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## Lotus LED Lights

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Client:

LumCAT: LFR-4R-FE-9W-5CCT-5000K

Luminaire: Fire rated slim panel

Report No:

Ballast type:

Test No: LCZP23080240

Voltage(V): 119.990

LampCAT:

Current(A): 0.082

Lamp flux(lm): 807.8

Power (W): 9.490

Number of Lamps: 1

PF: 0.968

Length(mm): -75

Width(mm): -75

Phm Type: C

Height(mm): 0

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## Photometric Results

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Lumens(lm): 807.81, Efficiency(%): 100.00% , Luminous Efficacy(lm/W): 85.12

Central intensity(cd): 284.805, Maximum intensity(cd): 284.805

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

Beam Angle(50%Imax): [C0/180]Total=110.8

[C90/270]Total=111.4

Field angle(10%Imax): [C0/180]Total=163.4

[C90/270]Total=162.6

Maximum s/h(1/2): C0\_180=1.24 C90\_270=1.25

Maximum s/h(1/4): C0\_180=1.36 C90\_270=1.37

Up flux rate of lamp(%): 0.19%

Down flux rate of lamp(%): 99.81%

Up flux rate of LUM(%): 0.19%

Down flux rate of LUM(%): 99.81%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 78.134%

Lotus LED Lights LFR-4R-FE-9W-5CCT-5000K

Zonal flux distribution table

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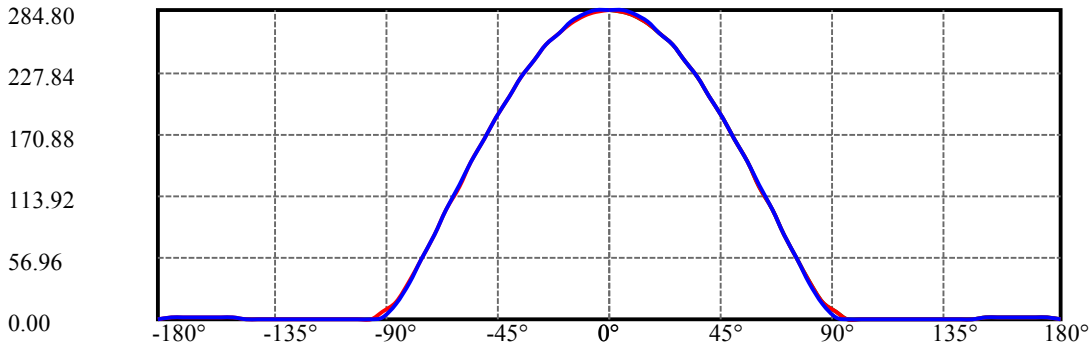
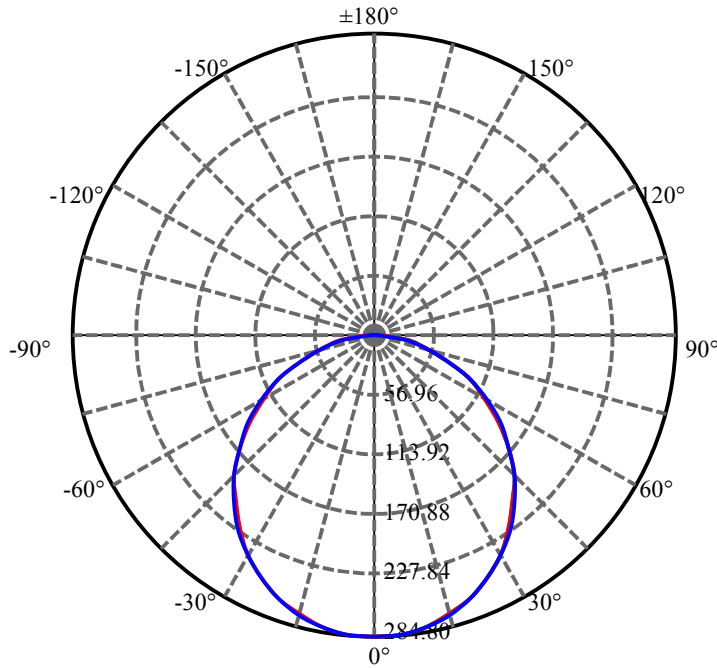
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	284.805	0.000	0	0.00%	0.00%
5.0	283.570	6.795	6.795	0.84%	0.84%
10.0	279.304	20.136	26.931	2.49%	3.33%
15.0	272.642	32.741	59.672	4.05%	7.39%
20.0	263.173	44.159	103.83	5.47%	12.85%
25.0	251.497	53.979	157.81	6.68%	19.54%
30.0	238.060	61.954	219.764	7.67%	27.20%
35.0	222.043	67.753	287.517	8.39%	35.59%
40.0	204.453	71.158	358.674	8.81%	44.40%
45.0	186.226	72.337	431.012	8.95%	53.36%
50.0	165.419	71.055	502.067	8.80%	62.15%
55.0	144.460	67.378	569.445	8.34%	70.49%
60.0	122.603	61.731	631.176	7.64%	78.13%
65.0	99.663	54.033	685.209	6.69%	84.82%
70.0	76.908	44.709	729.918	5.53%	90.36%
75.0	55.199	34.531	764.449	4.27%	94.63%
80.0	33.721	23.793	788.241	2.95%	97.58%
85.0	15.046	13.251	801.493	1.64%	99.22%
90.0	2.291	4.747	806.24	0.59%	99.81%
95.0	0.000	0.627	806.867	0.08%	99.88%
100.0	0.000	0.000	806.867	0.00%	99.88%
105.0	0.000	0.000	806.867	0.00%	99.88%
110.0	0.000	0.000	806.867	0.00%	99.88%
115.0	0.000	0.000	806.867	0.00%	99.88%
120.0	0.000	0.000	806.867	0.00%	99.88%
125.0	0.000	0.000	806.867	0.00%	99.88%
130.0	0.000	0.000	806.867	0.00%	99.88%
135.0	0.000	0.000	806.867	0.00%	99.88%
140.0	0.000	0.000	806.867	0.00%	99.88%
145.0	0.262	0.044	806.91	0.01%	99.89%
150.0	0.823	0.160	807.07	0.02%	99.91%
155.0	0.898	0.218	807.288	0.03%	99.94%
160.0	0.898	0.188	807.476	0.02%	99.96%
165.0	0.898	0.148	807.624	0.02%	99.98%
170.0	0.898	0.107	807.731	0.01%	99.99%
175.0	0.898	0.064	807.795	0.01%	100.00%
180.0	0.449	0.016	807.811	0.00%	100.00%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	219.76	27.20%	27.20%
0-40	358.67	44.40%	44.40%
0-60	631.18	78.13%	78.13%
0-90	806.24	99.81%	99.81%
0-120	806.87	99.88%	99.88%
0-180	807.81	100.00%	100.00%
60-90	175.06	21.67%	21.67%
90-120	0.63	0.08%	0.08%
90-130	0.63	0.08%	0.08%
90-150	0.83	0.10%	0.10%
90-180	1.56	0.19%	0.19%
0-61.39	646.25	80.00%	80.00%

ZONAL LUMEN SUMMARY

0-10	26.93
10-20	76.90
20-30	115.93
30-40	138.91
40-50	143.39
50-60	129.11
60-70	98.74
70-80	58.32
80-90	18.00
90-100	0.63
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.20
150-160	0.41
160-170	0.25
170-180	0.06



C0(Max): —————

C0/C180: —————

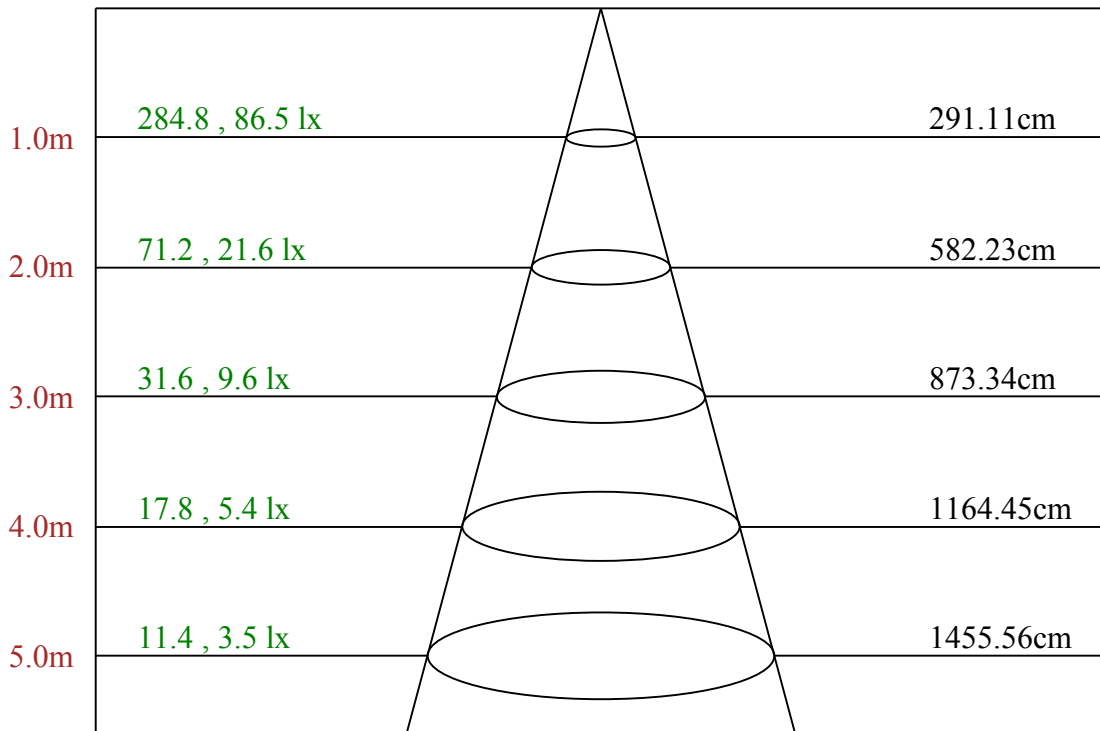
C90/C270: —————

Field angle(10%Imax):C0/180Left:81.7 Right:81.7

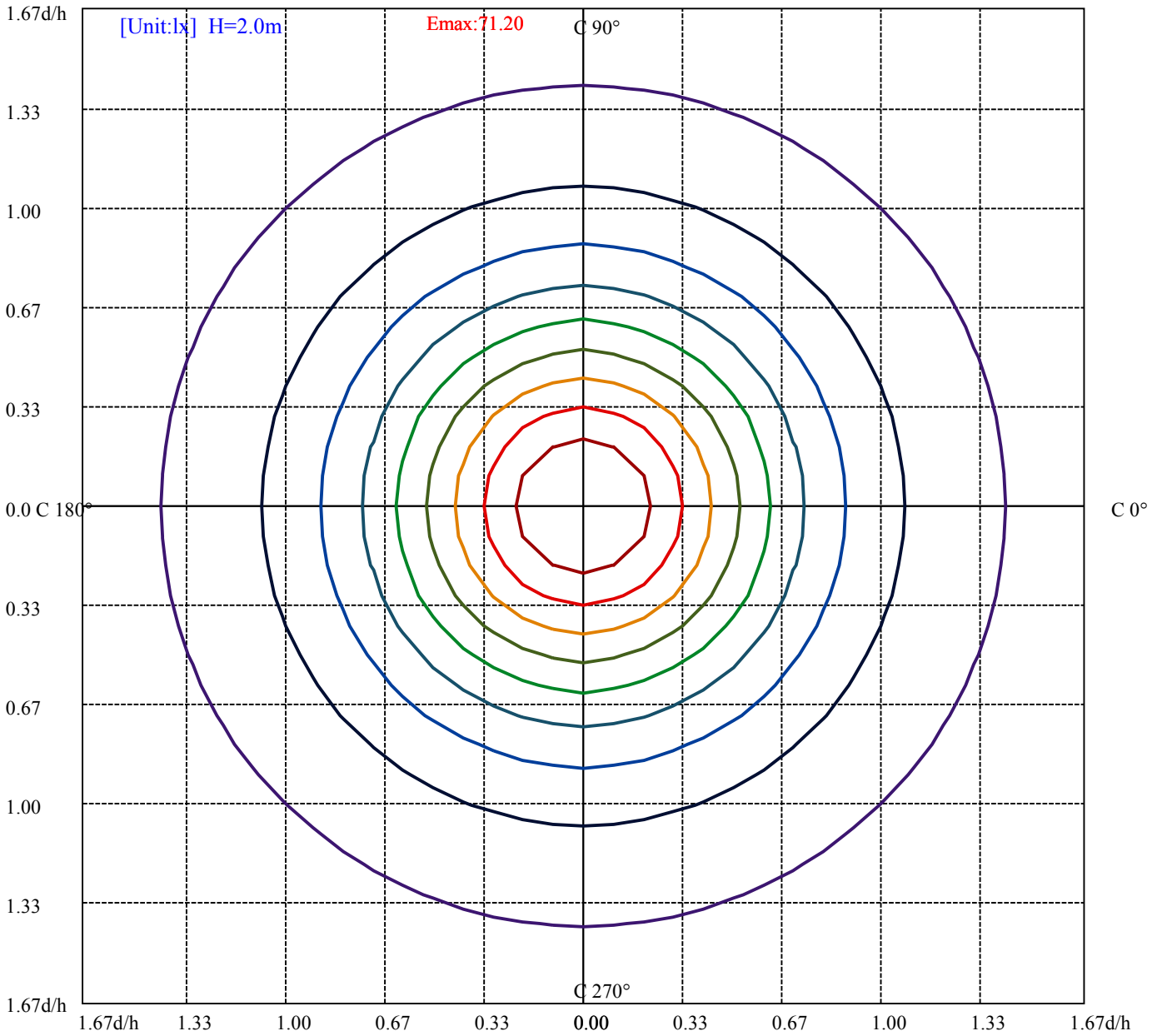
:C90/270Left:86.3 Right:76.3










Beam Angle(50%Imax):C0/180Left:55.4 Right:55.4

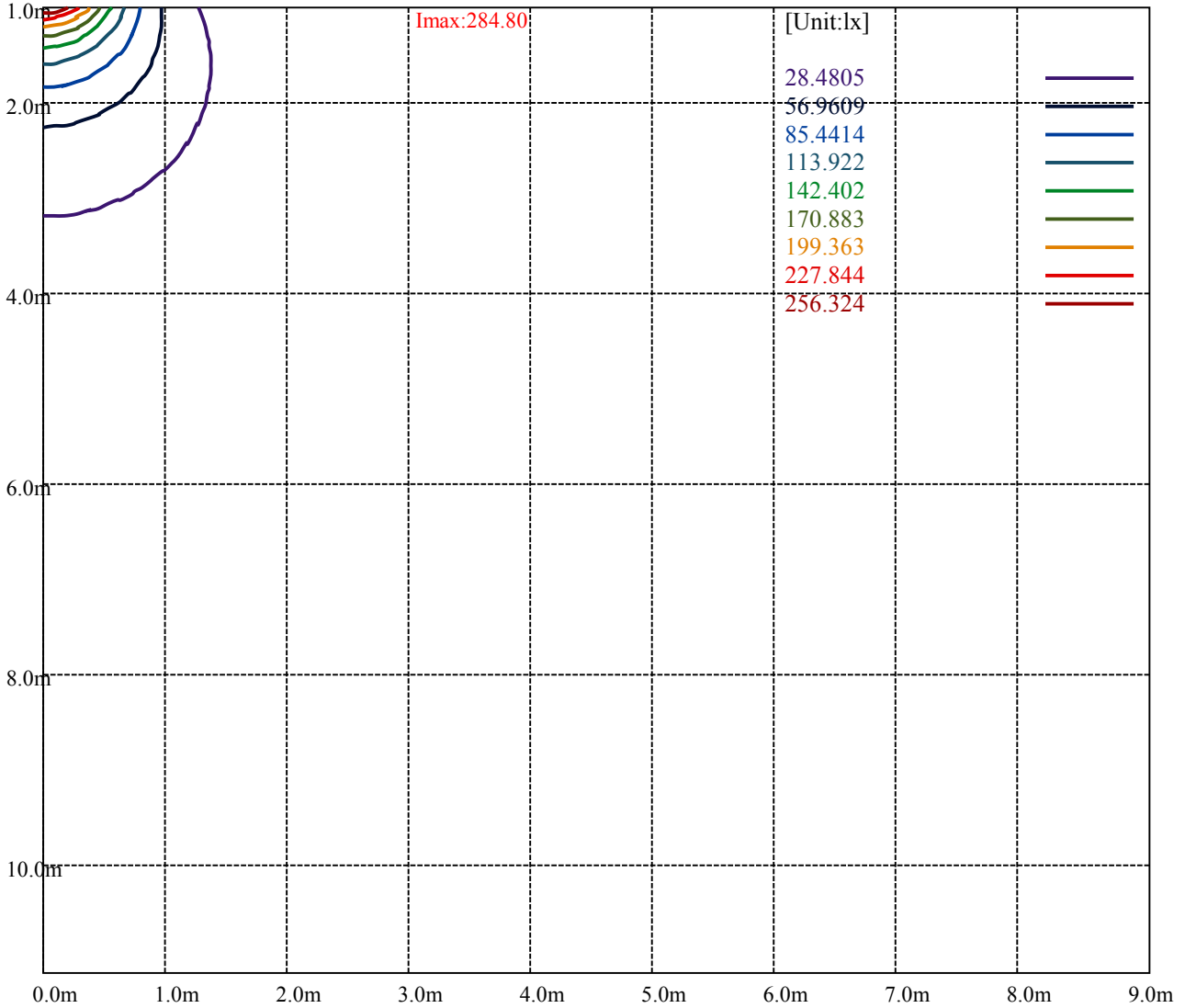
:C90/270Left:60.7 Right:50.7



Max , Ave      Beam angle of C0 plane 111.02



(10%Emax) 7.1201	
(20%Emax) 14.24022	
(30%Emax) 21.36035	
(40%Emax) 28.4805	
(50%Emax) 35.6005	
(60%Emax) 42.72075	
(70%Emax) 49.84075	
(80%Emax) 56.961	
(90%Emax) 64.081	



Lotus LED Lights LFR-4R-FE-9W-5CCT-5000K

Luminance Limiting Curve(no luminous side)

Luminance Table

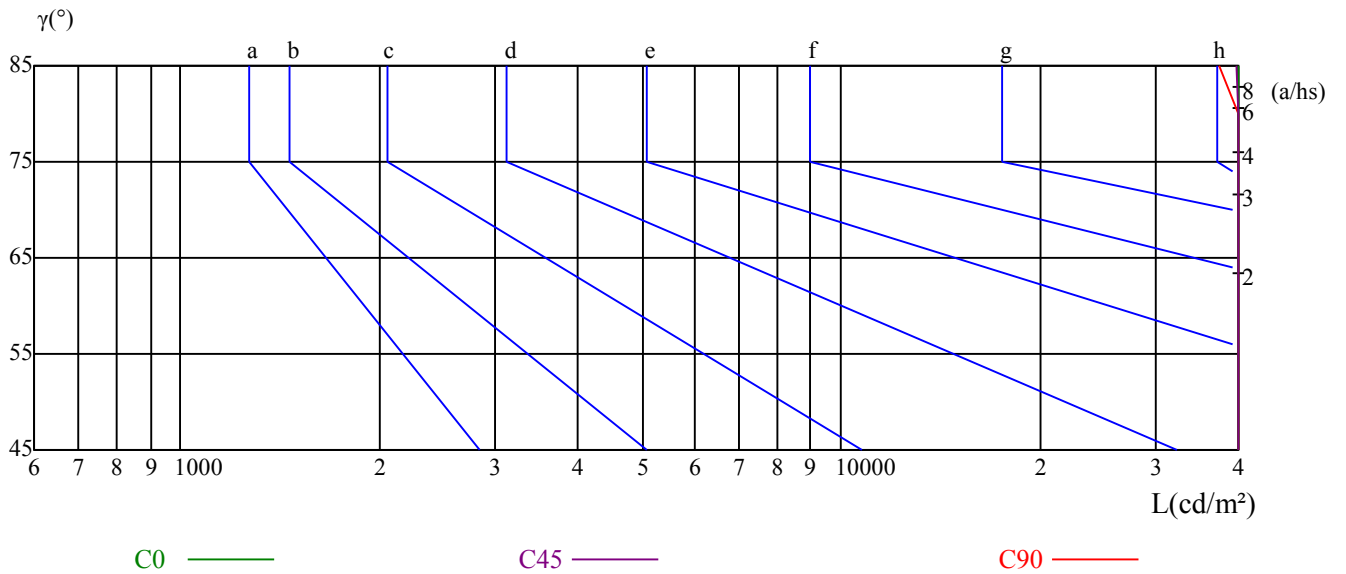
$\gamma$	45	50	55	60	65	70	75	80	85
C0	59622	58265	56911	55257	53753	51161	48234	45375	42267
C45	60178	58293	56906	55213	53413	50838	47929	44210	39667
C90	59722	58557	57442	55694	53824	50999	48082	43469	37452

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
53753	53824	53413	48234	48082	47929	42267	37452	39667

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	1.04	0.99	0.95	1.01	0.97	0.94	0.97	0.94	0.91	0.93	0.90	0.88	0.89	0.87	0.85	0.83
2	0.90	0.83	0.77	0.88	0.82	0.76	0.85	0.79	0.75	0.81	0.77	0.73	0.78	0.75	0.71	0.69
3	0.79	0.71	0.64	0.78	0.70	0.64	0.74	0.68	0.62	0.72	0.66	0.61	0.69	0.64	0.60	0.58
4	0.70	0.61	0.54	0.69	0.60	0.54	0.66	0.59	0.53	0.64	0.58	0.52	0.62	0.56	0.52	0.50
5	0.63	0.53	0.47	0.61	0.53	0.47	0.59	0.52	0.46	0.57	0.51	0.45	0.55	0.50	0.45	0.43
6	0.56	0.47	0.41	0.55	0.47	0.41	0.54	0.46	0.40	0.52	0.45	0.40	0.50	0.44	0.39	0.37
7	0.51	0.42	0.36	0.50	0.42	0.36	0.49	0.41	0.36	0.47	0.40	0.35	0.46	0.40	0.35	0.33
8	0.47	0.38	0.32	0.46	0.38	0.32	0.45	0.37	0.32	0.43	0.37	0.32	0.42	0.36	0.31	0.29
9	0.43	0.34	0.29	0.42	0.34	0.29	0.41	0.34	0.29	0.40	0.33	0.28	0.39	0.33	0.28	0.26
10	0.39	0.32	0.26	0.39	0.31	0.26	0.38	0.31	0.26	0.37	0.30	0.26	0.36	0.30	0.26	0.24

Lotus LED Lights LFR-4R-FE-9W-5CCT-5000K

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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	284.80	286.61	284.80	280.28	273.05	264.01	252.26	237.79	221.51
15.0	284.80	285.71	283.00	278.50	271.29	261.37	249.65	235.23	219.91
30.0	284.80	284.80	283.00	277.59	270.38	259.57	247.85	233.43	217.21
45.0	284.80	284.80	283.00	277.59	269.48	259.57	246.05	231.63	214.50
60.0	284.80	284.80	281.21	275.82	267.73	256.95	244.37	229.10	212.03
75.0	284.80	284.80	280.31	275.82	265.94	256.05	242.58	227.30	210.23
90.0	284.80	284.80	281.20	275.79	266.78	255.96	242.44	227.12	210.00
105.0	284.80	283.02	279.45	273.20	263.38	252.66	239.27	224.09	207.13
120.0	284.80	283.91	280.33	273.16	264.21	252.56	239.13	224.80	206.89
135.0	284.80	283.91	279.43	273.16	264.21	253.46	239.13	224.80	206.89
150.0	284.80	284.80	280.33	274.06	265.10	253.46	240.02	224.80	206.89
165.0	284.80	283.91	279.45	273.20	264.27	253.56	240.16	224.09	207.13
180.0	284.80	281.19	274.86	264.91	254.06	240.50	224.23	207.05	187.16
195.0	284.80	281.20	274.89	265.88	253.26	240.64	224.42	207.29	188.37
210.0	284.80	280.30	273.99	266.78	255.96	242.44	227.12	209.10	191.07
225.0	284.80	282.10	276.69	268.58	257.77	243.35	228.93	211.80	193.78
240.0	284.80	281.21	276.72	267.73	257.85	245.27	230.00	213.83	194.96
255.0	284.80	283.01	277.62	269.53	258.75	246.17	232.70	216.52	198.55
270.0	284.80	284.80	280.30	272.19	261.37	249.65	236.14	219.01	200.08
285.0	284.80	282.13	277.66	270.52	260.70	248.20	233.91	219.63	199.99
300.0	284.80	283.01	278.54	272.27	262.41	249.88	236.44	220.32	203.30
315.0	284.80	283.91	278.54	272.27	263.31	250.77	237.34	221.22	204.20
330.0	284.80	283.91	279.43	272.27	263.31	249.88	243.61	220.32	203.30
345.0	284.80	283.02	278.55	272.31	261.59	249.99	235.70	218.74	201.77
360.0	284.80	286.61	284.80	280.28	273.05	264.01	252.26	237.79	221.51
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	205.24	185.35	164.55	143.76	122.06	98.55	75.95	54.25	32.55
15.0	201.89	182.96	162.23	140.60	119.87	95.54	73.00	51.37	29.74
30.0	199.18	180.26	160.43	137.90	116.27	93.73	71.20	47.77	27.94
45.0	197.38	178.45	156.82	135.19	113.56	90.13	67.60	45.97	25.24
60.0	194.96	175.20	153.63	132.07	110.51	87.15	64.69	43.12	22.46
75.0	192.27	172.50	151.84	130.27	107.81	84.45	61.99	40.43	20.66
90.0	191.07	171.24	150.51	128.88	106.35	82.92	60.39	37.85	18.03
105.0	188.38	168.74	148.21	125.89	103.57	80.35	58.03	36.60	16.96
120.0	188.08	168.38	147.78	125.39	103.00	80.61	58.21	35.82	17.02
135.0	188.08	167.48	146.88	124.49	103.00	79.71	57.32	35.82	17.02
150.0	188.97	168.38	147.78	125.39	103.00	79.71	58.21	36.72	17.02
165.0	189.27	168.74	148.21	125.89	103.57	81.25	58.93	36.60	17.86
180.0	167.27	145.57	123.87	100.36	78.66	56.06	34.36	15.37	0.00
195.0	168.54	146.91	125.28	102.75	79.31	57.68	36.05	17.12	0.90
210.0	171.24	149.61	128.88	105.45	82.02	59.48	38.76	18.93	2.70
225.0	173.95	152.32	130.69	108.15	85.62	63.09	41.46	21.63	5.41
240.0	176.09	155.43	132.97	111.41	88.05	65.59	44.02	24.26	7.19
255.0	181.48	158.12	137.46	114.10	90.74	69.18	46.72	26.05	8.98
270.0	182.06	161.33	140.60	117.17	94.63	71.20	49.57	28.84	10.82
285.0	181.24	161.60	141.06	117.85	94.64	73.21	61.60	30.36	12.50
300.0	183.60	163.00	142.40	130.76	96.73	74.34	51.95	31.35	12.54
315.0	192.56	163.90	142.40	120.01	96.73	74.34	52.84	32.24	13.43
330.0	184.50	163.00	142.40	120.01	96.73	74.34	51.95	31.35	12.54
345.0	182.13	161.60	140.17	118.74	95.53	73.21	50.00	29.46	11.61
360.0	205.24	185.35	164.55	143.76	122.06	98.55	75.95	54.25	32.55

Lotus LED Lights LFR-4R-FE-9W-5CCT-5000K

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	13.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15.0	11.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30.0	9.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45.0	7.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60.0	5.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75.0	2.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90.0	1.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105.0	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
120.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
135.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
165.0	0.89	0.00	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	0.00	0.00	0.00	0.00
195.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
210.0	0.00	0.00	0.00	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	0.00	0.00	0.00
240.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
255.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
270.0	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
285.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
300.0	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	0.00	0.00	0.00
330.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
345.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
360.0	13.56	0.00	0.00	0.00	0.00	0.00	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	0.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90
15.0	0.00	0.00	0.00	0.90	0.90	0.90	0.90	0.90	0.90
30.0	0.00	0.00	0.00	0.90	0.90	0.90	0.90	0.90	0.90
45.0	0.00	0.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90
60.0	0.00	0.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90
75.0	0.00	0.00	0.00	0.90	0.90	0.90	0.90	0.90	0.90
90.0	0.00	0.00	0.00	0.90	0.90	0.90	0.90	0.90	0.90
105.0	0.00	0.00	0.00	0.89	0.89	0.89	0.89	0.89	0.89
120.0	0.00	0.00	0.00	0.90	0.90	0.90	0.90	0.90	0.90
135.0	0.00	0.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90
150.0	0.00	0.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90
165.0	0.00	0.00	0.89	0.89	0.89	0.89	0.89	0.89	0.89
180.0	0.00	0.00	0.00	0.90	0.90	0.90	0.90	0.90	0.90
195.0	0.00	0.00	0.00	0.90	0.90	0.90	0.90	0.90	0.90
210.0	0.00	0.00	0.00	0.00	0.90	0.90	0.90	0.90	0.90
225.0	0.00	0.00	0.00	0.00	0.90	0.90	0.90	0.90	0.90
240.0	0.00	0.00	0.00	0.90	0.90	0.90	0.90	0.90	0.90
255.0	0.00	0.00	0.00	0.90	0.90	0.90	0.90	0.90	0.90
270.0	0.00	0.00	0.00	0.90	0.90	0.90	0.90	0.90	0.90
285.0	0.00	0.00	0.00	0.89	0.89	0.89	0.89	0.89	0.89
300.0	0.00	0.00	0.00	0.90	0.90	0.90	0.90	0.90	0.90
315.0	0.00	0.00	0.00	0.90	0.90	0.90	0.90	0.90	0.90
330.0	0.00	0.00	0.00	0.90	0.90	0.90	0.90	0.90	0.90
345.0	0.00	0.00	0.89	0.89	0.89	0.89	0.89	0.89	0.89
360.0	0.00	0.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90

Lotus LED Lights LFR-4R-FE-9W-5CCT-5000K

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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	0.89
120.0	0.90
135.0	0.90
150.0	0.90
165.0	0.89
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	0.90