



SGSO

Address: LIT by CARDI

Client:

LumCAT: 0017440218 RIO 4.5W 4000K 450lm

Luminaire:

Report No:

Voltage(V): 230.3400

Test No: KYZ-A251014055-01-006

Current(A): 0.0356

LampCAT: LED

Power (W): 4.5000

Lamp flux(lm): -1.0

PF: 0.5483

Number of Lamps: 1

Ballast type:

Length(mm): -80

Width(mm): -80

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 450.00

Efficiency(%): 100.00%

Lumens(lm)/Power(W): 100.00

Central intensity(cd): 219.787

Maximum intensity(cd): 236.885

Angle of maximum intensity: C=22.5 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=87.6

[C90/270]Total=86.2

Field angle(10%Imax): [C0/180]Total=144.1

[C90/270]Total=138.8

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

Maximum s/h(1/4): C0_180=1.23 C90_270=1.20

Up flux rate of lamp(%): 1.54%

Down flux rate of lamp(%): 98.46%

Up flux rate of LUM(%): 1.54%

Down flux rate of LUM(%): 98.46%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 87.201%

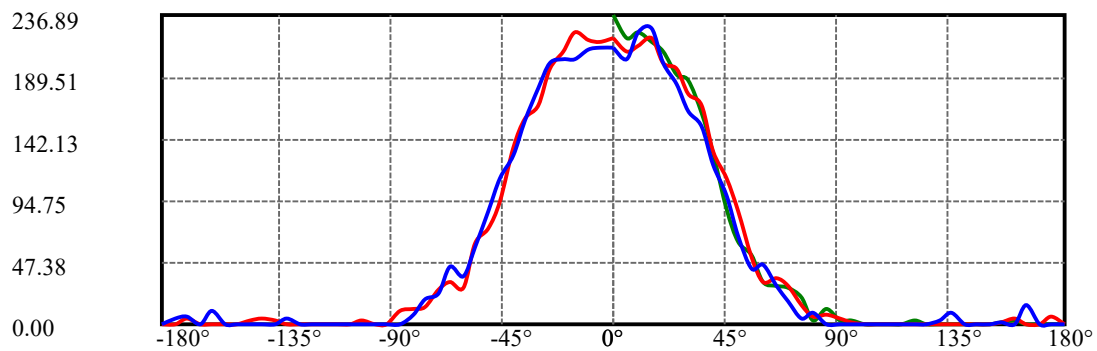
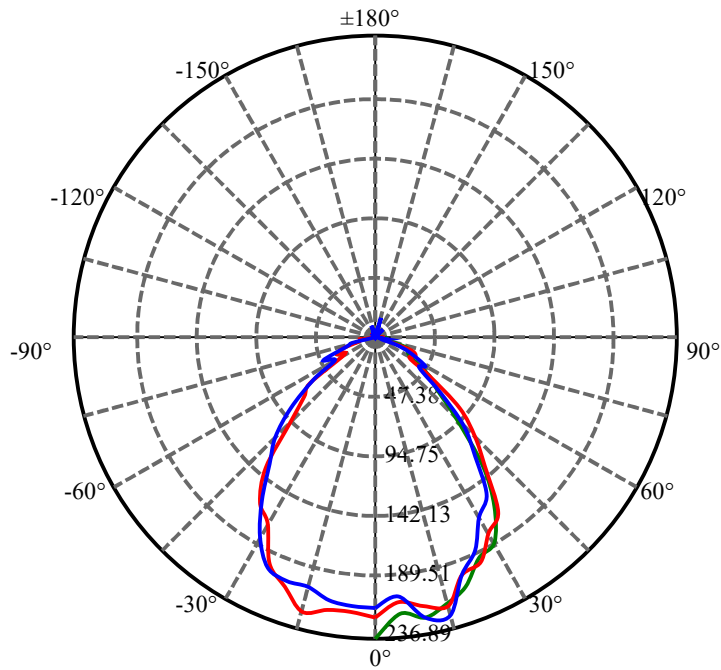
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	273.591	0.000	0	.000%	.000%
5.0	264.576	5.275	5.275	.000%	1.172%
10.0	266.857	15.588	20.863	.000%	4.636%
15.0	260.259	25.638	46.501	.000%	10.334%
20.0	251.923	34.611	81.112	.000%	18.025%
25.0	235.170	41.888	123	.000%	27.333%
30.0	214.425	46.652	169.652	.000%	37.700%
35.0	188.657	48.669	218.321	.000%	48.515%
40.0	155.042	47.018	265.34	.000%	58.964%
45.0	121.047	41.916	307.255	.000%	68.278%
50.0	90.500	35.049	342.304	.000%	76.067%
55.0	68.398	28.329	370.633	.000%	82.362%
60.0	46.486	21.774	392.407	.000%	87.201%
65.0	37.389	16.719	409.125	.000%	90.916%
70.0	28.863	13.755	422.88	.000%	93.973%
75.0	14.635	9.323	432.203	.000%	96.044%
80.0	12.002	5.844	438.047	.000%	97.343%
85.0	4.236	3.618	441.665	.000%	98.147%
90.0	1.955	1.390	443.054	.000%	98.456%
95.0	1.005	0.664	443.719	.000%	98.603%
100.0	0.679	0.375	444.094	.000%	98.687%
105.0	1.521	0.483	444.577	.000%	98.794%
110.0	1.276	0.599	445.176	.000%	98.927%
115.0	1.493	0.575	445.751	.000%	99.055%
120.0	1.873	0.671	446.422	.000%	99.204%
125.0	0.625	0.473	446.895	.000%	99.309%
130.0	1.059	0.300	447.196	.000%	99.376%
135.0	1.846	0.481	447.677	.000%	99.483%
140.0	1.195	0.462	448.139	.000%	99.586%
145.0	1.955	0.431	448.57	.000%	99.681%
150.0	0.380	0.282	448.851	.000%	99.744%
155.0	0.842	0.127	448.978	.000%	99.772%
160.0	2.417	0.280	449.258	.000%	99.834%
165.0	3.313	0.387	449.646	.000%	99.920%
170.0	1.711	0.244	449.89	.000%	99.975%
175.0	1.629	0.098	449.988	.000%	99.996%
180.0	0.000	0.016	450.004	.000%	100.000%

Zonal flux distribution table

ZONAL LUMEN SUMMARY			
Zone	Lumens	%Lamp	%Fixt
0-30	169.65	N.A.	37.70%
0-40	265.34	N.A.	58.96%
0-60	392.41	N.A.	87.20%
0-90	443.05	N.A.	98.46%
0-120	446.42	N.A.	99.20%
0-180	450.00	N.A.	100.00%
60-90	72.42	N.A.	16.09%
90-120	4.76	N.A.	1.06%
90-130	5.53	N.A.	1.23%
90-150	7.19	N.A.	1.60%
90-180	8.32	N.A.	1.85%
0-53.12	360.00	N.A.	80.00%

ZONAL LUMEN SUMMARY

0-10	20.86
10-20	60.25
20-30	88.54
30-40	95.69
40-50	76.96
50-60	50.10
60-70	30.47
70-80	15.17
80-90	5.01
90-100	1.04
100-110	1.08
110-120	1.25
120-130	0.77
130-140	0.94
140-150	0.71
150-160	0.41
160-170	0.63
170-180	0.10



C22.5(Max):

C0/C180:

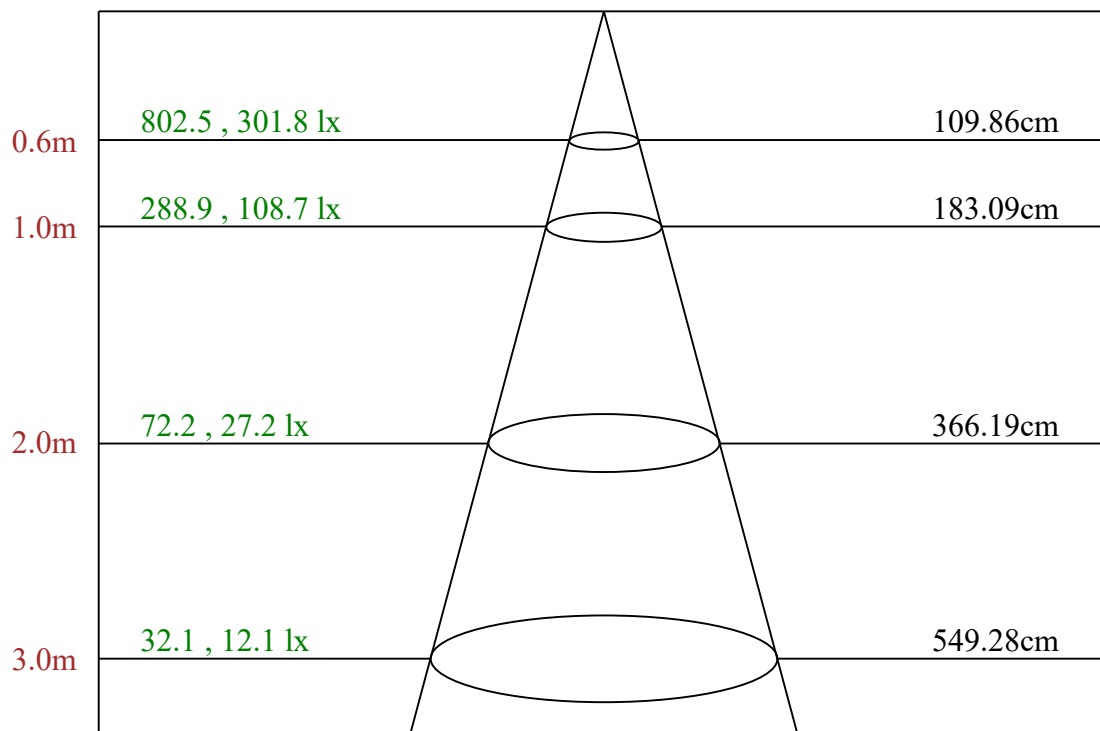
C90/C270:

Field angle(10%Imax):C0/180Left:56.6 Right:87.5

:C90/270Left:86.1 Right:52.7

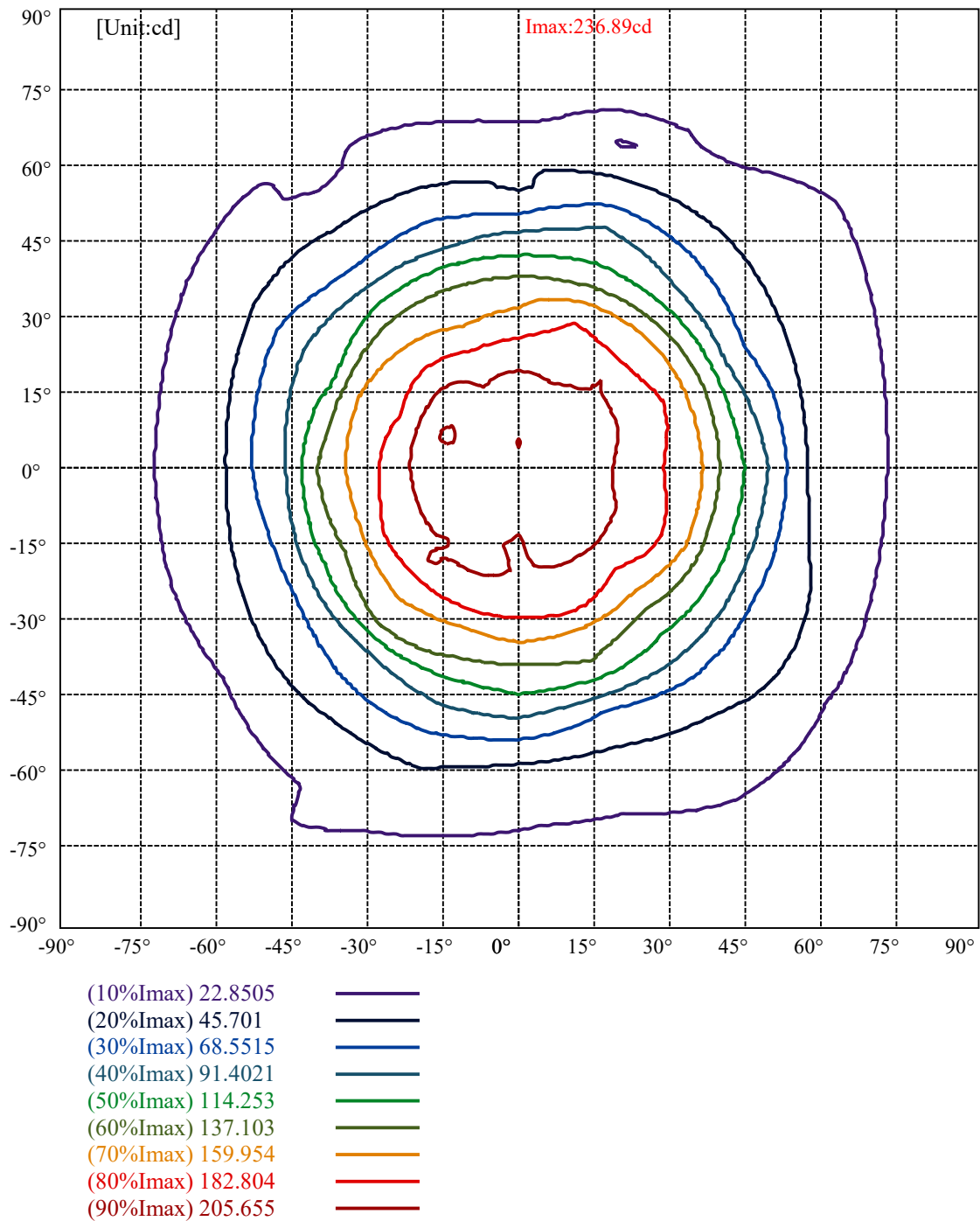
Beam Angle(50%Imax):C0/180Left:27.8 Right:59.8

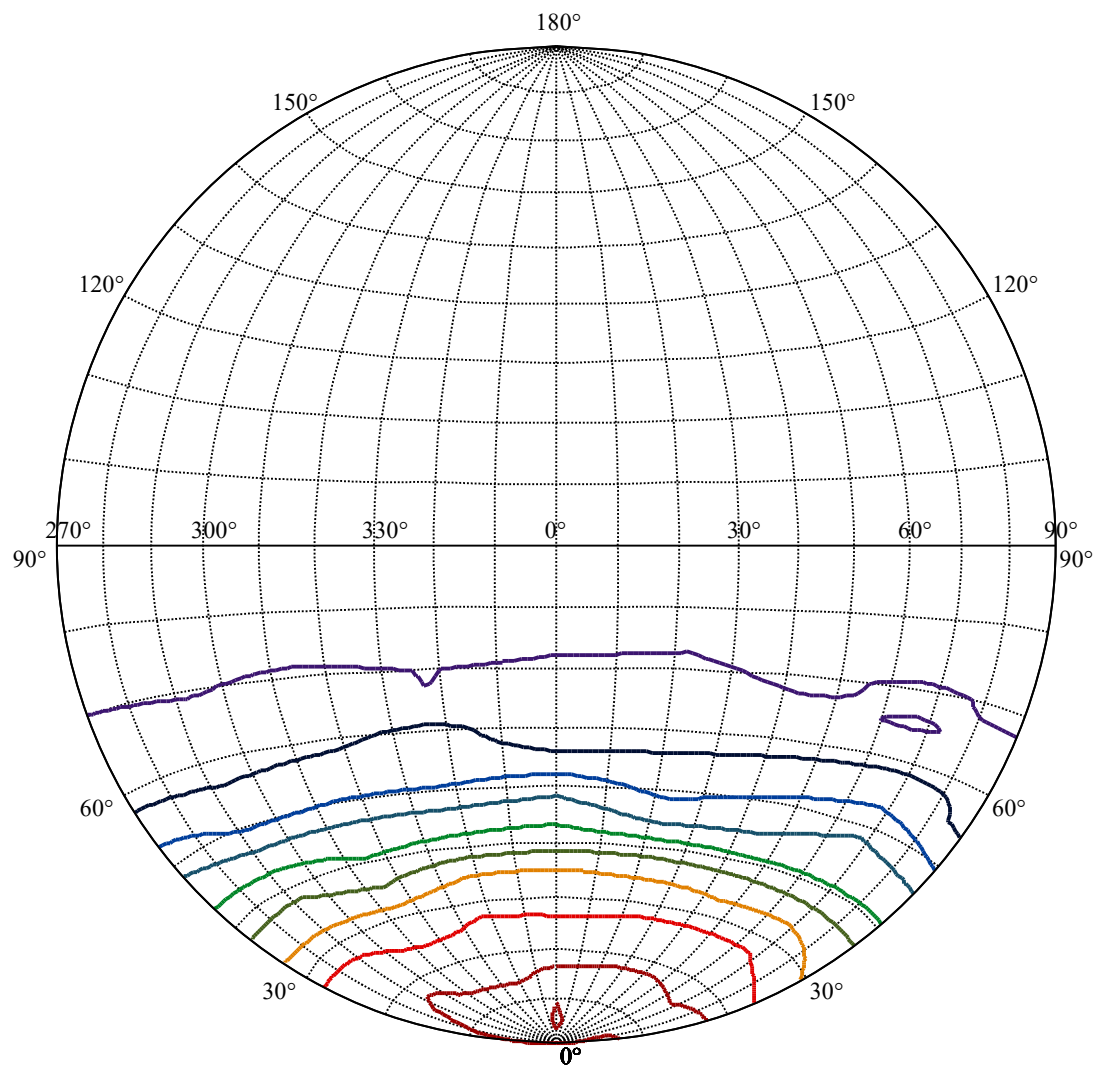
:C90/270Left:59.5 Right:26.7



Max , Ave

Beam angle of C22.5 plane 84.95





House

[Unit:cd]

Road

Imax:236.89

(10%Imax) 19.40243

(20%Imax) 38.80478

(30%Imax) 58.2072

(40%Imax) 77.60963

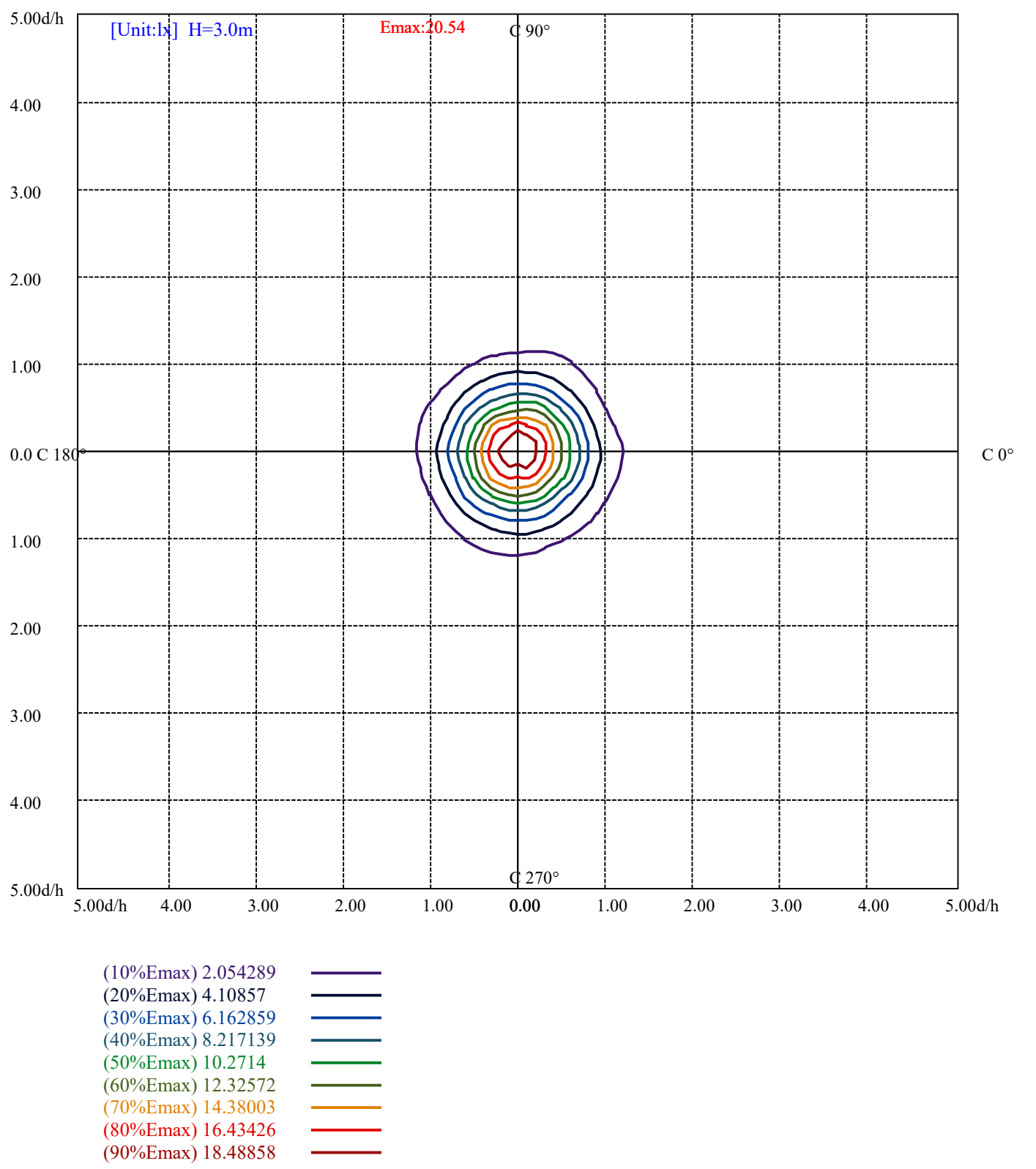
(50%Imax) 97.01214

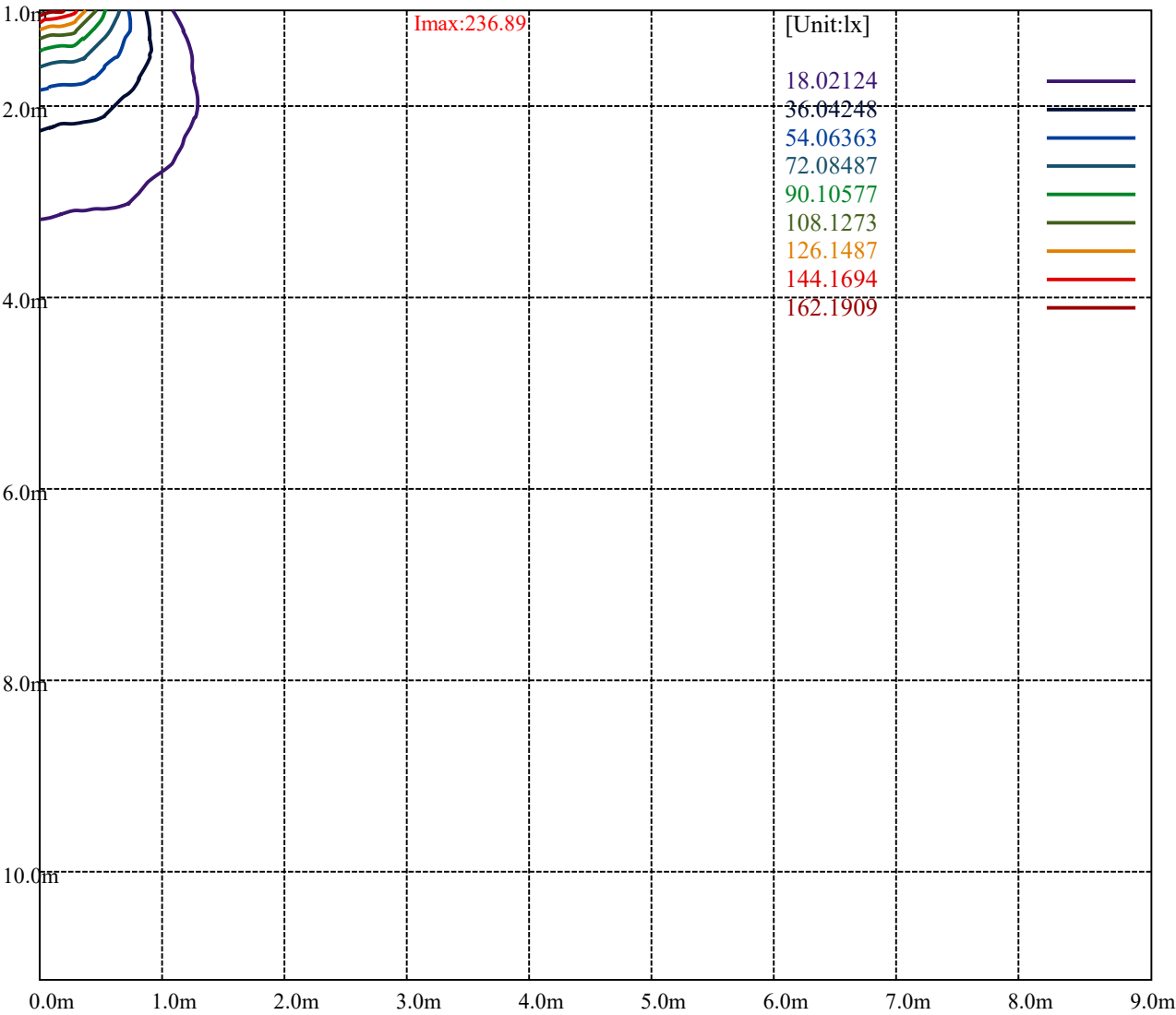
(60%Imax) 116.4144

(70%Imax) 135.8167

(80%Imax) 155.2189

(90%Imax) 174.622





Luminance Table

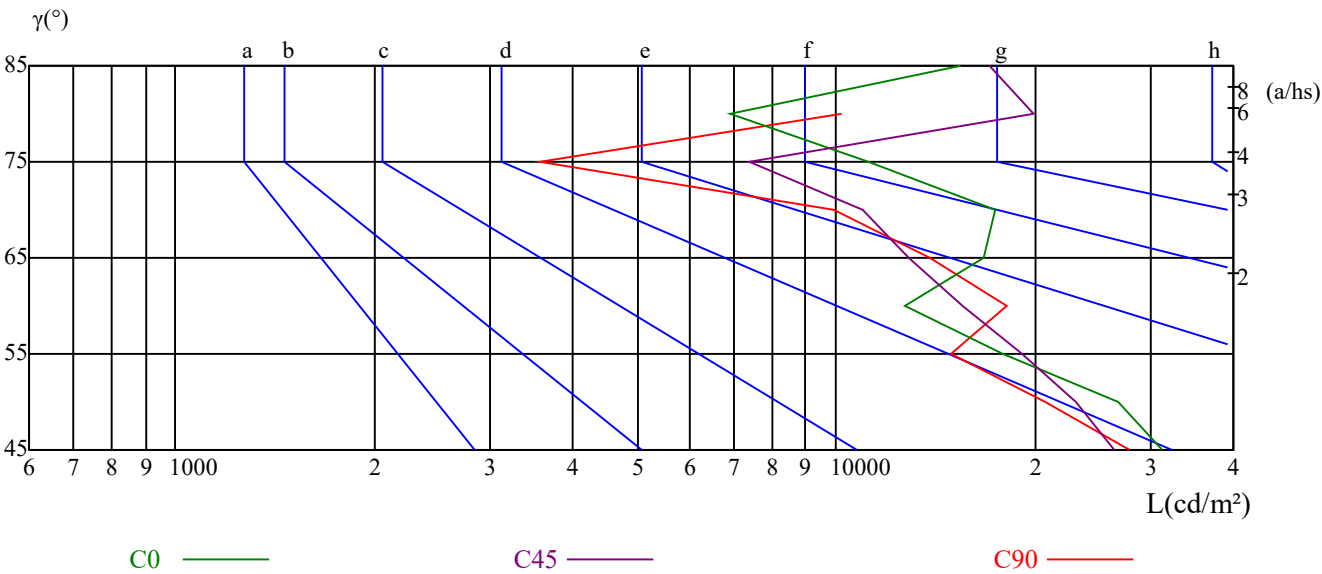
γ	45	50	55	60	65	70	75	80	85
C0	31269	26680	17915	12756	16769	17405	11226	6938	15448
C45	26458	23152	19151	15591	12912	10982	7393	19998	17075
C90	27862	20727	14950	18142	13918	9946	3560	10203	0

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
16098	17356	12702	10542	9036	10610	18701	0	4269

Glare Table

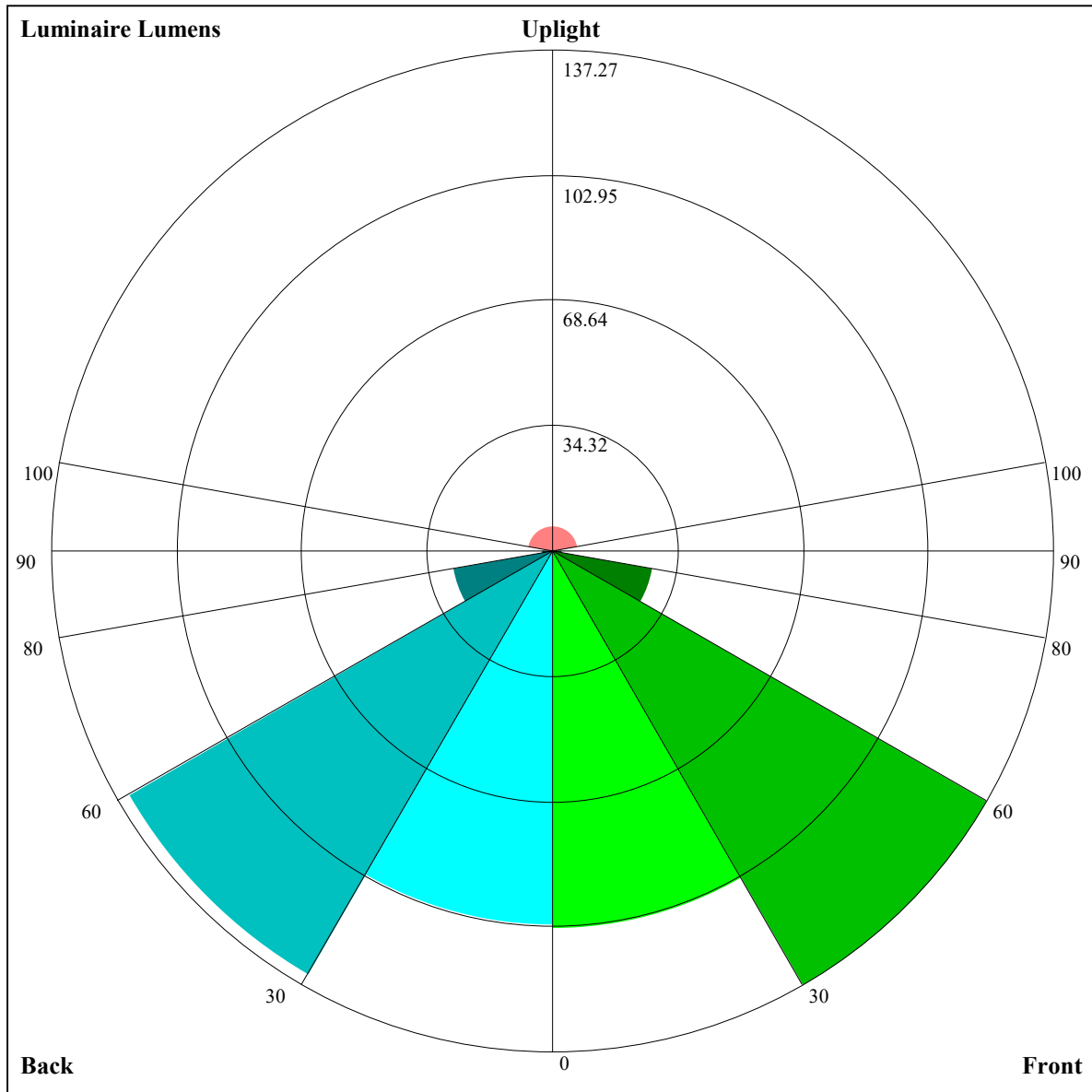
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

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	18.37	19.78	18.76	20.13	20.48	18.76	20.16	19.14	20.51	20.86
	3H	19.74	21.00	20.15	21.37	21.76	19.52	20.78	19.93	21.15	21.53
	4H	20.22	21.40	20.64	21.78	22.18	19.58	20.76	20.00	21.14	21.54
	6H	20.38	21.47	20.81	21.87	22.30	19.69	20.78	20.13	21.18	21.61
	8H	20.41	21.46	20.85	21.87	22.31	19.71	20.76	20.15	21.17	21.61
	12H	20.54	21.54	20.98	21.96	22.41	19.67	20.67	20.11	21.09	21.54
4H	2H	18.73	19.91	19.15	20.29	20.69	19.02	20.20	19.44	20.58	20.99
	3H	20.28	21.27	20.72	21.69	22.14	20.00	20.99	20.45	21.41	21.86
	4H	20.97	21.84	21.43	22.29	22.77	20.14	21.01	20.60	21.46	21.94
	6H	21.14	21.91	21.63	22.39	22.87	20.25	21.03	20.74	21.50	21.98
	8H	21.23	21.95	21.73	22.43	22.93	20.32	21.04	20.82	21.52	22.02
	12H	21.49	22.16	22.00	22.63	23.18	20.30	20.97	20.81	21.44	21.99
8H	4H	21.06	21.78	21.56	22.26	22.76	20.28	21.01	20.79	21.48	21.99
	6H	21.35	21.95	21.87	22.45	22.99	20.55	21.15	21.07	21.65	22.18
	8H	21.58	22.11	22.13	22.65	23.17	20.68	21.20	21.22	21.74	22.27
	12H	22.08	22.52	22.63	23.06	23.60	20.66	21.09	21.21	21.63	22.18
12H	4H	21.07	21.74	21.58	22.21	22.76	20.31	20.98	20.82	21.45	21.99
	6H	21.51	22.03	22.05	22.57	23.10	20.74	21.27	21.29	21.81	22.33
	8H	21.79	22.22	22.34	22.76	23.31	20.89	21.33	21.44	21.87	22.41
Variation with the observer position at spacings:											
S = 1.0H		0.5/-1.0					0.2/-0.6				
S = 1.5H		1.0/-2.1					1.1/-1.3				
S = 2.0H		2.2/-2.0					1.9/-1.4				
Standard tables:		BK3					BK4				
Uncorrected UGR		5.7					6.6				

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



Luminaire Lumens:

FL=103.68,FM=137.27,FH=27.91,FVH=2.78

BL=102.7,BM=133.91,BH=27.9,BVH=2.93

UL=1.27,UH=7.21

BUG Rating:B0-U1-G0

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	219.79	209.46	213.73	219.43	199.48	195.21	177.04	167.07	132.87
22.5	236.89	218.72	223.71	216.58	209.46	191.65	187.01	162.44	131.09
45.0	225.49	219.43	224.77	220.14	206.61	205.54	173.12	160.65	123.96
67.5	229.40	219.07	215.87	213.37	198.77	193.43	184.17	157.09	120.40
90.0	212.31	203.76	222.99	227.27	199.84	184.52	163.15	151.39	121.47
112.5	225.84	215.16	215.16	209.10	200.55	181.32	158.52	147.12	123.96
135.0	224.77	226.20	215.51	212.31	211.59	189.86	165.64	151.39	121.83
157.5	220.14	215.16	215.87	200.55	214.09	183.10	170.27	156.74	110.07
180.0	219.79	216.58	217.29	224.06	208.74	196.28	168.14	157.81	134.65
202.5	236.89	219.79	207.68	212.31	209.10	190.22	181.32	146.05	126.10
225.0	225.49	224.77	226.20	213.02	204.83	207.32	176.68	156.74	138.57
247.5	229.40	214.44	217.29	208.03	213.73	195.21	180.60	144.98	135.01
270.0	212.31	212.31	209.81	203.04	203.40	199.48	180.60	155.67	129.31
292.5	225.84	216.58	219.07	217.29	207.32	193.43	183.10	150.32	127.14
315.0	224.77	216.22	227.62	209.81	210.17	185.95	177.75	144.62	120.05
337.5	220.14	223.35	228.34	208.03	207.32	192.71	185.95	164.93	127.53
360.0	219.79	209.46	213.73	219.43	199.48	195.21	177.04	167.07	132.87
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	111.14	86.20	51.65	32.06	35.62	29.92	14.60	6.06	6.77
22.5	88.70	63.76	52.36	32.77	28.85	27.79	20.66	3.21	11.04
45.0	94.04	74.81	55.21	39.18	27.43	18.88	9.62	17.45	7.48
67.5	107.22	88.70	60.91	41.68	21.73	28.85	6.06	5.34	0.00
90.0	99.03	66.97	43.10	45.60	29.57	17.10	4.63	8.91	0.00
112.5	89.77	70.53	54.86	31.70	34.55	19.24	10.69	17.45	9.62
135.0	90.84	63.41	51.30	30.28	18.17	22.80	13.18	0.00	0.00
157.5	101.17	76.23	62.69	37.76	31.70	21.73	3.56	7.12	0.00
180.0	94.04	73.74	62.34	27.79	32.77	26.72	12.82	11.76	9.62
202.5	92.97	63.41	56.64	38.47	25.29	16.39	10.33	13.89	11.04
225.0	92.26	73.74	58.42	40.25	31.35	23.15	23.87	12.47	0.00
247.5	99.03	86.20	63.05	47.38	37.76	27.43	20.66	11.40	0.00
270.0	111.85	86.20	59.13	37.05	44.17	23.87	18.88	6.77	0.00
292.5	104.73	67.33	52.72	33.13	36.33	20.30	9.62	13.18	0.00
315.0	105.08	72.31	58.42	39.90	30.99	31.70	8.55	3.56	0.00
337.5	106.15	73.74	54.50	54.86	24.22	22.80	4.27	18.88	0.00
360.0	111.14	86.20	51.65	32.06	35.62	29.92	14.60	6.06	6.77
C/γ(°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	3.92	1.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22.5	2.85	3.21	0.36	0.00	0.00	0.00	3.56	0.00	0.00
45.0	3.21	5.34	0.00	13.89	0.00	0.71	0.00	0.00	0.00
67.5	0.00	2.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.56
112.5	2.85	0.00	2.85	0.00	0.00	7.84	6.41	0.00	0.00
135.0	0.00	0.00	0.00	0.00	0.00	2.14	0.71	0.71	0.00
157.5	4.27	0.00	3.21	0.00	0.00	0.00	0.00	1.07	0.00
180.0	0.00	0.00	2.49	0.00	0.00	0.00	0.00	0.00	0.00
202.5	1.43	0.00	0.00	0.00	8.91	4.99	6.77	0.00	4.63
225.0	0.00	0.00	0.00	3.21	0.00	3.92	0.00	0.00	0.00
247.5	0.00	0.00	0.00	0.00	0.00	0.00	6.77	6.41	0.00
270.0	0.00	0.71	0.00	0.00	0.00	0.00	0.00	0.00	3.92
292.5	3.92	0.00	0.00	2.85	0.00	0.00	0.36	0.00	1.78
315.0	3.21	0.00	0.00	0.00	2.85	0.00	0.00	0.00	0.00
337.5	0.00	0.00	0.00	0.00	4.99	0.00	0.00	0.00	0.00
360.0	3.92	1.78	0.00	0.00	0.00	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	0.00	0.00	0.00	1.07	3.92	0.00	0.00	5.34
22.5	0.00	0.00	0.00	0.00	1.07	3.21	0.00	0.00	0.00
45.0	0.36	9.97	2.49	0.00	0.00	0.00	0.00	0.36	0.00
67.5	0.00	0.00	0.00	0.00	0.00	0.36	1.78	0.00	0.00
90.0	8.55	0.00	0.00	0.00	1.78	0.00	15.32	0.00	0.00
112.5	0.00	0.00	15.67	0.71	0.00	3.92	0.00	8.55	0.00
135.0	0.00	0.00	0.36	0.00	1.43	0.00	0.00	0.00	0.00
157.5	0.00	0.00	0.00	0.00	0.00	0.00	6.06	0.00	0.71
180.0	3.21	4.27	2.49	0.00	0.00	0.00	0.00	4.27	0.00
202.5	0.00	0.00	0.00	1.07	0.00	0.00	0.00	0.00	0.00
225.0	0.00	0.00	4.63	0.00	1.78	0.00	9.26	0.00	0.00
247.5	5.34	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.00
270.0	0.00	0.00	0.00	0.00	0.00	9.62	0.00	5.70	4.63
292.5	0.00	0.00	0.00	0.00	0.00	6.41	8.55	2.14	0.00
315.0	6.77	1.43	0.00	0.00	0.00	0.00	2.49	1.07	0.00
337.5	0.00	0.00	0.00	3.21	3.92	4.27	0.00	0.00	10.69
360.0	0.00	0.00	0.00	0.00	1.07	3.92	0.00	0.00	5.34

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