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## Lotus LED Lights

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Client:

LumCAT: LFR-4R-RB-9W-5CCT-2700K

Luminaire: Fire rated slim panel

Report No:

Ballast type:

Test No: LCZP23080240

Voltage(V): 119.980

LampCAT:

Current(A): 0.095

Lamp flux(lm): 958.0

Power (W): 9.640

Number of Lamps: 1

PF: 0.842

Length(mm): -80

Width(mm): -80

Phm Type: C

Height(mm): 0

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## Photometric Results

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Lumens(lm): 957.98, Efficiency(%): 100.00% , Luminous Efficacy(lm/W): 99.38

Central intensity(cd): 402.828, Maximum intensity(cd): 402.828

Angle of maximum intensity: C=60.0  $\gamma$ =0.0

Beam Angle(50%Imax): [C0/180]Total=99.0

[C90/270]Total=97.8

Field angle(10%Imax): [C0/180]Total=149.4

[C90/270]Total=148.4

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

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

Up flux rate of lamp(%): 0.29%

Down flux rate of lamp(%): 99.71%

Up flux rate of LUM(%): 0.29%

Down flux rate of LUM(%): 99.71%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 84.669%

Lotus LED Lights LFR-4R-RB-9W-5CCT-2700K

Zonal flux distribution table

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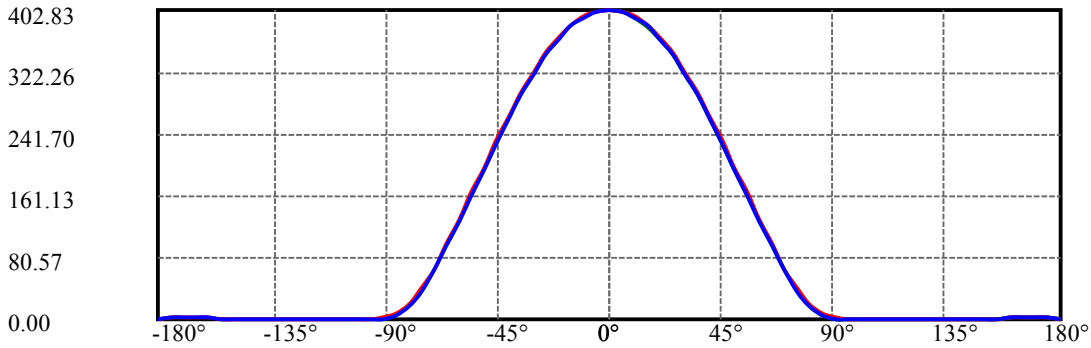
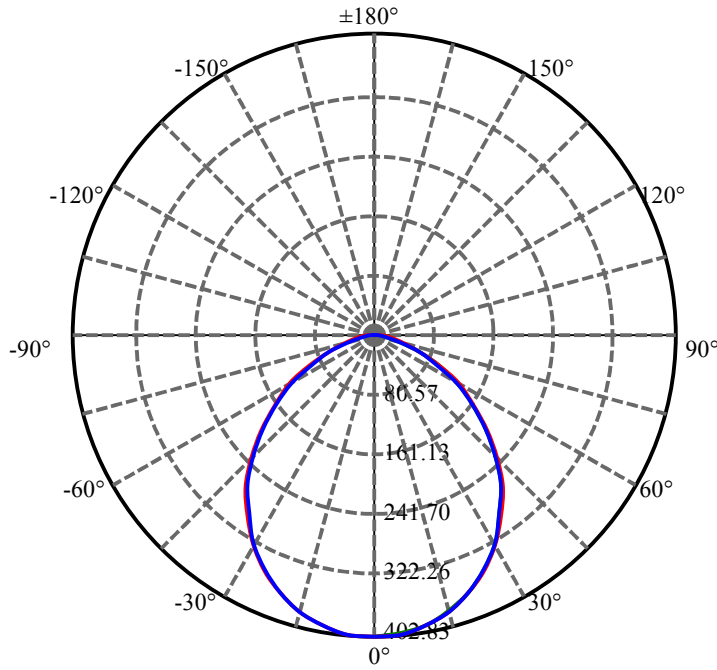
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	402.828	0.000	0	0.00%	0.00%
5.0	400.639	9.605	9.605	1.00%	1.00%
10.0	393.816	28.420	38.025	2.97%	3.97%
15.0	382.034	46.023	84.048	4.80%	8.77%
20.0	366.095	61.656	145.705	6.44%	15.21%
25.0	346.086	74.695	220.399	7.80%	23.01%
30.0	322.248	84.578	304.978	8.83%	31.84%
35.0	293.678	90.699	395.677	9.47%	41.30%
40.0	262.690	92.826	488.503	9.69%	50.99%
45.0	230.517	91.321	579.824	9.53%	60.53%
50.0	196.018	86.188	666.012	9.00%	69.52%
55.0	162.005	77.846	743.858	8.13%	77.65%
60.0	128.946	67.253	811.111	7.02%	84.67%
65.0	95.502	54.564	865.674	5.70%	90.36%
70.0	64.770	40.582	906.256	4.24%	94.60%
75.0	37.500	26.732	932.988	2.79%	97.39%
80.0	16.995	14.581	947.569	1.52%	98.91%
85.0	5.005	5.978	953.547	0.62%	99.54%
90.0	1.010	1.647	955.194	0.17%	99.71%
95.0	0.131	0.312	955.507	0.03%	99.74%
100.0	0.157	0.078	955.585	0.01%	99.75%
105.0	0.198	0.095	955.68	0.01%	99.76%
110.0	0.210	0.107	955.787	0.01%	99.77%
115.0	0.191	0.101	955.888	0.01%	99.78%
120.0	0.217	0.099	955.987	0.01%	99.79%
125.0	0.277	0.114	956.101	0.01%	99.80%
130.0	0.344	0.135	956.236	0.01%	99.82%
135.0	0.408	0.152	956.388	0.02%	99.83%
140.0	0.472	0.163	956.551	0.02%	99.85%
145.0	0.621	0.182	956.734	0.02%	99.87%
150.0	0.816	0.212	956.945	0.02%	99.89%
155.0	1.044	0.235	957.181	0.02%	99.92%
160.0	1.299	0.246	957.426	0.03%	99.94%
165.0	1.471	0.228	957.655	0.02%	99.97%
170.0	1.576	0.181	957.835	0.02%	99.98%
175.0	1.680	0.116	957.952	0.01%	100.00%
180.0	0.861	0.030	957.982	0.00%	100.00%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	304.98	31.84%	31.84%
0-40	488.50	50.99%	50.99%
0-60	811.11	84.67%	84.67%
0-90	955.19	99.71%	99.71%
0-120	955.99	99.79%	99.79%
0-180	957.98	100.00%	100.00%
60-90	144.08	15.04%	15.04%
90-120	0.79	0.08%	0.08%
90-130	1.04	0.11%	0.11%
90-150	1.75	0.18%	0.18%
90-180	2.76	0.29%	0.29%
0-56.67	766.39	80.00%	80.00%

ZONAL LUMEN SUMMARY

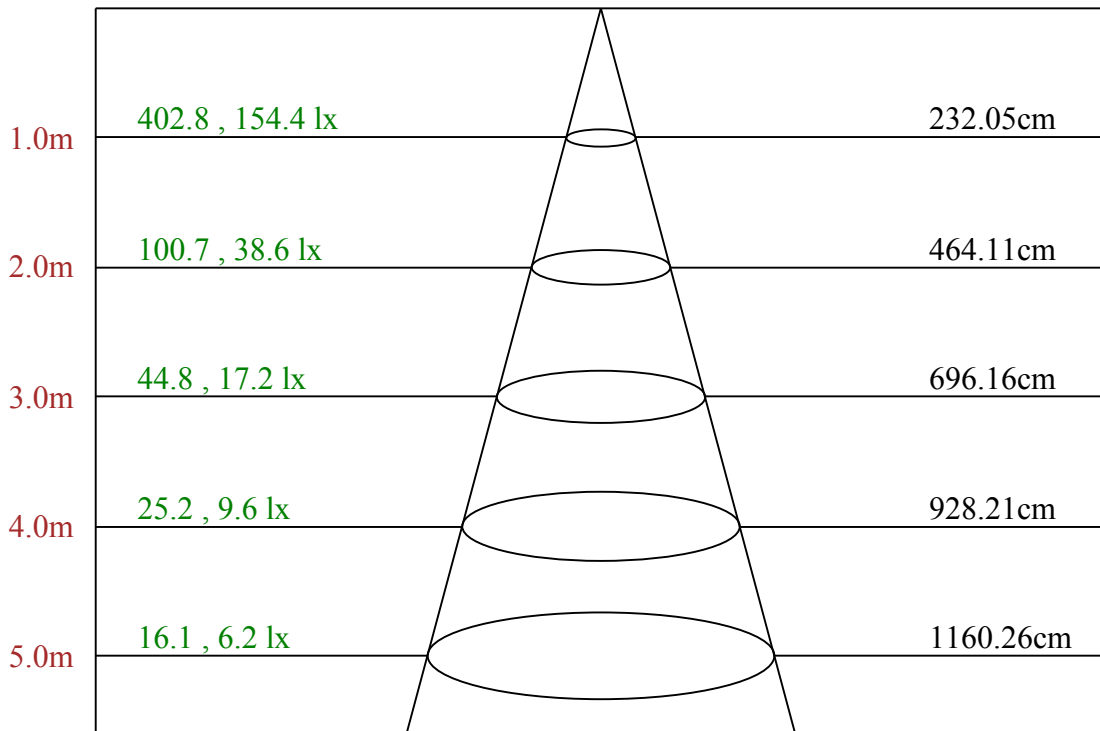
0-10	38.03
10-20	107.68
20-30	159.27
30-40	183.53
40-50	177.51
50-60	145.10
60-70	95.15
70-80	41.31
80-90	7.63
90-100	0.39
100-110	0.20
110-120	0.20
120-130	0.25
130-140	0.31
140-150	0.39
150-160	0.48
160-170	0.41
170-180	0.12



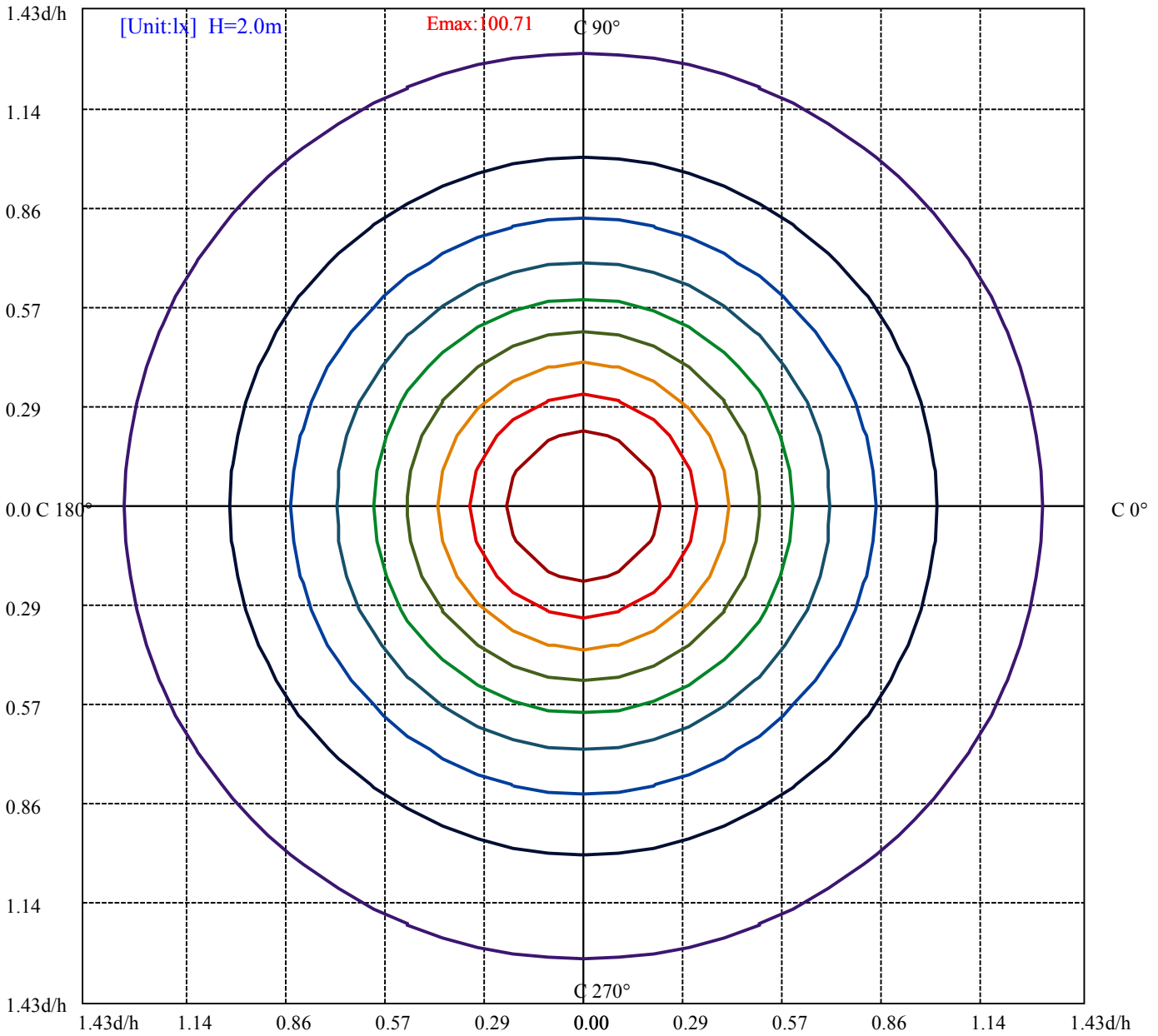
C60(Max): ———  
 C0/C180: ———  
 C90/C270: ———

Field angle(10%Imax):C0/180Left:74.7 Right:74.7  
 :C90/270Left:74.2 Right:74.2

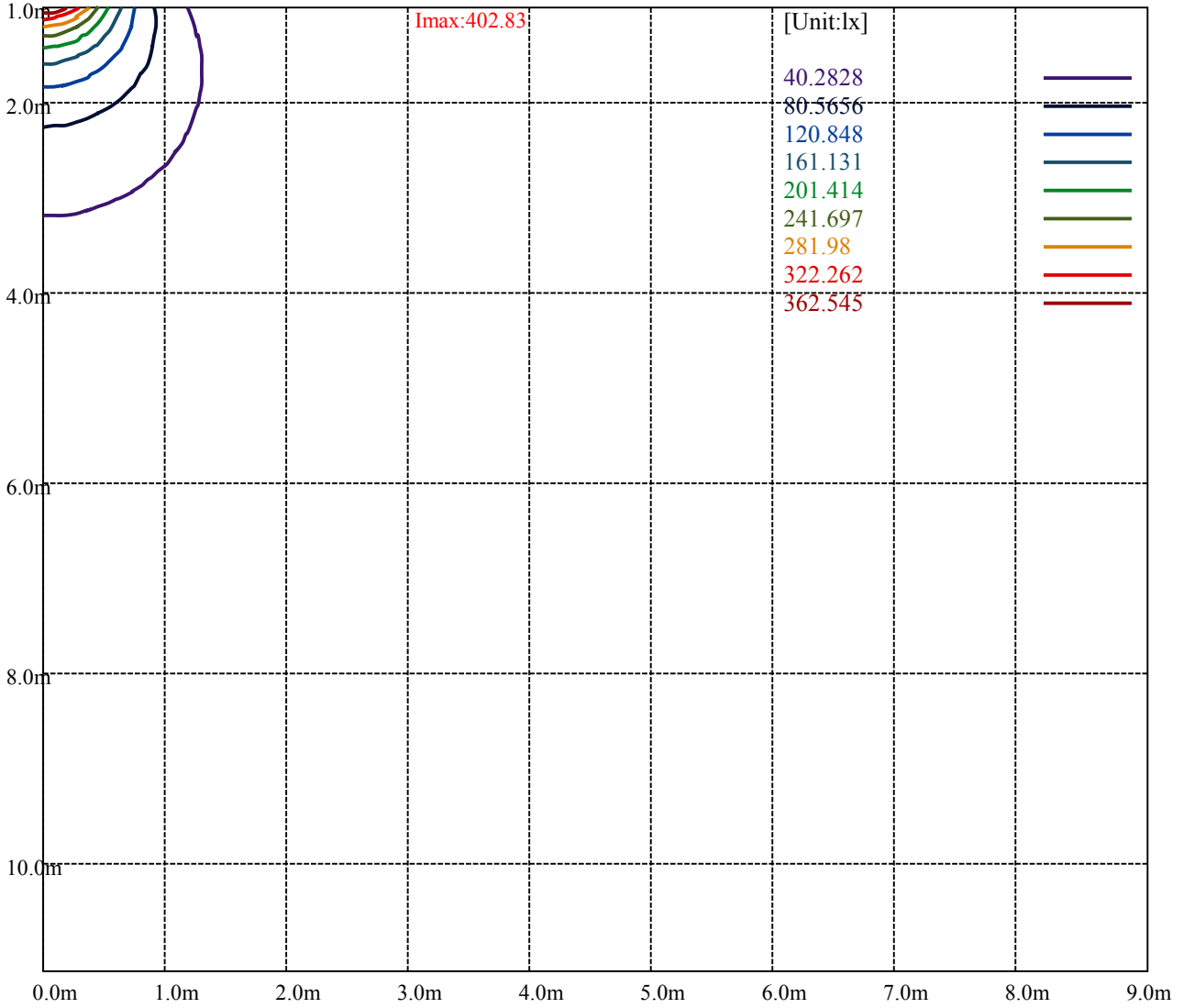
Beam Angle(50%Imax):C0/180Left:49.5 Right:49.5  
 :C90/270Left:48.9 Right:48.9



Max , Ave      Beam angle of C60 plane 98.49



- (10%Emax) 10.0707
- (20%Emax) 20.1414
- (30%Emax) 30.212
- (40%Emax) 40.28275
- (50%Emax) 50.3535
- (60%Emax) 60.42425
- (70%Emax) 70.495
- (80%Emax) 80.5655
- (90%Emax) 90.63625



Lotus LED Lights LFR-4R-RB-9W-5CCT-2700K

Luminance Limiting Curve(no luminous side)

Luminance Table

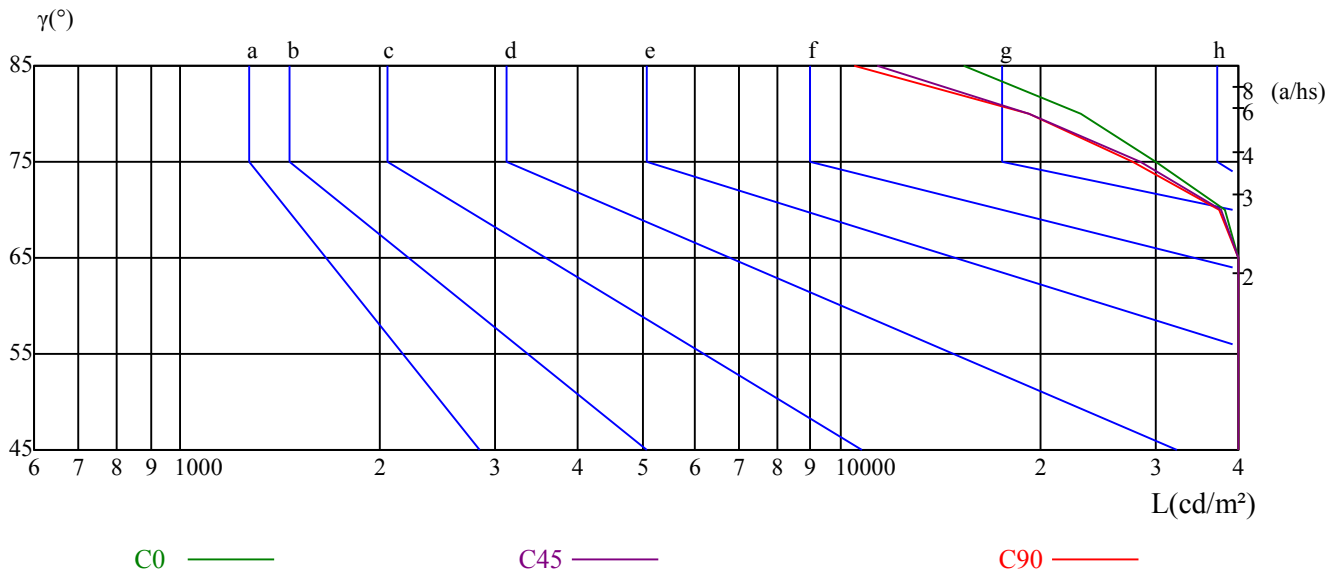
$\gamma$	45	50	55	60	65	70	75	80	85
C0	65490	61185	56999	51762	45559	38261	29900	23172	15389
C45	65632	60580	56096	50858	44701	37560	28505	19333	11340
C90	64195	60132	55650	50339	44476	37504	27676	19230	10505

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
45559	44476	44701	29900	27676	28505	15389	10505	11340

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	0.34	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-4R-RB-9W-5CCT-2700K

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	402.83	406.47	404.34	397.86	386.15	369.83	350.58	326.89	300.28
15.0	402.83	405.51	405.78	397.73	388.88	372.06	350.51	328.68	299.80
30.0	402.83	407.24	406.07	397.51	389.14	371.76	353.57	328.71	301.06
45.0	402.83	404.90	404.09	398.06	385.90	370.41	352.85	326.55	299.71
60.0	402.83	404.27	402.29	395.54	384.84	369.29	348.25	324.15	295.56
75.0	402.83	404.00	400.67	392.58	382.15	365.61	344.84	321.20	291.36
90.0	402.83	404.45	400.57	393.89	381.17	364.39	342.55	317.82	288.13
105.0	402.83	405.27	400.12	391.63	378.62	361.64	339.78	311.51	284.87
120.0	402.83	404.81	398.78	388.96	376.08	357.08	336.19	309.53	280.17
135.0	402.83	401.84	395.75	386.79	372.09	353.99	330.06	304.25	273.33
150.0	402.83	401.93	396.17	387.26	372.32	353.51	330.38	301.76	271.70
165.0	402.83	399.87	393.87	383.84	368.08	349.99	325.36	299.39	268.58
180.0	402.83	396.26	384.02	368.32	348.01	324.50	296.20	264.89	230.73
195.0	402.83	395.76	384.58	367.05	345.50	322.96	294.52	263.04	229.05
210.0	402.83	396.70	386.26	367.80	345.73	322.59	292.60	263.24	228.75
225.0	402.83	396.07	381.84	367.98	346.63	323.67	293.05	260.81	227.58
240.0	402.83	394.74	383.50	366.95	346.54	321.54	293.04	261.39	227.94
255.0	402.83	395.28	384.31	368.94	347.81	322.73	296.21	263.85	229.60
270.0	402.83	397.50	386.49	370.34	351.12	326.58	299.68	267.38	235.07
285.0	402.83	398.04	389.10	373.11	352.34	329.76	302.93	272.50	239.53
300.0	402.83	398.15	389.77	373.83	356.36	332.85	307.19	276.39	243.07
315.0	402.83	396.38	389.39	374.51	357.03	335.79	309.63	280.50	247.61
330.0	402.83	399.68	392.57	378.98	361.16	341.45	327.50	285.56	254.15
345.0	402.83	400.23	391.28	379.36	362.62	342.11	316.50	288.28	256.94
360.0	402.83	406.47	404.34	397.86	386.15	369.83	350.58	326.89	300.28
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	268.17	233.04	199.95	165.71	131.38	97.49	66.35	37.52	13.22
15.0	269.48	235.49	201.68	167.79	133.71	100.17	68.42	38.73	14.49
30.0	269.81	237.21	202.00	168.32	134.19	99.78	68.53	38.72	14.59
45.0	268.46	234.96	200.20	166.16	131.30	98.16	67.00	38.18	13.33
60.0	263.91	231.45	196.92	162.12	128.94	95.76	64.92	35.79	11.42
75.0	260.16	227.08	192.47	157.95	124.42	91.60	61.40	32.72	9.35
90.0	256.19	222.89	187.70	153.41	120.29	88.61	57.12	30.23	8.93
105.0	252.72	218.48	184.34	149.57	115.61	84.00	53.11	26.46	7.32
120.0	246.94	213.08	179.12	144.63	112.39	79.61	49.71	22.78	5.58
135.0	242.14	209.43	174.30	139.71	106.91	76.08	45.79	20.07	4.66
150.0	241.46	205.55	171.89	138.24	105.12	71.82	42.84	17.37	3.96
165.0	236.88	202.31	168.46	134.51	101.65	69.32	40.39	15.05	3.49
180.0	197.38	162.34	128.72	94.48	62.19	34.06	11.44	2.93	0.27
195.0	194.44	160.45	127.45	93.28	61.00	32.91	10.73	2.77	0.27
210.0	193.80	160.93	125.18	93.39	60.79	32.78	10.18	2.70	0.27
225.0	193.35	158.95	125.45	92.40	60.52	32.60	10.18	2.34	0.27
240.0	193.59	160.05	125.97	93.87	62.13	34.26	9.44	2.43	0.18
255.0	195.35	162.44	129.36	96.37	65.00	37.04	11.15	2.70	0.36
270.0	200.15	165.68	133.19	99.62	68.67	40.34	14.89	3.34	0.27
285.0	204.30	171.07	136.11	104.23	72.44	43.62	29.35	4.25	0.63
300.0	210.01	176.15	141.93	123.65	77.18	48.09	21.88	5.49	1.17
315.0	229.15	179.59	146.97	113.01	81.10	51.44	25.36	6.90	1.61
330.0	220.49	186.38	153.09	118.98	85.59	55.80	28.89	8.64	2.16
345.0	224.07	189.41	155.65	123.32	89.56	59.11	30.90	9.76	2.33
360.0	268.17	233.04	199.95	165.71	131.38	97.49	66.35	37.52	13.22

Lotus LED Lights LFR-4R-RB-9W-5CCT-2700K

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	3.10	0.09	0.00	0.09	0.00	0.00	0.09	0.18	0.35
15.0	3.22	0.09	0.00	0.00	0.00	0.09	0.18	0.27	0.27
30.0	3.33	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.36
45.0	2.79	0.00	0.00	0.00	0.09	0.00	0.09	0.18	0.36
60.0	2.34	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.27
75.0	1.98	0.00	0.00	0.00	0.00	0.09	0.09	0.18	0.36
90.0	1.53	0.00	0.00	0.00	0.09	0.00	0.00	0.18	0.36
105.0	1.54	0.00	0.00	0.00	0.00	0.00	0.09	0.27	0.36
120.0	1.08	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.36
135.0	0.45	0.00	0.00	0.00	0.09	0.00	0.09	0.18	0.36
150.0	0.18	0.00	0.00	0.09	0.09	0.00	0.09	0.27	0.36
165.0	0.00	0.00	0.00	0.09	0.09	0.09	0.09	0.18	0.36
180.0	0.27	0.27	0.35	0.35	0.44	0.35	0.35	0.35	0.35
195.0	0.27	0.27	0.36	0.45	0.45	0.45	0.45	0.36	0.36
210.0	0.27	0.27	0.36	0.45	0.45	0.36	0.45	0.45	0.36
225.0	0.27	0.27	0.36	0.36	0.45	0.36	0.45	0.36	0.36
240.0	0.27	0.36	0.36	0.36	0.36	0.36	0.36	0.45	0.45
255.0	0.27	0.27	0.36	0.45	0.36	0.36	0.36	0.27	0.36
270.0	0.18	0.27	0.36	0.45	0.45	0.45	0.36	0.36	0.36
285.0	0.18	0.18	0.36	0.36	0.36	0.36	0.36	0.36	0.36
300.0	0.18	0.27	0.27	0.36	0.36	0.36	0.36	0.36	0.27
315.0	0.18	0.18	0.18	0.36	0.27	0.27	0.27	0.36	0.36
330.0	0.27	0.18	0.27	0.27	0.36	0.27	0.27	0.27	0.18
345.0	0.09	0.18	0.18	0.27	0.27	0.36	0.36	0.36	0.36
360.0	3.10	0.09	0.00	0.09	0.00	0.00	0.09	0.18	0.35
C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	0.44	0.44	0.62	0.89	1.15	1.42	1.60	1.69	1.69
15.0	0.36	0.45	0.72	0.80	1.07	1.34	1.52	1.70	1.61
30.0	0.36	0.45	0.54	0.90	1.08	1.35	1.53	1.62	1.80
45.0	0.36	0.36	0.63	0.81	1.08	1.35	1.62	1.62	1.71
60.0	0.45	0.45	0.63	0.90	1.17	1.26	1.62	1.62	1.71
75.0	0.45	0.45	0.63	0.72	1.08	1.35	1.53	1.62	1.62
90.0	0.36	0.45	0.63	0.81	1.08	1.35	1.53	1.71	1.71
105.0	0.45	0.54	0.63	0.90	1.17	1.45	1.54	1.63	1.72
120.0	0.45	0.54	0.63	0.90	1.08	1.44	1.53	1.62	1.71
135.0	0.36	0.54	0.63	0.90	1.17	1.43	1.61	1.61	1.70
150.0	0.54	0.54	0.63	0.90	1.17	1.44	1.53	1.71	1.71
165.0	0.45	0.45	0.72	0.99	1.16	1.43	1.61	1.70	1.70
180.0	0.44	0.53	0.62	0.80	0.98	1.24	1.42	1.51	1.69
195.0	0.45	0.45	0.72	0.80	0.98	1.25	1.34	1.52	1.61
210.0	0.45	0.54	0.54	0.63	0.99	1.26	1.44	1.53	1.62
225.0	0.54	0.45	0.54	0.81	0.99	1.26	1.44	1.53	1.62
240.0	0.36	0.45	0.63	0.81	0.99	1.26	1.35	1.53	1.62
255.0	0.36	0.45	0.63	0.81	0.99	1.26	1.35	1.53	1.71
270.0	0.36	0.54	0.63	0.81	0.99	1.17	1.35	1.53	1.71
285.0	0.36	0.45	0.63	0.72	0.99	1.17	1.45	1.45	1.72
300.0	0.36	0.36	0.54	0.72	0.99	1.17	1.35	1.44	1.62
315.0	0.45	0.45	0.63	0.72	0.90	1.08	1.34	1.43	1.70
330.0	0.36	0.54	0.63	0.81	0.90	1.17	1.35	1.53	1.62
345.0	0.27	0.45	0.54	0.72	0.90	1.25	1.34	1.43	1.70
360.0	0.44	0.44	0.62	0.89	1.15	1.42	1.60	1.69	1.69

Lotus LED Lights LFR-4R-RB-9W-5CCT-2700K

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Intensity data(cd)

C/γ(°)	180.0
0.0	1.69
15.0	1.70
30.0	1.80
45.0	1.62
60.0	1.80
75.0	1.71
90.0	1.71
105.0	1.72
120.0	1.80
135.0	1.70
150.0	1.71
165.0	1.70
180.0	0.00
195.0	0.00
210.0	0.00
225.0	0.00
240.0	0.00
255.0	0.00
270.0	0.00
285.0	0.00
300.0	0.00
315.0	0.00
330.0	0.00
345.0	0.00
360.0	1.69