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### Lotus LED Lights

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Client:

LumCAT: LFR-4S-RB-9W-5CCT-4000K

Luminaire: Fire rated slim panel

Report No:

Ballast type:

Test No: LCZP23080240

Voltage(V): 120.050

LampCAT:

Current(A): 0.092

Lamp flux(lm): 1098.3

Power (W): 9.330

Number of Lamps: 1

PF: 0.846

Length(mm): -80

Width(mm): -80

Phm Type: C

Height(mm): 0

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### Photometric Results

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Lumens(lm): 1098.32, Efficiency(%): 100.00% , Luminous Efficacy(lm/W): 117.72

Central intensity(cd): 462.124, Maximum intensity(cd): 462.124

Angle of maximum intensity: C=0.0  $\gamma$ =0.0

Beam Angle(50%Imax): [C0/180]Total=98.0

[C90/270]Total=99.0

Field angle(10%Imax): [C0/180]Total=148.6

[C90/270]Total=149.6

Maximum s/h(1/2): C0\_180=1.19 C90\_270=1.20

Maximum s/h(1/4): C0\_180=1.29 C90\_270=1.30

Up flux rate of lamp(%): 0.24%

Down flux rate of lamp(%): 99.76%

Up flux rate of LUM(%): 0.24%

Down flux rate of LUM(%): 99.76%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 84.717%

Lotus LED Lights LFR-4S-RB-9W-5CCT-4000K

Zonal flux distribution table

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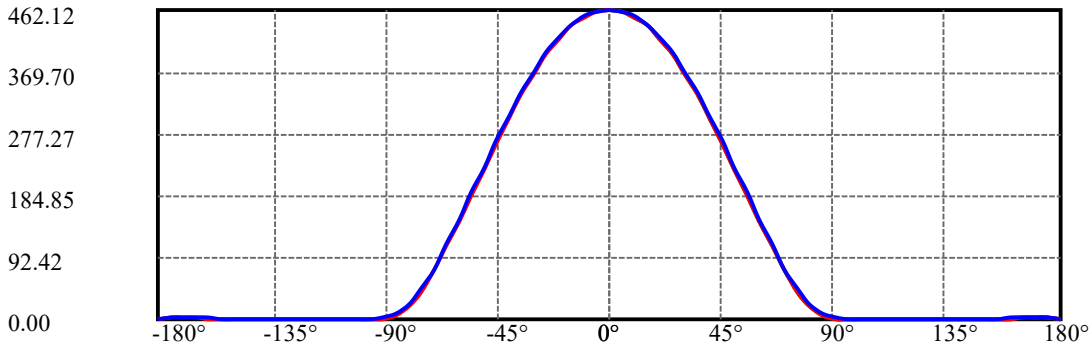
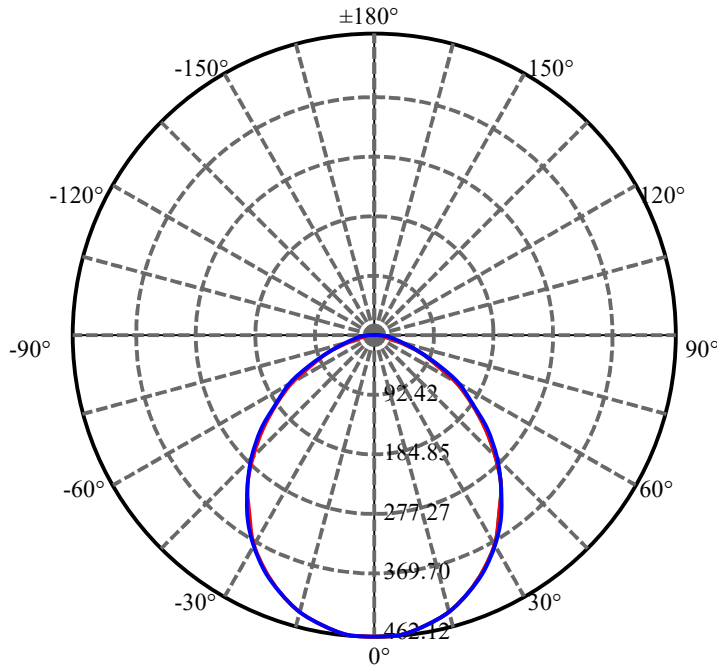
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	462.124	0.000	0	0.00%	0.00%
5.0	459.618	11.019	11.019	1.00%	1.00%
10.0	451.683	32.600	43.619	2.97%	3.97%
15.0	438.285	52.792	96.412	4.81%	8.78%
20.0	420.058	70.740	167.151	6.44%	15.22%
25.0	397.003	85.695	252.846	7.80%	23.02%
30.0	369.610	97.016	349.861	8.83%	31.85%
35.0	336.933	104.043	453.905	9.47%	41.33%
40.0	301.380	106.498	560.402	9.70%	51.02%
45.0	264.438	104.766	665.168	9.54%	60.56%
50.0	224.809	98.860	764.028	9.00%	69.56%
55.0	185.810	89.282	853.31	8.13%	77.69%
60.0	147.977	77.154	930.464	7.02%	84.72%
65.0	109.540	62.603	993.067	5.70%	90.42%
70.0	74.287	46.546	1039.614	4.24%	94.65%
75.0	43.038	30.667	1070.28	2.79%	97.45%
80.0	19.531	16.742	1087.022	1.52%	98.97%
85.0	5.649	6.842	1093.864	0.62%	99.59%
90.0	1.047	1.833	1095.698	0.17%	99.76%
95.0	0.000	0.287	1095.984	0.03%	99.79%
100.0	0.000	0.000	1095.984	0.00%	99.79%
105.0	0.150	0.040	1096.024	0.00%	99.79%
110.0	0.187	0.088	1096.112	0.01%	99.80%
115.0	0.075	0.066	1096.179	0.01%	99.80%
120.0	0.112	0.045	1096.224	0.00%	99.81%
125.0	0.075	0.043	1096.267	0.00%	99.81%
130.0	0.037	0.024	1096.292	0.00%	99.82%
135.0	0.448	0.098	1096.39	0.01%	99.82%
140.0	0.823	0.235	1096.625	0.02%	99.85%
145.0	0.898	0.287	1096.913	0.03%	99.87%
150.0	0.898	0.265	1097.177	0.02%	99.90%
155.0	0.898	0.227	1097.405	0.02%	99.92%
160.0	1.609	0.263	1097.668	0.02%	99.94%
165.0	1.796	0.281	1097.948	0.03%	99.97%
170.0	1.796	0.213	1098.161	0.02%	99.99%
175.0	1.796	0.129	1098.29	0.01%	100.00%
180.0	0.898	0.032	1098.322	0.00%	100.00%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	349.86	31.85%	31.85%
0-40	560.40	51.02%	51.02%
0-60	930.46	84.72%	84.72%
0-90	1095.70	99.76%	99.76%
0-120	1096.22	99.81%	99.81%
0-180	1098.32	100.00%	100.00%
60-90	165.23	15.04%	15.04%
90-120	0.53	0.05%	0.05%
90-130	0.59	0.05%	0.05%
90-150	1.48	0.13%	0.13%
90-180	2.59	0.24%	0.24%
0-56.64	878.66	80.00%	80.00%

ZONAL LUMEN SUMMARY

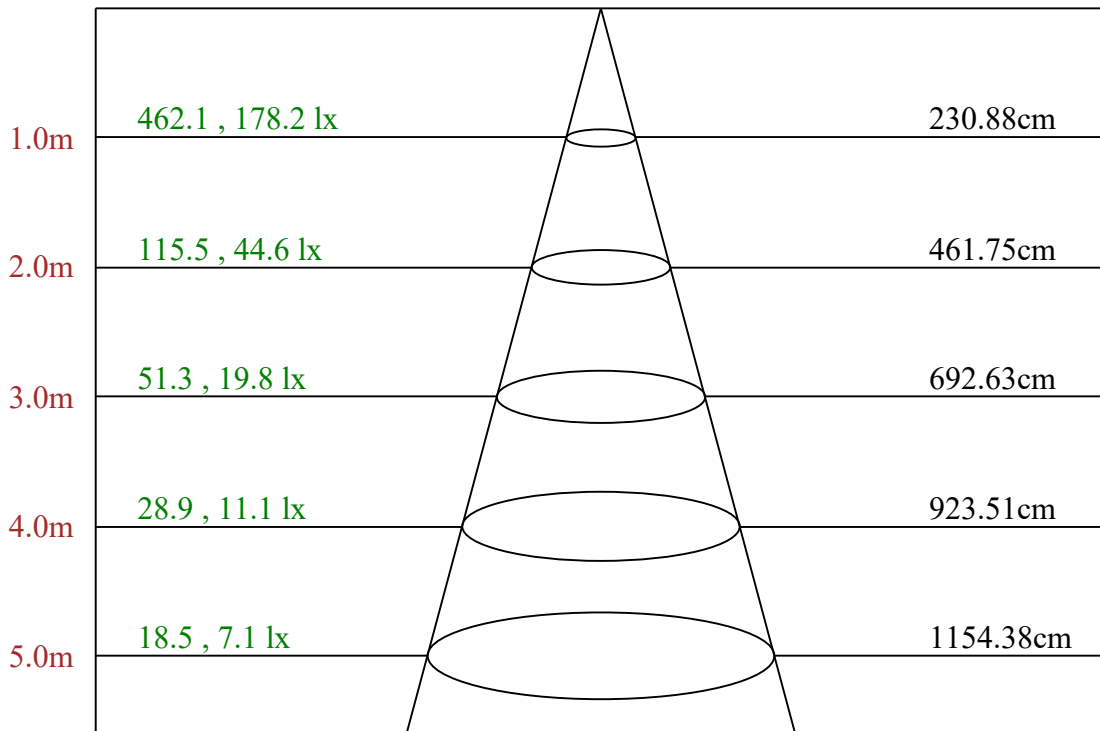
0-10	43.62
10-20	123.53
20-30	182.71
30-40	210.54
40-50	203.63
50-60	166.44
60-70	109.15
70-80	47.41
80-90	8.68
90-100	0.29
100-110	0.13
110-120	0.11
120-130	0.07
130-140	0.33
140-150	0.55
150-160	0.49
160-170	0.49
170-180	0.13



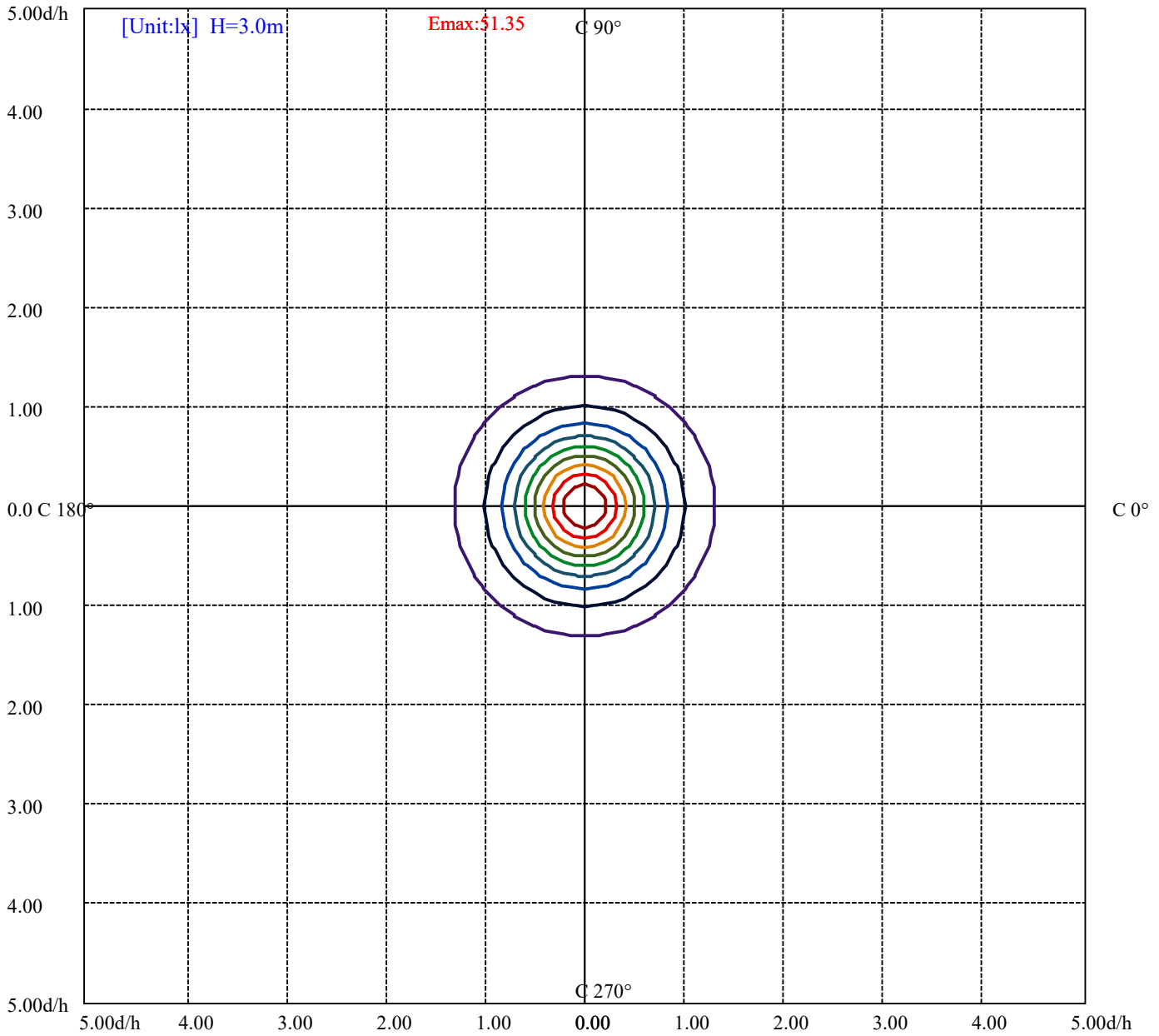
C0(Max): ———  
 C0/C180: ———  
 C90/C270: ———

Field angle(10%Imax):C0/180Left:74.3 Right:74.3  
 :C90/270Left:74.8 Right:74.8

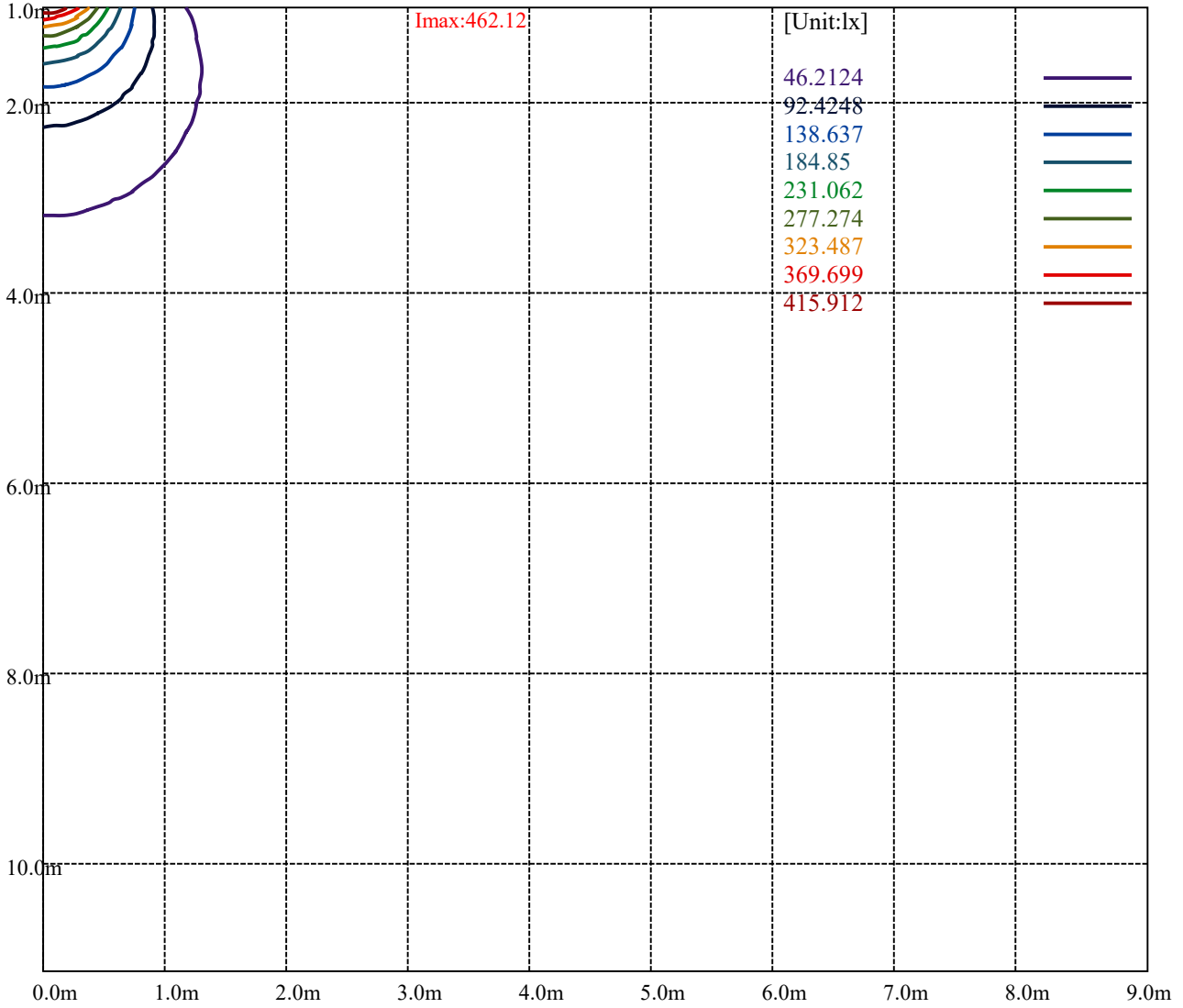
Beam Angle(50%Imax):C0/180Left:49.0 Right:49.0  
 :C90/270Left:49.5 Right:49.5



Max , Ave      Beam angle of C0 plane 98.20



- (10%Emax) 5.134711
- (20%Emax) 10.26942
- (30%Emax) 15.40411
- (40%Emax) 20.53889
- (50%Emax) 25.67356
- (60%Emax) 30.80822
- (70%Emax) 35.943
- (80%Emax) 41.07767
- (90%Emax) 46.21233



Lotus LED Lights LFR-4S-RB-9W-5CCT-4000K

Luminance Limiting Curve(no luminous side)

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Luminance Table

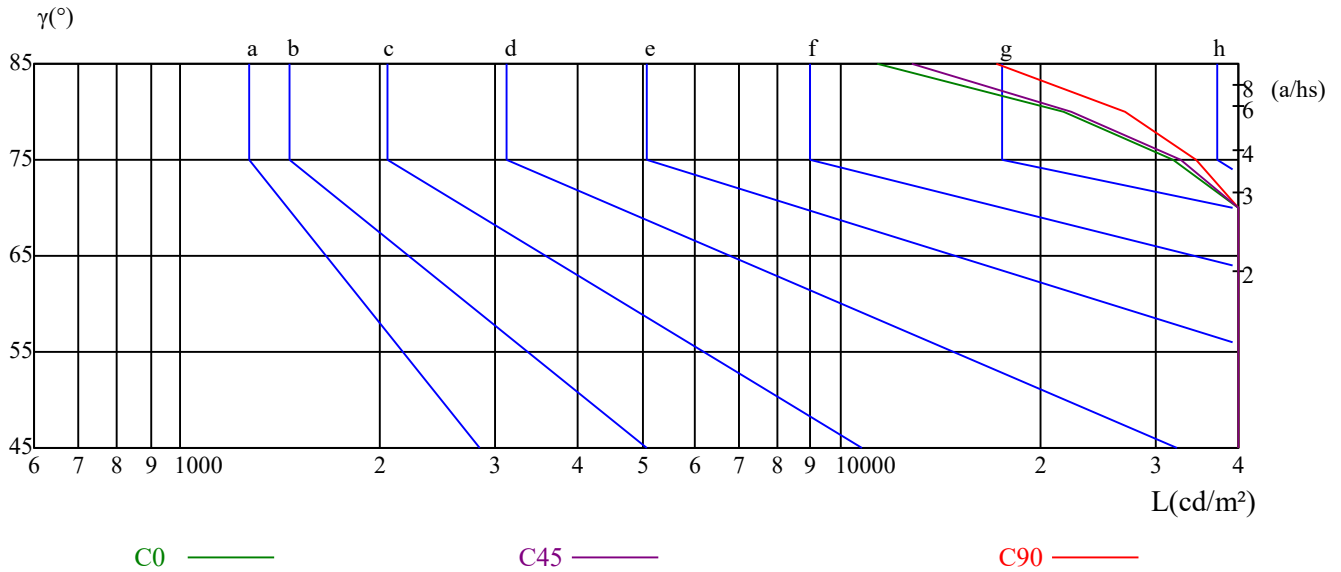
$\gamma$	45	50	55	60	65	70	75	80	85
C0	73643	69000	63864	57819	50986	43051	31914	21715	11331
C45	75242	69430	64334	58434	51268	43105	32626	22394	12828
C90	75116	70141	65376	59291	52193	43855	34431	26929	17209

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
50986	52193	51268	31914	34431	32626	11331	17209	12828

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





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	1.19	1.19	1.19	1.16	1.16	1.16	1.11	1.11	1.11	1.06	1.06	1.06	1.02	1.02	1.02	1.00
1	1.06	1.02	0.98	1.03	1.00	0.97	0.99	0.96	0.94	0.95	0.93	0.91	0.92	0.90	0.88	0.86
2	0.93	0.87	0.82	0.91	0.86	0.81	0.88	0.83	0.79	0.84	0.80	0.77	0.81	0.78	0.75	0.73
3	0.83	0.75	0.69	0.81	0.74	0.68	0.78	0.72	0.67	0.75	0.70	0.66	0.73	0.68	0.65	0.63
4	0.74	0.65	0.59	0.72	0.65	0.59	0.70	0.63	0.58	0.68	0.62	0.57	0.65	0.60	0.56	0.54
5	0.66	0.58	0.51	0.65	0.57	0.51	0.63	0.56	0.50	0.61	0.55	0.50	0.59	0.54	0.49	0.47
6	0.60	0.51	0.45	0.59	0.51	0.45	0.57	0.50	0.45	0.55	0.49	0.44	0.54	0.48	0.44	0.42
7	0.54	0.46	0.40	0.54	0.46	0.40	0.52	0.45	0.40	0.51	0.44	0.39	0.49	0.44	0.39	0.37
8	0.50	0.42	0.36	0.49	0.41	0.36	0.48	0.41	0.36	0.47	0.40	0.35	0.45	0.40	0.35	0.33
9	0.46	0.38	0.33	0.45	0.38	0.32	0.44	0.37	0.32	0.43	0.37	0.32	0.42	0.36	0.32	0.30
10	0.42	0.35	0.30	0.42	0.35	0.30	0.41	0.34	0.29	0.40	0.34	0.29	0.39	0.33	0.29	0.27

Lotus LED Lights LFR-4S-RB-9W-5CCT-4000K

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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	462.12	459.87	451.29	438.66	420.15	396.23	368.26	335.76	300.11
15.0	462.12	459.65	451.09	437.58	419.11	395.69	368.21	335.33	299.75
30.0	462.12	459.65	451.55	437.38	419.83	395.98	368.30	335.91	300.36
45.0	462.12	458.54	450.45	437.88	419.24	396.78	368.49	335.93	300.68
60.0	462.12	460.55	453.57	439.60	421.36	398.84	374.07	338.49	302.90
75.0	462.12	459.22	451.61	438.19	420.30	397.48	369.07	338.20	302.42
90.0	462.12	460.35	452.37	439.51	420.88	398.26	370.76	339.72	304.24
105.0	462.12	459.22	451.61	438.19	420.30	397.48	369.07	338.20	302.42
120.0	462.12	460.55	453.57	439.60	421.36	398.84	374.07	338.49	302.90
135.0	462.12	458.54	450.45	437.88	419.24	396.78	368.49	335.93	300.68
150.0	462.12	459.65	451.55	437.38	419.83	395.98	368.30	335.91	300.36
165.0	462.12	459.65	451.09	437.58	419.11	395.69	368.21	335.33	299.75
180.0	462.12	459.87	451.29	438.66	420.15	396.23	368.26	335.76	300.11
195.0	462.12	459.65	451.09	437.58	419.11	395.69	368.21	335.33	299.75
210.0	462.12	459.65	451.55	437.38	419.83	395.98	368.30	335.91	300.36
225.0	462.12	458.54	450.45	437.88	419.24	396.78	368.49	335.93	300.68
240.0	462.12	460.55	453.57	439.60	421.36	398.84	374.07	338.49	302.90
255.0	462.12	459.22	451.61	438.19	420.30	397.48	369.07	338.20	302.42
270.0	462.12	460.35	452.37	439.51	420.88	398.26	370.76	339.72	304.24
285.0	462.12	459.22	451.61	438.19	420.30	397.48	369.07	338.20	302.42
300.0	462.12	460.55	453.57	439.60	421.36	398.84	374.07	338.49	302.90
315.0	462.12	458.54	450.45	437.88	419.24	396.78	368.49	335.93	300.68
330.0	462.12	459.65	451.55	437.38	419.83	395.98	368.30	335.91	300.36
345.0	462.12	459.65	451.09	437.58	419.11	395.69	368.21	335.33	299.75
360.0	462.12	459.87	451.29	438.66	420.15	396.23	368.26	335.76	300.11
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	261.75	222.94	184.13	145.32	108.31	74.01	41.52	18.95	4.96
15.0	261.47	223.40	184.22	145.71	108.32	73.42	44.15	18.92	4.95
30.0	262.56	223.64	184.71	150.52	109.12	73.79	41.85	19.12	5.17
45.0	267.43	224.33	185.48	146.86	108.91	74.11	42.44	19.55	5.62
60.0	265.74	226.78	186.92	148.86	110.58	74.77	43.24	19.14	6.08
75.0	265.06	225.92	187.22	148.75	110.72	74.93	43.39	19.23	5.81
90.0	266.98	226.63	188.49	149.01	110.87	75.39	44.79	23.50	7.54
105.0	265.06	225.92	187.22	148.75	110.72	74.93	43.39	19.23	5.81
120.0	265.74	226.78	186.92	148.86	110.58	74.77	43.24	19.14	6.08
135.0	267.43	224.33	185.48	146.86	108.91	74.11	42.44	19.55	5.62
150.0	262.56	223.64	184.71	150.52	109.12	73.79	41.85	19.12	5.17
165.0	261.47	223.40	184.22	145.71	108.32	73.42	44.15	18.92	4.95
180.0	261.75	222.94	184.13	145.32	108.31	74.01	41.52	18.95	4.96
195.0	261.47	223.40	184.22	145.71	108.32	73.42	44.15	18.92	4.95
210.0	262.56	223.64	184.71	150.52	109.12	73.79	41.85	19.12	5.17
225.0	267.43	224.33	185.48	146.86	108.91	74.11	42.44	19.55	5.62
240.0	265.74	226.78	186.92	148.86	110.58	74.77	43.24	19.14	6.08
255.0	265.06	225.92	187.22	148.75	110.72	74.93	43.39	19.23	5.81
270.0	266.98	226.63	188.49	149.01	110.87	75.39	44.79	23.50	7.54
285.0	265.06	225.92	187.22	148.75	110.72	74.93	43.39	19.23	5.81
300.0	265.74	226.78	186.92	148.86	110.58	74.77	43.24	19.14	6.08
315.0	267.43	224.33	185.48	146.86	108.91	74.11	42.44	19.55	5.62
330.0	262.56	223.64	184.71	150.52	109.12	73.79	41.85	19.12	5.17
345.0	261.47	223.40	184.22	145.71	108.32	73.42	44.15	18.92	4.95
360.0	261.75	222.94	184.13	145.32	108.31	74.01	41.52	18.95	4.96

Lotus LED Lights LFR-4S-RB-9W-5CCT-4000K

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	0.90	0.00	0.00	0.45	0.45	0.45	0.00	0.00	0.00
15.0	1.13	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00
30.0	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.22
45.0	1.13	0.00	0.00	0.00	0.22	0.00	0.22	0.00	0.00
60.0	0.90	0.00	0.00	0.22	0.22	0.00	0.22	0.22	0.00
75.0	0.89	0.00	0.00	0.22	0.22	0.22	0.22	0.00	0.00
90.0	1.77	0.00	0.00	0.00	0.44	0.00	0.00	0.00	0.00
105.0	0.89	0.00	0.00	0.22	0.22	0.22	0.22	0.00	0.00
120.0	0.90	0.00	0.00	0.22	0.22	0.00	0.22	0.22	0.00
135.0	1.13	0.00	0.00	0.00	0.22	0.00	0.22	0.00	0.00
150.0	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.22
165.0	1.13	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00
180.0	0.90	0.00	0.00	0.45	0.45	0.45	0.00	0.00	0.00
195.0	1.13	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00
210.0	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.22
225.0	1.13	0.00	0.00	0.00	0.22	0.00	0.22	0.00	0.00
240.0	0.90	0.00	0.00	0.22	0.22	0.00	0.22	0.22	0.00
255.0	0.89	0.00	0.00	0.22	0.22	0.22	0.22	0.00	0.00
270.0	1.77	0.00	0.00	0.00	0.44	0.00	0.00	0.00	0.00
285.0	0.89	0.00	0.00	0.22	0.22	0.22	0.22	0.00	0.00
300.0	0.90	0.00	0.00	0.22	0.22	0.00	0.22	0.22	0.00
315.0	1.13	0.00	0.00	0.00	0.22	0.00	0.22	0.00	0.00
330.0	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.22
345.0	1.13	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00
360.0	0.90	0.00	0.00	0.45	0.45	0.45	0.00	0.00	0.00
C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	0.00	0.90	0.90	0.90	0.90	1.35	1.80	1.80	1.80
15.0	0.45	0.90	0.90	0.90	0.90	1.58	1.80	1.80	1.80
30.0	0.45	0.68	0.90	0.90	0.90	1.58	1.80	1.80	1.80
45.0	0.45	0.67	0.90	0.90	0.90	1.57	1.80	1.80	1.80
60.0	0.45	0.90	0.90	0.90	0.90	1.58	1.80	1.80	1.80
75.0	0.45	0.89	0.89	0.89	0.89	1.79	1.79	1.79	1.79
90.0	0.89	0.89	0.89	0.89	0.89	1.77	1.77	1.77	1.77
105.0	0.45	0.89	0.89	0.89	0.89	1.79	1.79	1.79	1.79
120.0	0.45	0.90	0.90	0.90	0.90	1.58	1.80	1.80	1.80
135.0	0.45	0.67	0.90	0.90	0.90	1.57	1.80	1.80	1.80
150.0	0.45	0.68	0.90	0.90	0.90	1.58	1.80	1.80	1.80
165.0	0.45	0.90	0.90	0.90	0.90	1.58	1.80	1.80	1.80
180.0	0.00	0.90	0.90	0.90	0.90	1.35	1.80	1.80	1.80
195.0	0.45	0.90	0.90	0.90	0.90	1.58	1.80	1.80	1.80
210.0	0.45	0.68	0.90	0.90	0.90	1.58	1.80	1.80	1.80
225.0	0.45	0.67	0.90	0.90	0.90	1.57	1.80	1.80	1.80
240.0	0.45	0.90	0.90	0.90	0.90	1.58	1.80	1.80	1.80
255.0	0.45	0.89	0.89	0.89	0.89	1.79	1.79	1.79	1.79
270.0	0.89	0.89	0.89	0.89	0.89	1.77	1.77	1.77	1.77
285.0	0.45	0.89	0.89	0.89	0.89	1.79	1.79	1.79	1.79
300.0	0.45	0.90	0.90	0.90	0.90	1.58	1.80	1.80	1.80
315.0	0.45	0.67	0.90	0.90	0.90	1.57	1.80	1.80	1.80
330.0	0.45	0.68	0.90	0.90	0.90	1.58	1.80	1.80	1.80
345.0	0.45	0.90	0.90	0.90	0.90	1.58	1.80	1.80	1.80
360.0	0.00	0.90	0.90	0.90	0.90	1.35	1.80	1.80	1.80

Intensity data(cd)

C/γ(°)	180.0
0.0	0.90
15.0	0.90
30.0	0.90
45.0	0.90
60.0	0.90
75.0	0.90
90.0	0.90
105.0	0.90
120.0	0.90
135.0	0.90
150.0	0.90
165.0	0.90
180.0	0.90
195.0	0.90
210.0	0.90
225.0	0.90
240.0	0.90
255.0	0.90
270.0	0.90
285.0	0.90
300.0	0.90
315.0	0.90
330.0	0.90
345.0	0.90
360.0	0.90