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Light Blue USA & Associates LLC

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Client:

LumCAT: LED lamp

Luminaire: POL-4-CCT-BK-P3-R

Report No:

Ballast type:

Test No:

Voltage(V): 120.030

LampCAT:

Current(A): 0.703

Lamp flux(lm): 2924.7

Power (W): 83.510

Number of Lamps: 1

PF: 0.990

Length(mm): 1180

Width(mm): 20

Phm Type: C

Height(mm): 120

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Photometric Results

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Lumens(lm): 2924.65, Efficiency(%): 100.00% , Luminous Efficacy(lm/W): 35.02

Central intensity(cd): 616.889, Maximum intensity(cd): 671.763

Angle of maximum intensity: C=90.0  $\gamma$ =165.0

Beam Angle(50%Imax): [C0/180]Total=N.A.

[C90/270]Total=N.A.

Field angle(10%Imax): [C0/180]Total=N.A.

[C90/270]Total=N.A.

Maximum s/h(1/2): C0\_180=1.17 C90\_270=1.37

Maximum s/h(1/4): C0\_180=1.28 C90\_270=1.42

Up flux rate of lamp(%): 50.70%

Down flux rate of lamp(%): 49.30%

Up flux rate of LUM(%): 50.70%

Down flux rate of LUM(%): 49.30%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 39.384%

# Light Blue USA & Associates LLC LED lamp

Zonal flux distribution table

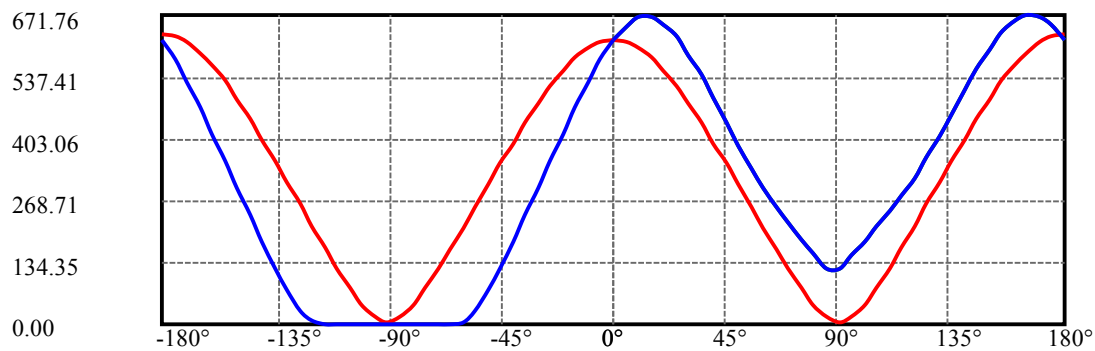
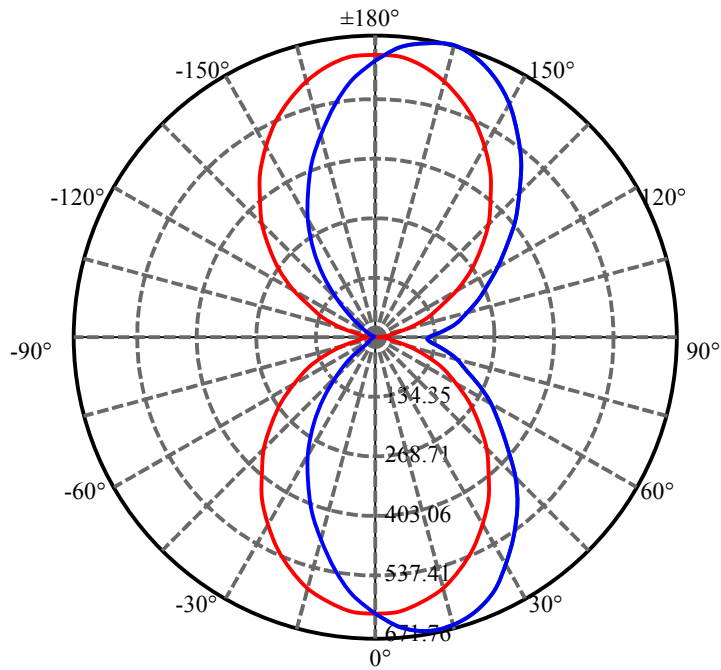
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$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	616.889	0.000	0	0.00%	0.00%
5.0	612.832	14.701	14.701	0.50%	0.50%
10.0	597.934	43.313	58.014	1.48%	1.98%
15.0	574.516	69.549	127.563	2.38%	4.36%
20.0	542.765	92.080	219.642	3.15%	7.51%
25.0	504.596	109.849	329.491	3.76%	11.27%
30.0	462.113	122.338	451.829	4.18%	15.45%
35.0	413.804	128.985	580.814	4.41%	19.86%
40.0	365.162	129.965	710.779	4.44%	24.30%
45.0	316.779	126.267	837.046	4.32%	28.62%
50.0	266.146	117.788	954.834	4.03%	32.65%
55.0	219.053	105.498	1060.332	3.61%	36.25%
60.0	176.791	91.498	1151.831	3.13%	39.38%
65.0	141.426	77.359	1229.19	2.65%	42.03%
70.0	112.587	64.318	1293.508	2.20%	44.23%
75.0	87.769	52.370	1345.878	1.79%	46.02%
80.0	66.011	41.147	1387.025	1.41%	47.43%
85.0	47.425	30.823	1417.848	1.05%	48.48%
90.0	40.270	24.012	1441.859	0.82%	49.30%
95.0	56.165	26.405	1468.264	0.90%	50.20%
100.0	74.714	35.563	1503.827	1.22%	51.42%
105.0	96.251	45.745	1549.572	1.56%	52.98%
110.0	120.664	56.698	1606.27	1.94%	54.92%
115.0	149.170	68.324	1674.594	2.34%	57.26%
120.0	183.946	80.981	1755.575	2.77%	60.03%
125.0	226.650	94.908	1850.483	3.25%	63.27%
130.0	273.042	108.650	1959.132	3.71%	66.99%
135.0	322.384	120.315	2079.447	4.11%	71.10%
140.0	370.362	128.268	2207.714	4.39%	75.49%
145.0	418.967	131.693	2339.408	4.50%	79.99%
150.0	467.018	130.467	2469.875	4.46%	84.45%
155.0	508.690	123.477	2593.352	4.22%	88.67%
160.0	545.862	110.603	2703.955	3.78%	92.45%
165.0	578.057	92.627	2796.582	3.17%	95.62%
170.0	599.925	69.877	2866.459	2.39%	98.01%
175.0	614.602	43.447	2909.906	1.49%	99.50%
180.0	618.954	14.747	2924.653	0.50%	100.00%

ZONAL LUMEN SUMMARY			
Zone	Lumens	%Lamp	%Fixt
0-30	451.83	15.45%	15.45%
0-40	710.78	24.30%	24.30%
0-60	1151.83	39.38%	39.38%
0-90	1441.86	49.30%	49.30%
0-120	1755.57	60.03%	60.03%
0-180	2924.65	100.00%	100.00%
60-90	290.03	9.92%	9.92%
90-120	313.72	10.73%	10.73%
90-130	517.27	17.69%	17.69%
90-150	1028.02	35.15%	35.15%
90-180	1468.05	50.20%	50.20%
0-145.01	2339.72	80.00%	80.00%

ZONAL LUMEN SUMMARY

0-10	58.01
10-20	161.63
20-30	232.19
30-40	258.95
40-50	244.06
50-60	197.00
60-70	141.68
70-80	93.52
80-90	54.83
90-100	61.97
100-110	102.44
110-120	149.30
120-130	203.56
130-140	248.58
140-150	262.16
150-160	234.08
160-170	162.50
170-180	43.45



C90(Max): —————

C0/C180: —————

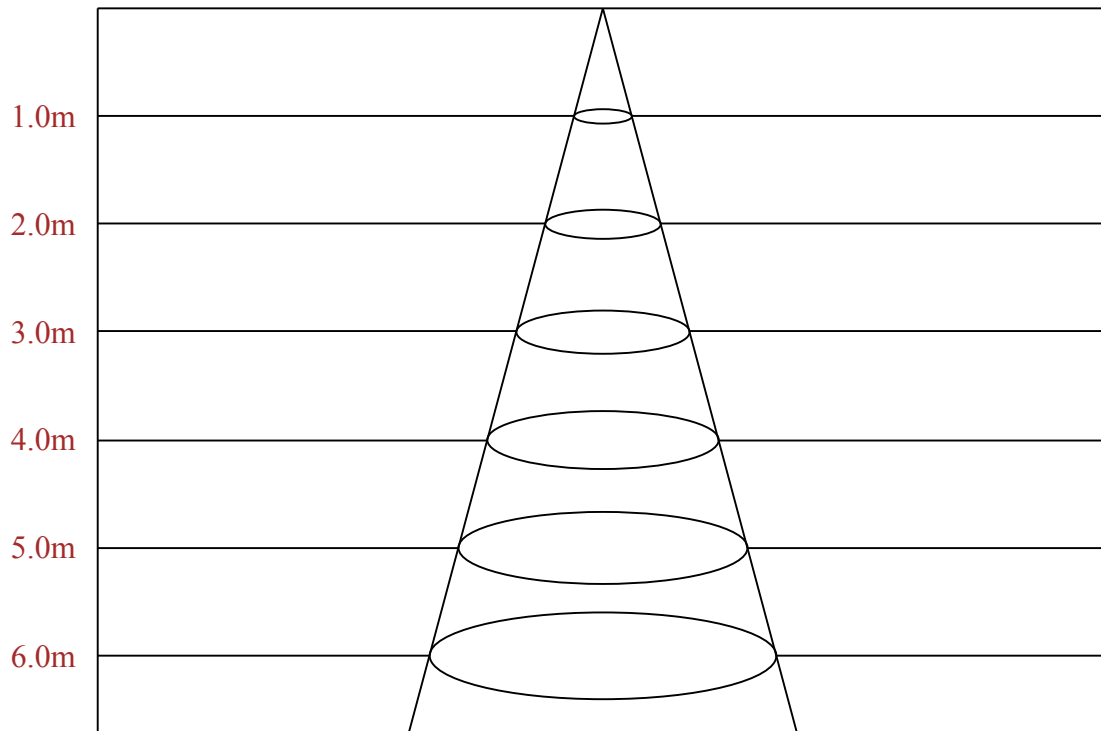
C90/C270: —————

Field angle(10%Imax):C0/180Left:0.0 Right:0.0

:C90/270Left:0.0 Right:0.0

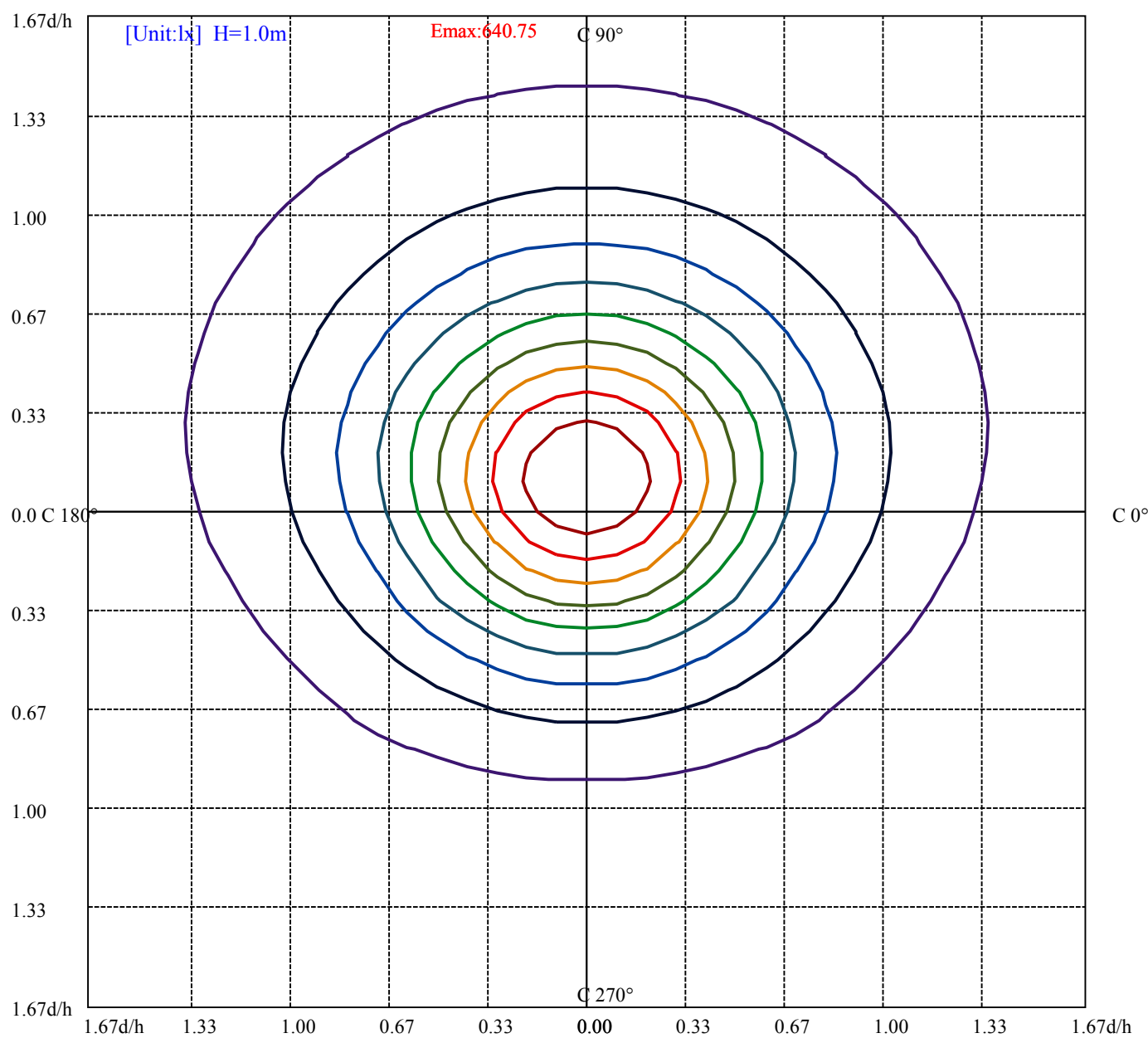
Beam Angle(50%Imax):C0/180Left:0.0 Right:0.0

:C90/270Left:0.0 Right:0.0

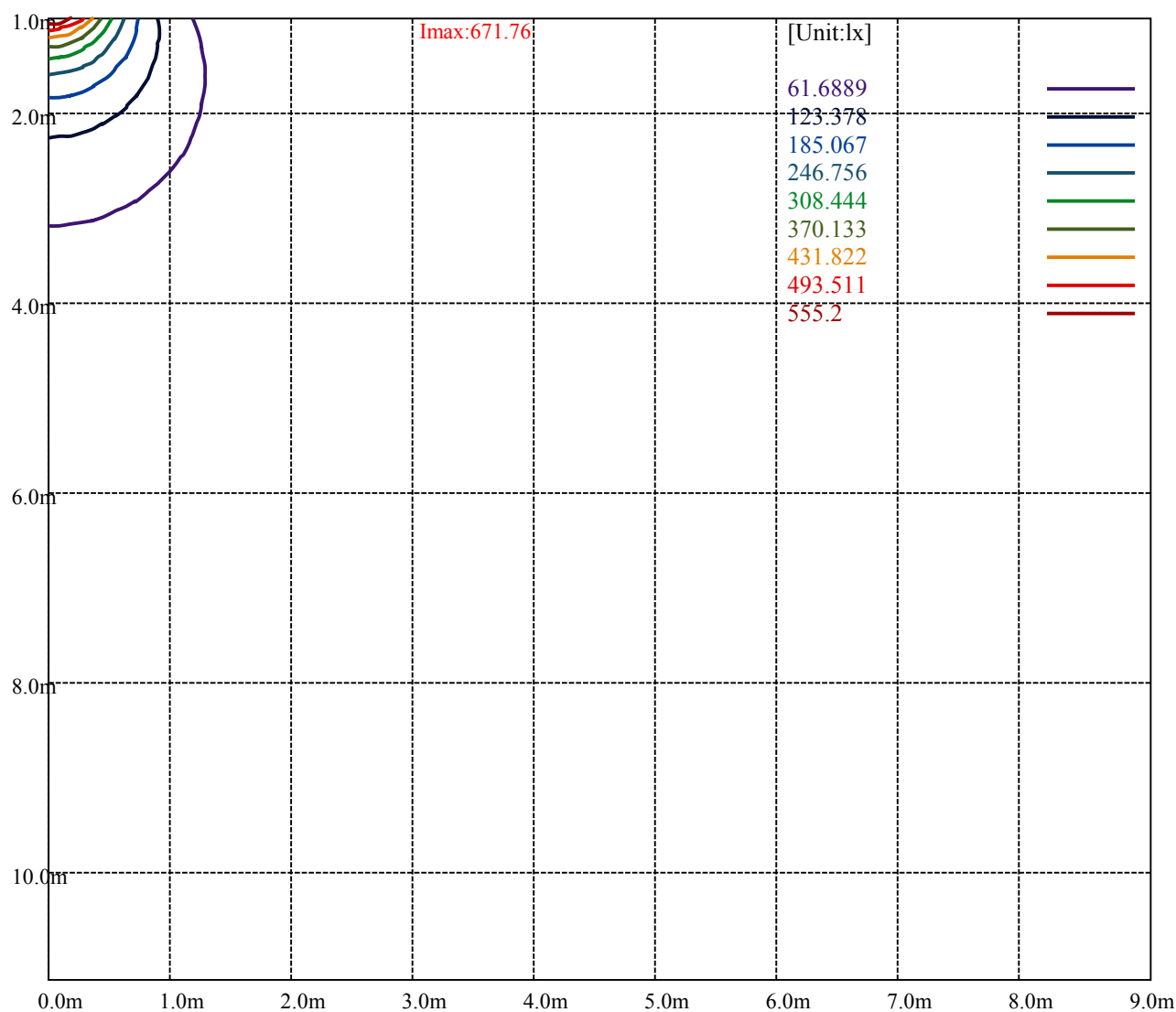


Max , Ave

Beam angle of C90 plane 796.89



(10%Emax)	64.0746	—
(20%Emax)	128.149	—
(30%Emax)	192.224	—
(40%Emax)	256.298	—
(50%Emax)	320.373	—
(60%Emax)	384.448	—
(70%Emax)	448.522	—
(80%Emax)	512.597	—
(90%Emax)	576.672	—



# Light Blue USA & Associates LLC LED lamp

## Luminance Limiting Curve(no luminous side)

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Luminance Table

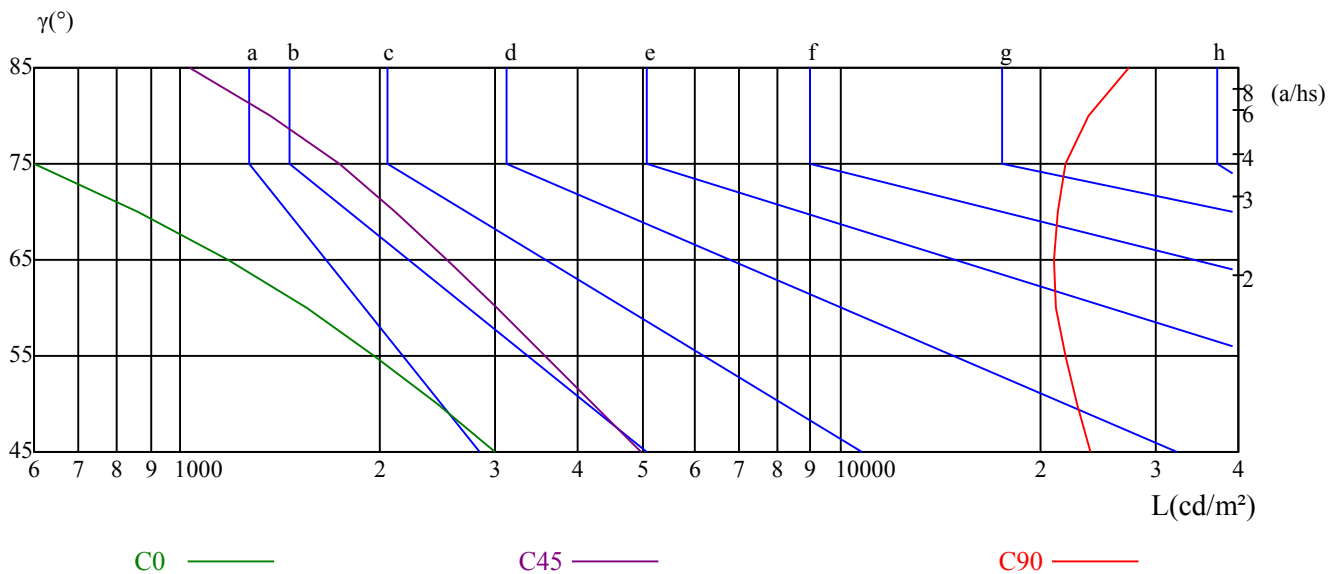
$\gamma$	45	50	55	60	65	70	75	80	85
C0	2993	2448	1968	1554	1184	859	557	302	111
C45	4990	4227	3570	3019	2536	2116	1737	1365	1035
C90	23926	22792	21923	21236	20981	21255	21952	23696	27262

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
16417	12823	13533	13041	15214	14925	7745	29690	26248

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



Equipment: LC-I-902 GMS-2000  
Temperature( $^{\circ}$ C): 24.4

Date: 2022/6/13  
Humidity(%): 59.9%

Operator: JUN WANG  
Distance(m): 29.75



RHOC	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	1.07	1.07	1.07	0.99	0.99	0.99	0.83	0.83	0.83	0.69	0.69	0.69	0.55	0.55	0.55	0.49
1	0.93	0.89	0.85	0.86	0.82	0.79	0.72	0.70	0.68	0.60	0.58	0.57	0.49	0.47	0.46	0.41
2	0.81	0.75	0.70	0.75	0.70	0.65	0.64	0.60	0.56	0.53	0.50	0.48	0.43	0.41	0.39	0.35
3	0.72	0.64	0.58	0.66	0.60	0.55	0.56	0.51	0.47	0.47	0.43	0.40	0.38	0.36	0.34	0.30
4	0.64	0.56	0.50	0.59	0.52	0.47	0.50	0.45	0.41	0.42	0.38	0.35	0.34	0.32	0.29	0.26
5	0.57	0.49	0.43	0.53	0.46	0.40	0.45	0.39	0.35	0.38	0.34	0.30	0.31	0.28	0.26	0.22
6	0.51	0.43	0.37	0.47	0.40	0.35	0.41	0.35	0.31	0.34	0.30	0.27	0.28	0.25	0.23	0.20
7	0.46	0.38	0.33	0.43	0.36	0.31	0.37	0.31	0.27	0.31	0.27	0.24	0.26	0.23	0.20	0.18
8	0.42	0.34	0.29	0.39	0.32	0.27	0.34	0.28	0.24	0.29	0.24	0.21	0.24	0.21	0.18	0.16
9	0.38	0.31	0.26	0.36	0.29	0.25	0.31	0.26	0.22	0.26	0.22	0.19	0.22	0.19	0.17	0.14
10	0.35	0.28	0.23	0.33	0.26	0.22	0.29	0.23	0.20	0.24	0.20	0.17	0.21	0.17	0.15	0.13

Light Blue USA & Associates LLC LED lamp

Intensity data(cd)									Appendix Page: 10 Total:12		
C/γ(°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0		
0.0	616.89	613.35	600.96	579.72	551.39	518.65	480.59	437.22	393.85		
15.0	616.89	624.85	621.31	608.92	590.34	562.01	528.38	490.32	448.73		
30.0	616.89	631.93	635.48	629.28	611.58	587.68	555.82	517.76	473.51		
45.0	616.89	637.25	646.98	644.33	632.82	606.27	571.75	531.92	488.55		
60.0	616.89	643.44	655.83	655.83	643.44	617.77	581.49	539.00	492.98		
75.0	616.89	646.98	662.03	662.91	648.75	623.97	586.80	539.89	492.09		
90.0	616.89	647.87	665.57	666.45	651.41	624.85	585.03	540.77	490.32		
105.0	616.89	646.98	662.03	662.91	648.75	623.97	586.80	539.89	492.09		
120.0	616.89	643.44	655.83	655.83	643.44	617.77	581.49	539.00	492.98		
135.0	616.89	637.25	646.98	644.33	632.82	606.27	571.75	531.92	488.55		
150.0	616.89	631.93	635.48	629.28	611.58	587.68	555.82	517.76	473.51		
165.0	616.89	624.85	621.31	608.92	590.34	562.01	528.38	490.32	448.73		
180.0	616.89	613.35	600.96	579.72	551.39	518.65	480.59	437.22	393.85		
195.0	616.89	600.96	577.95	548.74	511.57	470.85	426.60	378.81	331.90		
210.0	616.89	593.88	562.90	524.84	481.47	434.57	396.51	333.67	284.99		
225.0	616.89	587.68	548.74	504.49	454.04	402.70	351.37	296.50	243.39		
240.0	616.89	582.37	537.23	488.55	434.57	377.92	321.28	265.52	208.87		
255.0	616.89	578.83	530.15	477.93	420.40	362.88	303.58	246.05	188.52		
270.0	616.89	577.06	525.73	470.85	414.21	354.91	297.38	237.20	178.78		
285.0	616.89	578.83	530.15	477.93	420.40	362.88	303.58	246.05	188.52		
300.0	616.89	582.37	537.23	488.55	434.57	377.92	321.28	265.52	208.87		
315.0	616.89	587.68	548.74	504.49	454.04	402.70	351.37	296.50	243.39		
330.0	616.89	593.88	562.90	524.84	481.47	434.57	396.51	333.67	284.99		
345.0	616.89	600.96	577.95	548.74	511.57	470.85	426.60	378.81	331.90		
360.0	616.89	613.35	600.96	579.72	551.39	518.65	480.59	437.22	393.85		
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	349.60	302.69	254.90	208.87	163.74	121.25	79.66	43.37	15.93		
15.0	405.36	358.45	312.43	265.52	223.04	178.78	136.30	95.59	56.64		
30.0	429.26	382.35	337.21	292.96	248.70	205.33	164.62	123.91	85.85		
45.0	442.53	393.85	346.06	301.81	259.32	219.50	181.44	142.50	107.09		
60.0	444.30	393.85	347.83	302.69	261.98	223.04	185.86	150.46	116.83		
75.0	440.76	390.31	344.29	300.04	259.32	221.27	185.86	152.23	121.25		
90.0	439.88	387.66	339.86	294.73	254.90	219.50	184.98	153.12	121.25		
105.0	440.76	390.31	344.29	300.04	259.32	221.27	185.86	152.23	121.25		
120.0	444.30	393.85	347.83	302.69	261.98	223.04	185.86	150.46	116.83		
135.0	442.53	393.85	346.06	301.81	259.32	219.50	181.44	142.50	107.09		
150.0	429.26	382.35	337.21	292.96	248.70	205.33	164.62	123.91	85.85		
165.0	405.36	358.45	312.43	265.52	223.04	178.78	136.30	95.59	56.64		
180.0	349.60	302.69	254.90	208.87	163.74	121.25	79.66	43.37	15.93		
195.0	284.11	235.43	187.63	140.72	95.59	54.87	21.24	3.54	0.89		
210.0	233.66	184.09	134.53	88.51	45.14	13.28	2.66	0.89	0.89		
225.0	202.68	138.95	89.39	44.25	10.62	1.77	0.89	0.89	0.89		
240.0	154.89	102.67	55.76	23.90	0.89	0.89	0.89	0.89	0.89		
255.0	132.76	80.54	34.52	3.54	0.89	0.89	0.89	0.89	0.89		
270.0	123.02	73.46	28.32	2.66	0.89	0.89	0.89	0.89	0.89		
285.0	132.76	80.54	34.52	3.54	0.89	0.89	0.89	0.89	0.89		
300.0	154.89	102.67	55.76	23.90	0.89	0.89	0.89	0.89	0.89		
315.0	202.68	138.95	89.39	44.25	10.62	1.77	0.89	0.89	0.89		
330.0	233.66	184.09	134.53	88.51	45.14	13.28	2.66	0.89	0.89		
345.0	284.11	235.43	187.63	140.72	95.59	54.87	21.24	3.54	0.89		
360.0	349.60	302.69	254.90	208.87	163.74	121.25	79.66	43.37	15.93		

Light Blue USA & Associates LLC LED lamp

Intensity data(cd)									Appendix Page: 11 Total:12		
C/γ(°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0		
0.0	3.54	15.93	43.37	80.54	123.02	167.28	213.30	261.09	308.00		
15.0	30.09	62.84	100.90	143.38	184.98	228.35	271.71	318.62	364.65		
30.0	64.61	100.01	137.18	177.01	216.84	259.32	302.69	347.83	392.97		
45.0	92.93	125.68	161.97	198.25	235.43	277.02	319.51	362.88	406.24		
60.0	108.86	141.61	174.36	209.76	245.16	282.34	323.05	367.30	411.55		
75.0	118.60	148.69	179.67	212.42	246.93	283.22	321.28	364.65	410.67		
90.0	119.48	148.69	181.44	211.53	245.16	279.68	317.74	361.99	408.01		
105.0	118.60	148.69	179.67	212.42	246.93	283.22	321.28	364.65	410.67		
120.0	108.86	141.61	174.36	209.76	245.16	282.34	323.05	367.30	411.55		
135.0	92.93	125.68	161.97	198.25	235.43	277.02	319.51	362.88	406.24		
150.0	64.61	100.01	137.18	177.01	216.84	259.32	302.69	347.83	392.97		
165.0	30.09	62.84	100.90	143.38	184.98	228.35	271.71	318.62	364.65		
180.0	3.54	15.93	43.37	80.54	123.02	167.28	213.30	261.09	308.00		
195.0	0.89	0.89	4.43	21.24	53.99	94.70	140.72	188.52	236.31		
210.0	0.89	0.89	0.89	2.66	13.28	44.25	87.62	134.53	183.21		
225.0	0.89	0.89	0.89	1.77	2.66	10.62	43.37	88.51	138.07		
240.0	0.89	0.89	0.89	0.89	1.77	1.77	15.93	54.87	103.55		
255.0	0.89	0.89	0.89	0.89	0.89	0.89	4.43	35.40	80.54		
270.0	0.89	0.89	0.89	0.89	0.89	0.89	9.74	29.21	73.46		
285.0	0.89	0.89	0.89	0.89	0.89	0.89	4.43	35.40	80.54		
300.0	0.89	0.89	0.89	0.89	1.77	1.77	15.93	54.87	103.55		
315.0	0.89	0.89	0.89	1.77	2.66	10.62	43.37	88.51	138.07		
330.0	0.89	0.89	0.89	2.66	13.28	44.25	87.62	134.53	183.21		
345.0	0.89	0.89	4.43	21.24	53.99	94.70	140.72	188.52	236.31		
360.0	3.54	15.93	43.37	80.54	123.02	167.28	213.30	261.09	308.00		
C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0		
0.0	355.80	401.82	445.19	489.44	528.38	562.01	589.45	611.58	625.74		
15.0	408.90	453.15	493.87	531.92	565.56	592.11	611.58	623.97	625.74		
30.0	438.11	482.36	523.96	562.01	592.99	616.00	631.93	637.25	632.82		
45.0	452.27	498.29	541.66	581.49	612.46	636.36	647.87	647.87	638.13		
60.0	459.35	505.37	552.28	592.99	626.62	649.64	659.37	657.60	644.33		
75.0	459.35	506.26	554.05	597.42	632.82	656.72	668.22	664.68	646.98		
90.0	455.81	507.14	554.05	596.53	634.59	660.26	671.76	666.45	649.64		
105.0	459.35	506.26	554.05	597.42	632.82	656.72	668.22	664.68	646.98		
120.0	459.35	505.37	552.28	592.99	626.62	649.64	659.37	657.60	644.33		
135.0	452.27	498.29	541.66	581.49	612.46	636.36	647.87	647.87	638.13		
150.0	438.11	482.36	523.96	562.01	592.99	616.00	631.93	637.25	632.82		
165.0	408.90	453.15	493.87	531.92	565.56	592.11	611.58	623.97	625.74		
180.0	355.80	401.82	445.19	489.44	528.38	562.01	589.45	611.58	625.74		
195.0	284.11	332.78	380.58	428.37	472.62	513.34	550.51	579.72	604.50		
210.0	232.77	284.11	335.44	385.00	433.68	481.47	525.73	563.79	595.65		
225.0	189.40	241.62	296.50	350.48	404.47	454.04	513.34	548.74	586.80		
240.0	154.00	207.99	263.75	336.32	377.92	432.80	488.55	537.23	583.26		
255.0	145.15	187.63	245.16	302.69	362.88	419.52	478.82	531.04	578.83		
270.0	123.02	178.78	236.31	295.61	353.14	412.44	470.85	524.84	575.29		
285.0	145.15	187.63	245.16	302.69	362.88	419.52	478.82	531.04	578.83		
300.0	154.00	207.99	263.75	336.32	377.92	432.80	488.55	537.23	583.26		
315.0	189.40	241.62	296.50	350.48	404.47	454.04	513.34	548.74	586.80		
330.0	232.77	284.11	335.44	385.00	433.68	481.47	525.73	563.79	595.65		
345.0	284.11	332.78	380.58	428.37	472.62	513.34	550.51	579.72	604.50		
360.0	355.80	401.82	445.19	489.44	528.38	562.01	589.45	611.58	625.74		

## Light Blue USA & Associates LLC LED lamp

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### Intensity data(cd)

Appendix Page: 12 Total:12

C/γ(°)	180.0
0.0	629.28
15.0	619.54
30.0	620.43
45.0	616.89
60.0	616.89
75.0	616.89
90.0	616.89
105.0	616.89
120.0	616.89
135.0	616.89
150.0	620.43
165.0	619.54
180.0	629.28
195.0	619.54
210.0	620.43
225.0	616.89
240.0	616.89
255.0	616.89
270.0	616.89
285.0	616.89
300.0	616.89
315.0	616.89
330.0	620.43
345.0	619.54
360.0	629.28