



SGSO

Address: LIT by CARDI

Client:

LumCAT: 0017440218 RIO 12W 4000K 1200lm

Luminaire:

Report No:

Voltage(V): 230.3300

Test No: KYZ-A251014055-01-004

Current(A): 0.0544

LampCAT: LED

Power (W): 12.0000

Lamp flux(lm): -1.0

PF: 0.9576

Number of Lamps: 1

Ballast type:

Length(mm): -80

Width(mm): -80

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 1200.00

Efficiency(%): 100.00%

Lumens(lm)/Power(W): 100.00

Central intensity(cd): 573.137

Maximum intensity(cd): 608.395

Angle of maximum intensity: C=45.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=86.6

[C90/270]Total=88.2

Field angle(10%Imax): [C0/180]Total=142.6

[C90/270]Total=143.6

Maximum s/h(1/2): C0_180=1.22 C90_270=1.17

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

Up flux rate of lamp(%): 0.52%

Down flux rate of lamp(%): 99.48%

Up flux rate of LUM(%): 0.52%

Down flux rate of LUM(%): 99.48%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 87.880%

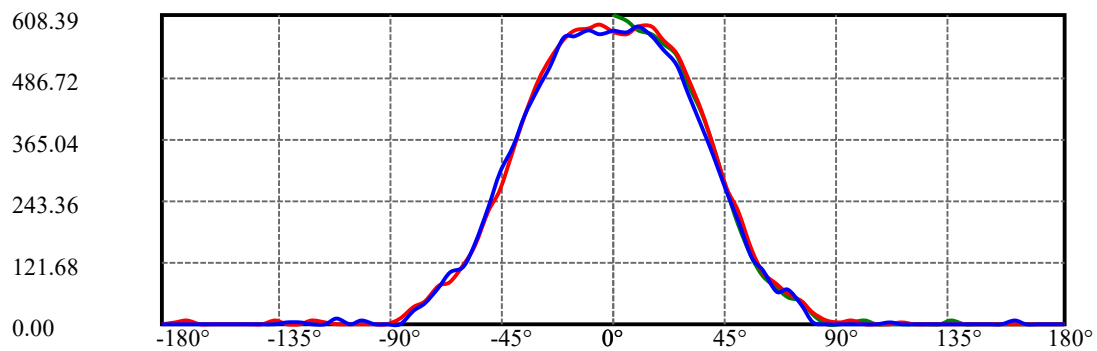
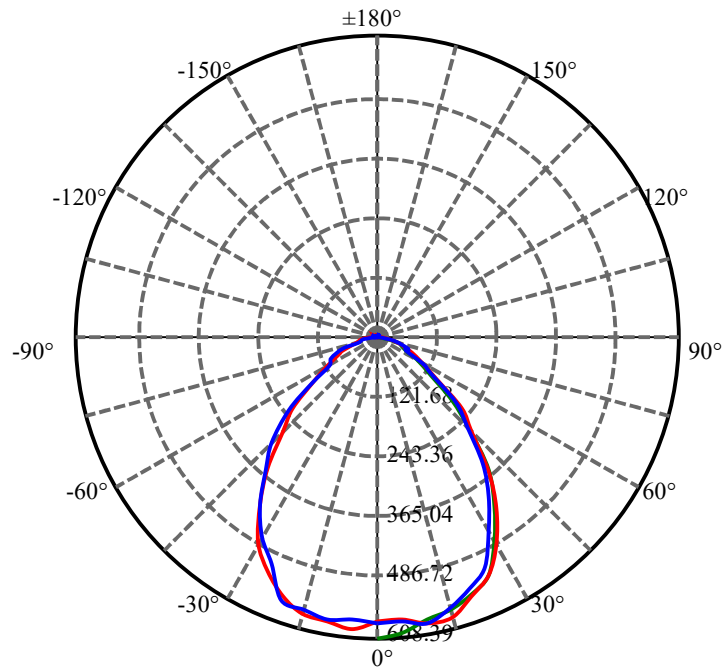
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	676.267	0.000	0	.000%	.000%
5.0	676.484	13.962	13.962	.000%	1.164%
10.0	668.718	41.548	55.51	.000%	4.626%
15.0	664.048	68.258	123.767	.000%	10.314%
20.0	642.923	92.997	216.764	.000%	18.064%
25.0	601.406	112.677	329.441	.000%	27.453%
30.0	541.019	124.823	454.264	.000%	37.855%
35.0	472.947	128.914	583.178	.000%	48.598%
40.0	397.163	125.338	708.515	.000%	59.043%
45.0	313.669	113.635	822.15	.000%	68.512%
50.0	237.397	96.138	918.288	.000%	76.524%
55.0	171.931	76.842	995.13	.000%	82.927%
60.0	125.907	59.439	1054.569	.000%	87.880%
65.0	91.423	45.615	1100.184	.000%	91.682%
70.0	73.964	36.156	1136.34	.000%	94.695%
75.0	52.405	28.518	1164.858	.000%	97.071%
80.0	27.805	18.530	1183.387	.000%	98.615%
85.0	8.010	8.402	1191.79	.000%	99.315%
90.0	0.326	1.971	1193.76	.000%	99.480%
95.0	1.656	0.469	1194.229	.000%	99.519%
100.0	1.982	0.854	1195.082	.000%	99.590%
105.0	1.385	0.778	1195.86	.000%	99.655%
110.0	1.358	0.619	1196.479	.000%	99.706%
115.0	1.086	0.534	1197.013	.000%	99.751%
120.0	0.733	0.382	1197.395	.000%	99.783%
125.0	0.462	0.238	1197.634	.000%	99.802%
130.0	1.113	0.296	1197.929	.000%	99.827%
135.0	1.955	0.535	1198.464	.000%	99.872%
140.0	0.489	0.391	1198.855	.000%	99.904%
145.0	0.760	0.180	1199.035	.000%	99.919%
150.0	0.733	0.190	1199.225	.000%	99.935%
155.0	0.489	0.134	1199.358	.000%	99.946%
160.0	1.738	0.202	1199.56	.000%	99.963%
165.0	1.222	0.211	1199.771	.000%	99.981%
170.0	1.195	0.124	1199.894	.000%	99.991%
175.0	1.195	0.074	1199.968	.000%	99.997%
180.0	2.281	0.036	1200.004	.000%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	454.26	N.A.	37.86%
0-40	708.52	N.A.	59.04%
0-60	1054.57	N.A.	87.88%
0-90	1193.76	N.A.	99.48%
0-120	1197.40	N.A.	99.78%
0-180	1200.00	N.A.	100.00%
60-90	198.63	N.A.	16.55%
90-120	5.61	N.A.	0.47%
90-130	6.14	N.A.	0.51%
90-150	7.44	N.A.	0.62%
90-180	8.18	N.A.	0.68%
0-52.71	960.00	N.A.	80.00%

ZONAL LUMEN SUMMARY

0-10	55.51
10-20	161.25
20-30	237.50
30-40	254.25
40-50	209.77
50-60	136.28
60-70	81.77
70-80	47.05
80-90	10.37
90-100	1.32
100-110	1.40
110-120	0.92
120-130	0.53
130-140	0.93
140-150	0.37
150-160	0.34
160-170	0.33
170-180	0.07

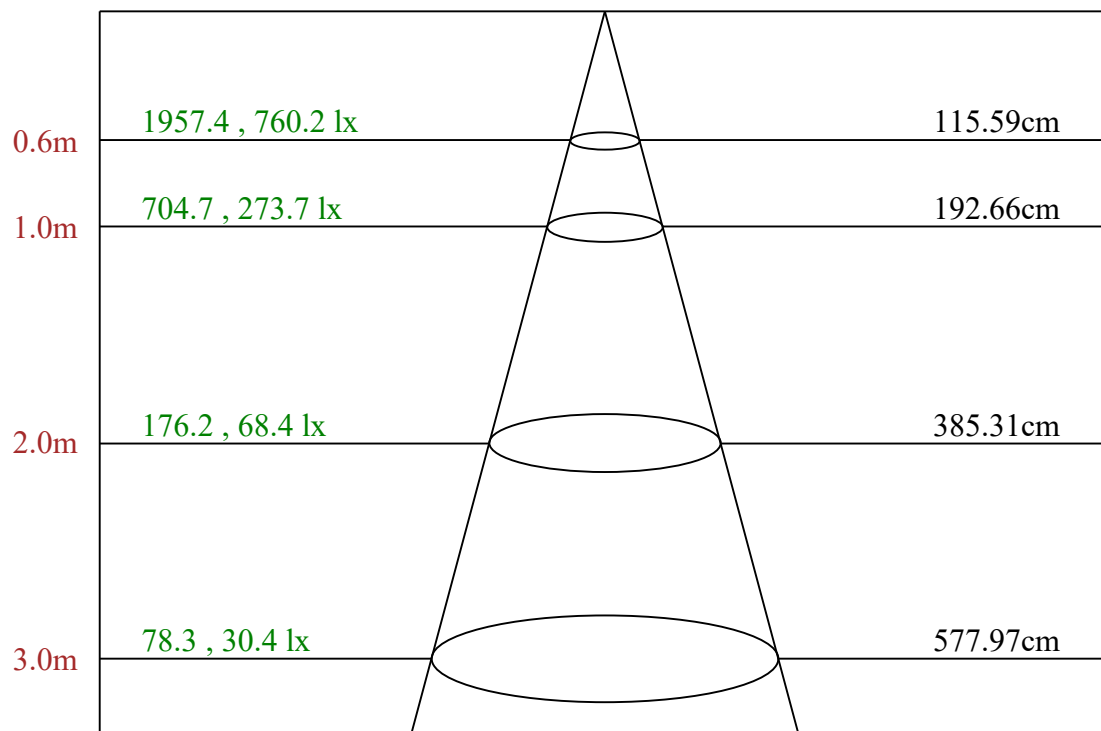
C45(Max): C0/C180: C90/C270: 

Field angle(10%Imax):C0/180Left:67.5 Right:75.1

:C90/270Left:82.2 Right:61.4

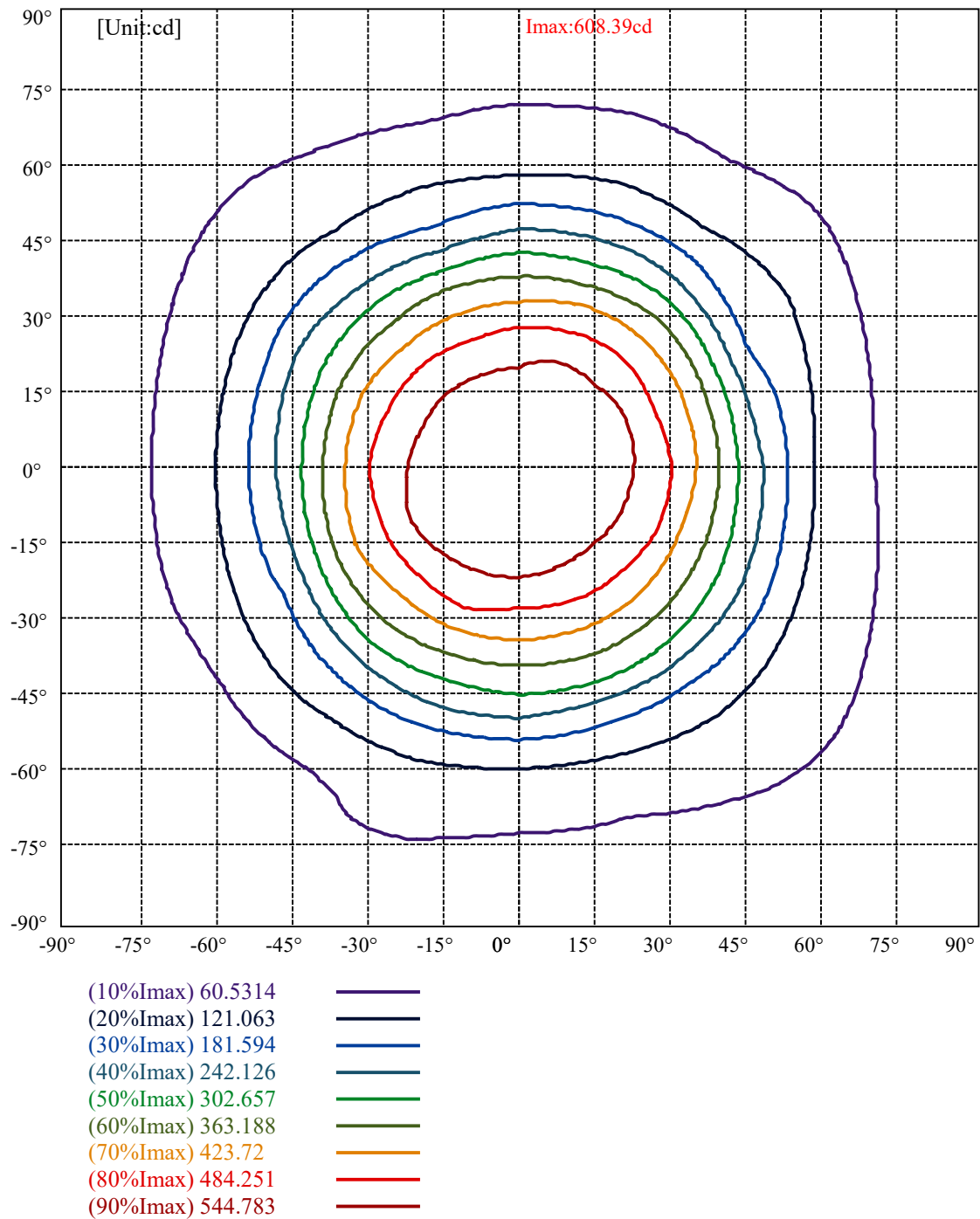
Beam Angle(50%Imax):C0/180Left:38.1 Right:48.5

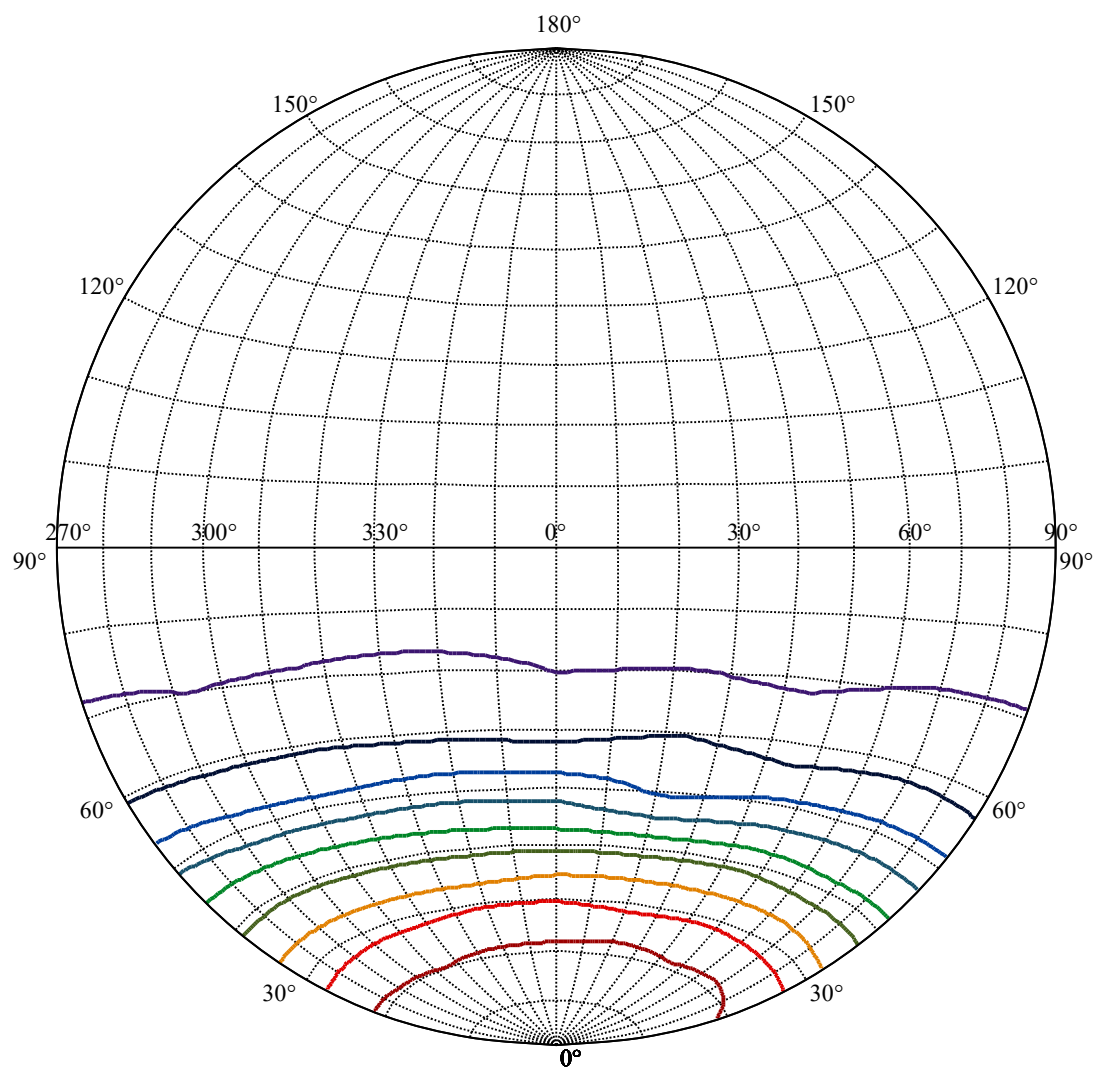
:C90/270Left:55.5 Right:32.7



Max , Ave

Beam angle of C45 plane 87.86





House

[Unit:cd]

Road

Imax:608.39

(10%Imax) 52.52747

(20%Imax) 105.0549

(30%Imax) 157.582

(40%Imax) 210.1099

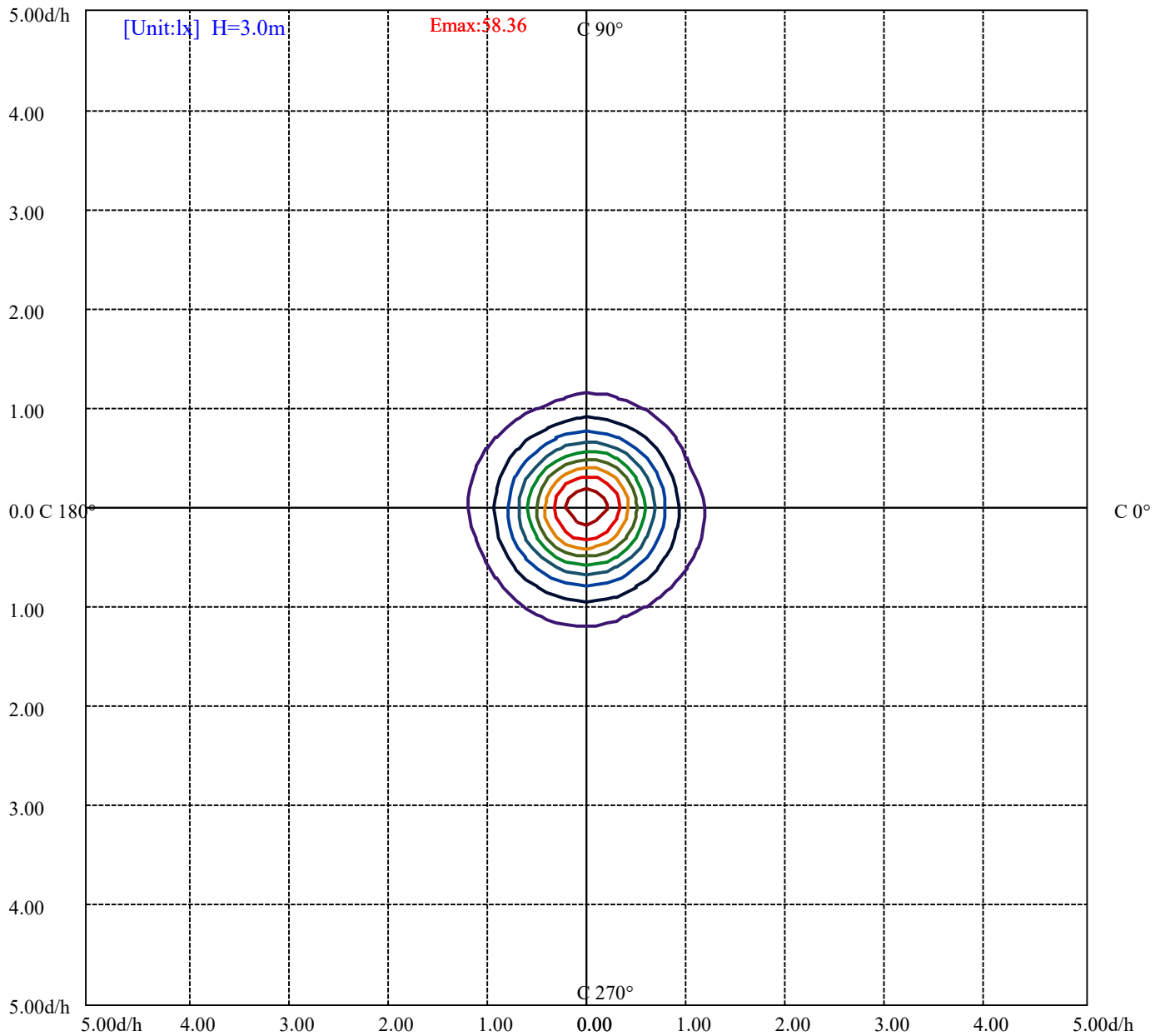
(50%Imax) 262.6369

(60%Imax) 315.1648

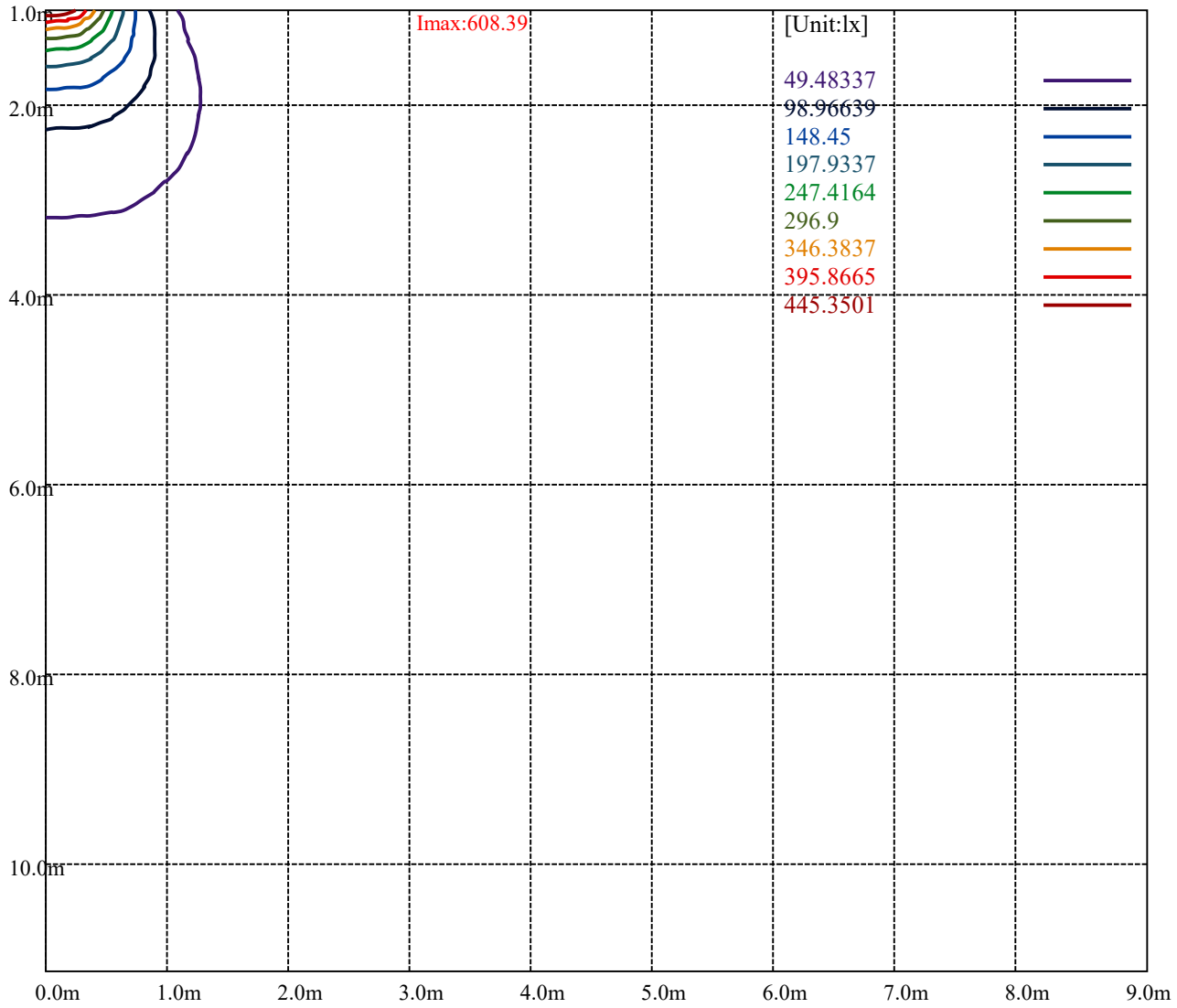
(70%Imax) 367.6918

(80%Imax) 420.2197

(90%Imax) 472.7468



(10%Emax)	5.836356	
(20%Emax)	11.67268	
(30%Emax)	17.50901	
(40%Emax)	23.34544	
(50%Emax)	29.18178	
(60%Emax)	35.01812	
(70%Emax)	40.85445	
(80%Emax)	46.6908	
(90%Emax)	52.52713	



Luminance Table

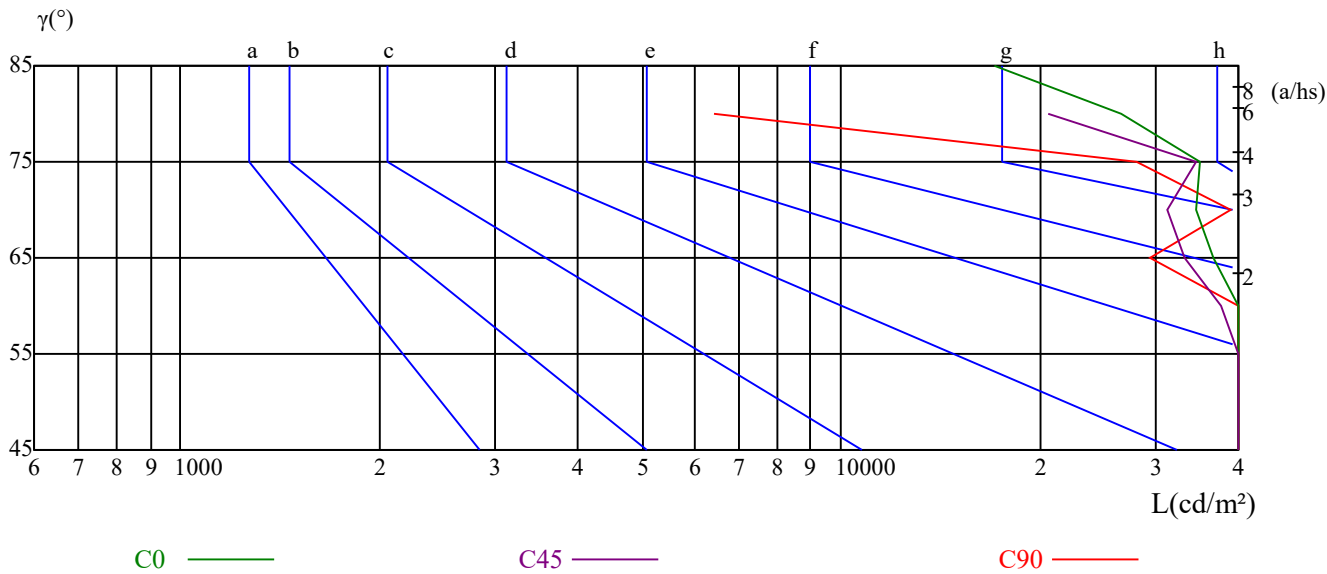
γ	45	50	55	60	65	70	75	80	85
C0	75771	68958	51649	40594	36550	34472	34886	26644	17124
C45	74294	60715	46185	37609	33195	31200	34598	20627	0
C90	73133	63502	45665	42833	29487	39054	27967	6446	0

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
38139	38404	33637	34166	29264	38058	21404	0	4281

Glare Table

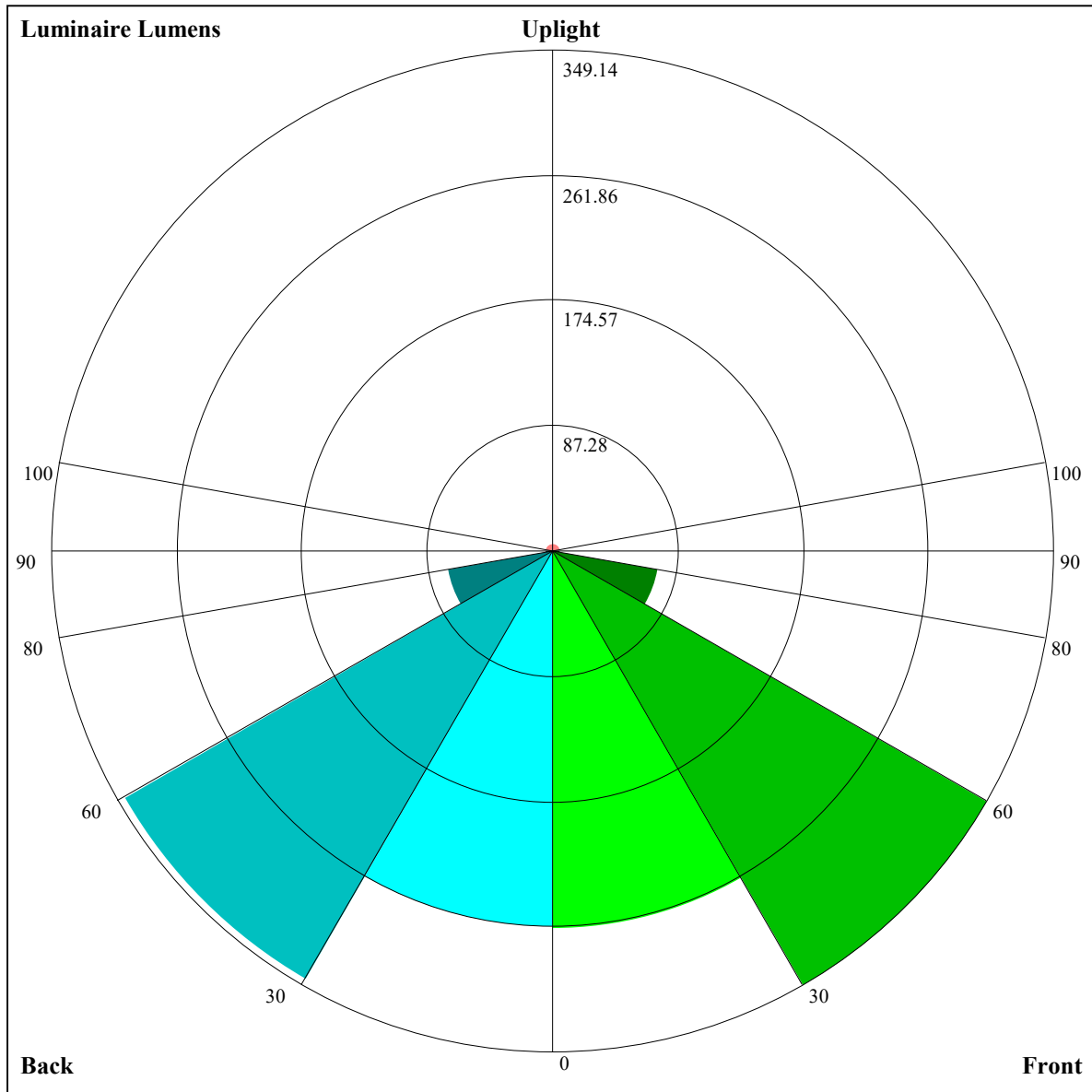
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

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	21.76	23.20	22.13	23.52	23.85	21.60	23.04	21.97	23.36	23.69
	3H	22.64	23.92	23.03	24.27	24.63	22.56	23.85	22.95	24.20	24.55
	4H	23.03	24.23	23.43	24.60	24.97	22.94	24.15	23.35	24.51	24.89
	6H	23.30	24.41	23.71	24.79	25.20	23.03	24.14	23.45	24.52	24.93
	8H	23.34	24.41	23.76	24.80	25.21	22.97	24.04	23.39	24.43	24.85
	12H	23.35	24.37	23.77	24.77	25.19	22.91	23.94	23.34	24.34	24.76
4H	2H	22.04	23.24	22.44	23.60	23.98	21.91	23.12	22.31	23.48	23.85
	3H	23.11	24.13	23.54	24.52	24.95	23.09	24.10	23.52	24.50	24.93
	4H	23.65	24.54	24.09	24.96	25.42	23.67	24.56	24.11	24.99	25.44
	6H	23.93	24.72	24.40	25.18	25.63	23.77	24.56	24.24	25.01	25.47
	8H	24.03	24.77	24.52	25.23	25.71	23.74	24.48	24.22	24.93	25.41
	12H	24.10	24.79	24.59	25.24	25.76	23.71	24.39	24.19	24.84	25.36
8H	4H	23.79	24.53	24.27	24.98	25.46	23.81	24.55	24.29	25.00	25.48
	6H	24.12	24.73	24.62	25.21	25.72	23.95	24.56	24.45	25.04	25.55
	8H	24.31	24.84	24.84	25.37	25.87	23.97	24.51	24.50	25.03	25.53
	12H	24.45	24.90	24.99	25.42	25.94	23.93	24.38	24.47	24.90	25.42
12H	4H	23.77	24.45	24.26	24.91	25.43	23.80	24.48	24.28	24.93	25.45
	6H	24.15	24.68	24.67	25.20	25.71	23.98	24.52	24.51	25.04	25.54
	8H	24.32	24.76	24.85	25.28	25.81	23.97	24.42	24.51	24.94	25.46
Variation with the observer position at spacings:											
S = 1.0H		0.4/-0.8					0.5/-0.7				
S = 1.5H		0.8/-1.4					0.8/-1.4				
S = 2.0H		2.2/-2.2					2.2/-1.6				
Standard tables:		BK2					BK3				
Uncorrected UGR		8.7					9.6				

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



Luminaire Lumens:

FL=263.09,FM=349.14,FH=74.2,FVH=5.73

BL=261.87,BM=345.38,BH=74.73,BVH=5.5

UL=1.53,UH=5.7

BUG Rating:B1-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	573.14	571.26	584.76	584.01	558.51	531.13	483.87	421.23	352.58
22.5	581.39	591.52	578.01	582.89	569.76	527.00	467.74	419.35	345.08
45.0	608.39	597.52	576.89	570.14	552.13	530.75	473.74	414.85	349.96
67.5	589.27	575.39	581.01	577.64	563.01	518.00	465.49	409.97	323.33
90.0	577.26	575.76	585.89	566.39	542.00	512.00	453.11	390.84	331.95
112.5	571.26	587.77	581.76	569.76	541.63	502.62	438.48	400.97	314.32
135.0	585.89	587.39	577.26	570.89	544.63	509.75	451.61	382.97	328.20
157.5	584.39	594.89	586.26	583.64	548.01	506.75	466.99	406.97	333.83
180.0	573.14	590.02	583.64	578.39	557.76	521.75	478.61	411.47	342.83
202.5	581.39	591.14	572.76	560.01	562.63	538.25	469.61	425.73	352.58
225.0	608.39	586.64	569.01	570.14	554.38	536.00	464.36	407.72	355.58
247.5	589.27	578.39	569.39	578.01	561.13	519.87	480.11	408.47	349.58
270.0	577.26	570.51	577.26	567.88	563.38	506.37	463.99	412.22	349.58
292.5	571.26	582.14	571.64	570.51	553.63	506.75	469.99	408.85	353.71
315.0	585.89	570.89	568.26	566.76	548.38	522.12	464.74	409.22	350.71
337.5	584.39	593.77	573.89	576.14	560.38	518.75	481.24	402.47	352.58
360.0	573.14	571.26	584.76	584.01	558.51	531.13	483.87	421.23	352.58
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	269.31	222.80	148.91	102.02	77.64	59.26	45.39	23.26	7.50
22.5	250.56	171.04	153.41	119.65	70.52	63.39	36.38	15.75	13.88
45.0	264.06	196.17	133.16	94.52	70.52	53.64	45.01	18.00	0.00
67.5	266.31	198.42	146.66	103.15	81.02	64.14	45.76	12.00	0.00
90.0	259.94	205.17	131.66	107.65	62.64	67.14	36.38	5.63	0.00
112.5	235.18	172.92	132.41	103.90	79.14	54.39	41.26	25.13	0.00
135.0	249.81	190.17	129.41	94.15	79.89	55.51	46.89	21.01	0.00
157.5	271.19	221.30	143.66	111.03	86.65	67.89	27.76	14.63	7.50
180.0	266.31	223.55	156.41	117.40	84.40	73.89	43.51	33.01	11.25
202.5	265.94	188.29	156.79	114.78	71.27	47.26	50.26	19.50	23.26
225.0	287.32	201.42	156.41	109.15	69.77	50.64	54.01	33.01	0.00
247.5	284.32	230.31	156.79	118.53	90.40	83.27	56.64	36.76	7.50
270.0	299.32	231.80	160.16	113.65	100.52	73.14	39.76	26.63	0.00
292.5	293.70	201.42	159.41	106.53	93.40	60.39	51.39	34.13	18.00
315.0	288.07	202.55	150.41	114.40	65.64	65.64	52.14	27.01	7.50
337.5	281.69	222.05	159.41	108.78	79.52	82.14	51.39	38.63	14.25
360.0	269.31	222.80	148.91	102.02	77.64	59.26	45.39	23.26	7.50
C/γ(°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	3.38	6.38	0.00	0.00	0.00	2.63	0.00	0.00	0.00
22.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45.0	0.75	5.25	7.50	0.00	0.00	0.00	0.00	0.00	0.00
67.5	0.00	0.00	3.00	1.12	0.00	0.00	0.00	0.00	0.00
90.0	0.00	0.00	0.37	0.00	3.75	0.00	0.00	0.00	0.00
112.5	0.00	0.00	0.00	0.00	0.37	0.00	0.37	0.00	0.00
135.0	0.37	1.50	0.00	0.00	1.50	0.00	0.00	0.00	0.00
157.5	0.00	4.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180.0	0.00	0.00	0.00	0.00	0.00	4.50	6.75	0.00	0.00
202.5	0.00	0.00	10.13	0.00	0.00	0.00	0.00	0.00	0.00
225.0	0.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00
247.5	0.00	0.00	0.00	0.00	0.37	0.75	0.00	0.00	0.00
270.0	0.00	0.00	6.38	0.00	11.63	1.50	0.00	5.63	4.88
292.5	0.00	0.00	0.00	0.00	0.00	5.63	0.00	0.75	0.00
315.0	0.00	0.00	0.00	10.50	1.12	0.00	0.00	0.00	0.00
337.5	0.00	4.88	0.00	7.50	0.00	0.00	0.00	0.00	10.50
360.0	3.38	6.38	0.00	0.00	0.00	2.63	0.00	0.00	0.00

0017440218 RIO 12W 4000K 1200lm

Appendix Page: 14 Total:14

Intensity data(cd)									
C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	0.75	1.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22.5	0.00	0.00	0.00	0.00	0.00	3.75	0.00	2.63	0.00
45.0	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
67.5	0.00	0.00	0.00	1.88	0.75	0.00	0.00	0.00	0.37
90.0	0.00	0.00	0.00	0.00	0.00	7.50	0.75	0.00	0.37
112.5	0.00	0.00	1.12	8.25	0.00	8.25	0.75	0.00	0.00
135.0	0.00	0.00	0.00	0.00	0.00	0.00	1.12	0.00	0.00
157.5	4.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.12
180.0	6.00	0.00	0.00	0.00	0.00	0.00	0.00	8.25	4.50
202.5	1.12	1.88	0.00	0.00	0.00	0.00	0.00	0.00	0.37
225.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
247.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
270.0	0.00	0.00	0.00	0.00	0.00	1.12	0.00	0.00	0.00
292.5	0.00	0.75	0.00	0.00	6.00	0.00	2.25	0.00	0.00
315.0	0.00	2.25	3.75	0.00	0.00	0.37	0.00	0.00	0.00
337.5	9.00	0.00	5.63	0.00	0.00	3.00	12.00	5.63	9.75
360.0	0.75	1.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C/γ(°)	180.0								
0.0	0.00								
22.5	0.00								
45.0	0.00								
67.5	10.88								
90.0	0.00								
112.5	4.88								
135.0	0.00								
157.5	0.00								
180.0	0.00								
202.5	0.00								
225.0	0.00								
247.5	10.88								
270.0	0.00								
292.5	4.88								
315.0	0.00								
337.5	0.00								
360.0	0.00								