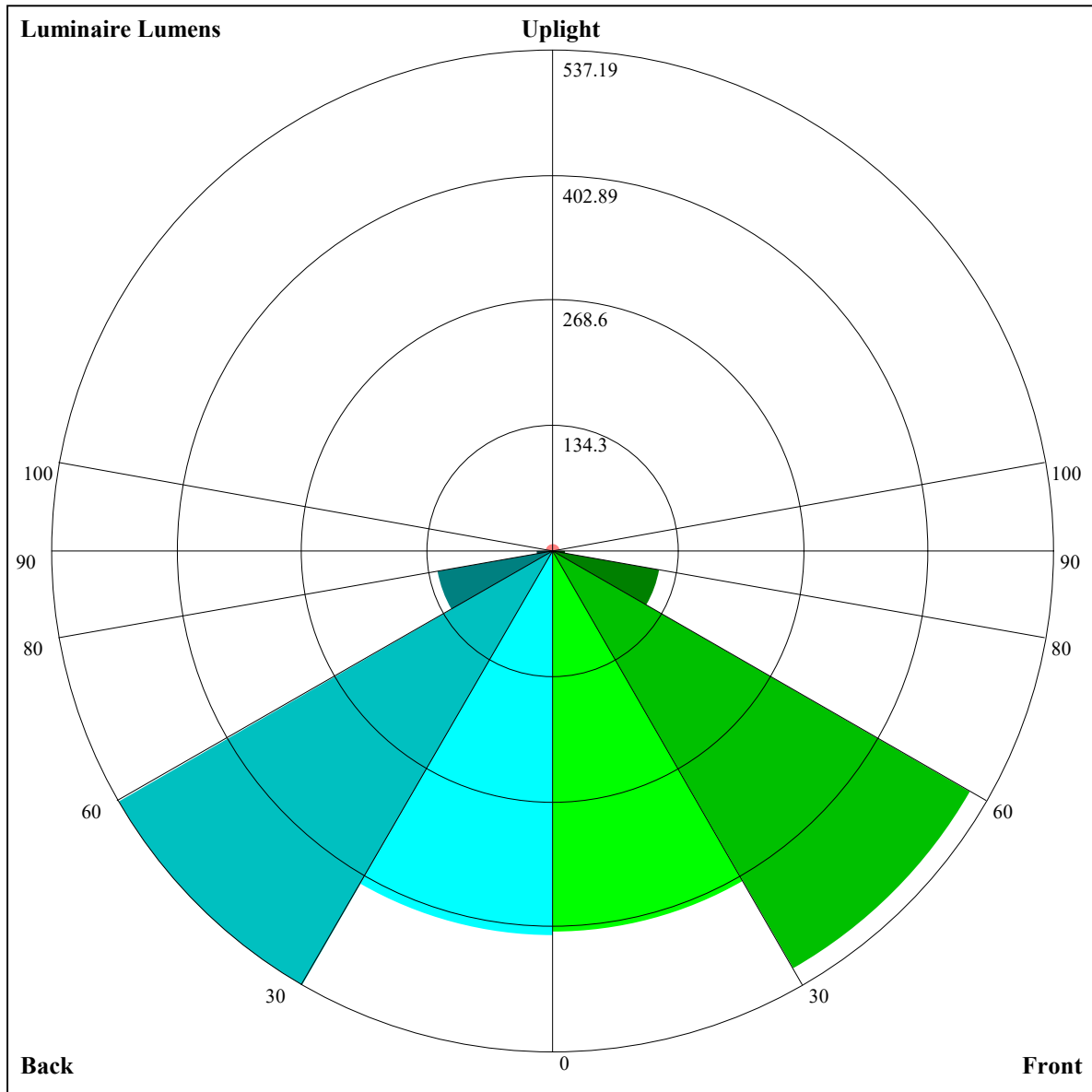
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

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	14.83	16.27	15.19	16.59	16.92	14.97	16.41	15.33	16.73	17.06
	3H	15.75	17.05	16.14	17.40	17.75	15.99	17.29	16.38	17.64	17.99
	4H	16.22	17.43	16.62	17.79	18.16	16.52	17.74	16.93	18.10	18.47
	6H	16.69	17.81	17.10	18.19	18.59	17.01	18.14	17.43	18.51	18.92
	8H	16.83	17.92	17.25	18.30	18.71	17.16	18.24	17.58	18.63	19.04
	12H	16.91	17.95	17.33	18.34	18.76	17.25	18.29	17.67	18.68	19.10
4H	2H	15.19	16.40	15.59	16.76	17.14	15.30	16.52	15.71	16.88	17.25
	3H	16.33	17.35	16.75	17.75	18.17	16.48	17.51	16.91	17.90	18.32
	4H	16.98	17.89	17.42	18.31	18.76	17.16	18.07	17.60	18.49	18.94
	6H	17.58	18.38	18.05	18.83	19.29	17.75	18.55	18.22	19.00	19.45
	8H	17.81	18.56	18.30	19.02	19.49	17.98	18.73	18.46	19.19	19.66
	12H	17.96	18.66	18.45	19.11	19.62	18.15	18.84	18.63	19.29	19.81
8H	4H	17.19	17.94	17.67	18.39	18.87	17.35	18.10	17.83	18.55	19.03
	6H	17.95	18.58	18.45	19.05	19.56	18.07	18.70	18.57	19.17	19.68
	8H	18.32	18.87	18.85	19.39	19.89	18.42	18.97	18.94	19.48	19.98
	12H	18.54	19.00	19.07	19.52	20.04	18.64	19.10	19.17	19.62	20.14
12H	4H	17.21	17.91	17.70	18.36	18.88	17.38	18.07	17.86	18.52	19.04
	6H	18.06	18.60	18.58	19.12	19.62	18.17	18.72	18.70	19.24	19.74
	8H	18.42	18.87	18.95	19.39	19.91	18.51	18.97	19.04	19.48	20.00
Variation with the observer position at spacings:											
S = 1.0H		0.3/-0.7					0.4/-0.8				
S = 1.5H		0.9/-1.0					0.8/-1.1				
S = 2.0H		1.7/-1.3					1.5/-1.3				
Standard tables:		BK3					BK3				
Uncorrected UGR		3.9					3.8				

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



Luminaire Lumens:

FL=408.51,FM=518.14,FH=117.07,FVH=13.89

BL=413.02,BM=537.19,BH=125.88,BVH=17.13

UL=0.62,UH=8.11

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	1033.33	1014.70	1011.28	961.47	922.32	824.23	736.79	644.02	545.94
22.5	1029.15	1029.53	997.97	965.66	913.57	826.51	751.62	653.53	552.02
45.0	1018.50	1016.60	1005.96	982.76	916.23	834.49	723.10	640.98	544.04
67.5	1019.26	1023.82	1005.96	986.57	922.32	832.97	740.97	672.16	551.64
90.0	1027.63	1028.39	998.73	975.54	921.56	849.70	752.38	662.27	566.85
112.5	1030.67	1006.34	1010.52	974.40	934.86	851.22	770.24	676.34	550.88
135.0	1031.43	1028.39	1010.52	995.69	932.20	863.01	759.60	678.24	566.47
157.5	1016.98	1029.53	1012.04	980.10	925.74	851.60	782.41	684.32	585.86
180.0	1033.33	1018.50	1012.04	985.43	927.64	859.97	778.99	671.78	580.91
202.5	1029.15	1021.54	1009.00	983.90	933.72	869.85	783.17	683.18	588.52
225.0	1018.50	1012.80	1007.86	985.81	936.76	843.24	766.44	674.82	570.27
247.5	1019.26	1023.82	999.11	985.43	926.12	867.95	758.84	669.88	567.61
270.0	1027.63	1027.63	1019.26	984.29	951.97	862.63	775.57	691.17	596.12
292.5	1030.67	1020.78	1019.64	989.61	924.98	848.56	763.78	677.86	558.37
315.0	1031.43	1018.50	1005.96	976.68	927.64	861.49	770.62	669.50	541.00
337.5	1016.98	1026.48	1013.18	963.38	918.13	841.34	750.85	653.15	544.80
360.0	1033.33	1014.70	1011.28	961.47	922.32	824.23	736.79	644.02	545.94
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	406.03	304.52	239.51	176.02	123.56	89.72	76.80	50.94	20.53
22.5	420.86	307.95	216.32	179.06	139.15	95.05	74.13	53.61	22.05
45.0	415.54	321.63	232.67	158.92	121.28	109.87	67.67	56.65	7.60
67.5	430.36	297.30	230.01	172.60	138.77	86.30	67.67	49.04	18.63
90.0	430.36	318.21	253.96	192.75	138.77	114.81	91.62	53.99	24.71
112.5	436.45	332.28	228.87	187.05	131.92	115.57	97.71	57.41	20.53
135.0	433.02	323.53	248.26	175.26	128.88	104.55	82.88	45.62	28.51
157.5	469.14	321.63	237.61	177.92	148.27	108.35	58.55	69.57	32.32
180.0	452.41	339.88	271.83	206.44	151.69	111.39	105.69	63.11	34.98
202.5	471.04	337.22	254.72	200.74	153.21	111.01	102.65	63.11	38.78
225.0	456.60	340.64	256.24	170.32	131.54	106.07	72.61	53.23	21.67
247.5	451.27	319.35	230.01	183.25	150.55	111.39	82.12	53.99	26.99
270.0	469.14	350.91	263.08	202.64	122.42	107.59	89.72	69.95	31.94
292.5	445.19	324.29	243.32	183.63	150.17	99.99	92.38	62.35	20.15
315.0	435.69	329.24	242.17	168.42	138.39	101.51	74.13	51.32	23.19
337.5	434.55	301.48	209.86	167.28	137.24	85.92	74.52	47.52	8.36
360.0	406.03	304.52	239.51	176.02	123.56	89.72	76.80	50.94	20.53
C/γ(°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	0.00	0.00	0.00	0.00	3.04	0.00	0.00	0.00	0.00
22.5	0.00	2.28	0.00	0.76	0.00	10.64	0.00	1.52	0.00
45.0	2.66	0.00	3.04	0.00	0.00	4.18	0.00	0.00	0.00
67.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.84
90.0	0.00	0.00	0.00	0.00	0.00	1.14	0.00	0.00	0.00
112.5	0.00	0.00	0.00	2.66	0.00	0.00	0.00	0.00	9.88
135.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
157.5	0.00	0.00	0.00	0.00	0.00	0.38	0.00	0.00	0.00
180.0	0.00	0.00	7.22	0.00	5.70	0.00	0.00	0.00	0.00
202.5	0.00	0.00	0.00	0.00	0.00	8.36	0.00	0.38	0.00
225.0	0.00	0.00	1.14	0.00	0.00	0.00	2.66	0.00	0.00
247.5	0.00	1.14	0.00	7.22	0.00	0.00	1.90	3.42	3.42
270.0	0.00	0.00	0.00	6.46	3.04	0.00	0.00	0.00	0.00
292.5	0.00	0.00	10.26	0.38	0.00	0.00	0.00	0.00	0.00
315.0	0.00	0.00	0.00	0.00	0.00	0.00	9.88	0.00	0.00
337.5	0.00	0.00	2.66	3.04	0.00	0.00	0.00	0.00	0.00
360.0	0.00	0.00	0.00	0.00	3.04	0.00	0.00	0.00	0.00

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	0.00	1.14	0.00	3.04	0.00	4.18	2.28	0.00	0.00
22.5	0.00	0.38	0.00	0.76	1.14	0.76	0.00	9.12	1.52
45.0	0.00	0.00	1.14	0.00	0.00	0.00	0.00	12.55	4.94
67.5	0.00	7.60	2.28	0.00	0.00	0.00	6.08	0.00	0.00
90.0	0.00	0.00	0.00	2.66	7.60	1.90	0.00	12.17	0.00
112.5	8.74	10.26	0.00	7.98	8.74	9.50	0.00	0.00	0.00
135.0	0.00	0.00	0.00	0.00	6.84	0.00	7.60	0.00	0.00
157.5	0.00	3.42	0.00	0.00	11.40	0.00	0.00	0.00	6.46
180.0	2.28	1.90	0.00	0.00	0.00	1.52	0.00	1.52	0.00
202.5	8.36	0.38	6.46	0.00	6.08	6.84	0.38	0.76	0.00
225.0	0.00	0.38	0.00	9.50	10.26	0.00	0.00	0.00	0.00
247.5	0.00	0.00	0.00	7.22	0.00	1.14	0.00	0.00	0.00
270.0	9.12	0.00	0.00	11.02	0.00	2.66	2.28	0.00	3.42
292.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
315.0	0.00	0.00	0.00	0.00	0.00	0.00	8.36	4.18	2.28
337.5	4.94	10.26	0.00	0.00	1.52	0.00	0.00	0.00	1.14
360.0	0.00	1.14	0.00	3.04	0.00	4.18	2.28	0.00	0.00

C/γ(°)	180.0
0.0	0.00
22.5	0.00
45.0	9.88
67.5	0.00
90.0	3.04
112.5	0.00
135.0	0.38
157.5	0.00
180.0	0.00
202.5	0.00
225.0	9.88
247.5	0.00
270.0	3.04
292.5	0.00
315.0	0.38
337.5	0.00
360.0	0.00