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Light Blue USA-Rayhil

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Client:

LumCAT: INV-20-CCT-UNV-\*\*-3500K-F

Luminaire: LED lamp

Report No:

Ballast type:

Test No:

Voltage(V): 119.980

LampCAT:

Current(A): 0.263

Lamp flux(lm): 2737.6

Power (W): 31.310

Number of Lamps: 1

PF: 0.993

Length(mm): -480

Width(mm): -480

Phm Type: C

Height(mm): 0

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Photometric Results

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Lumens(lm): 2737.56, Efficiency(%): 100.00% , Luminous Efficacy(lm/W): 87.43

Central intensity(cd): 937.796, Maximum intensity(cd): 937.796

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

Beam Angle(50%Imax): [C0/180]Total=113.2

[C90/270]Total=115.4

Field angle(10%Imax): [C0/180]Total=162.8

[C90/270]Total=162.8

Maximum s/h(1/2): C0\_180=1.27 C90\_270=1.26

Maximum s/h(1/4): C0\_180=1.38 C90\_270=1.38

Up flux rate of lamp(%): 0.53%

Down flux rate of lamp(%): 99.47%

Up flux rate of LUM(%): 0.53%

Down flux rate of LUM(%): 99.47%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 77.701%

## Light Blue USA-Rayhil INV-20-CCT-UNV-\*\*-3500K-F

Zonal flux distribution table

Appendix Page: 2 Total:12

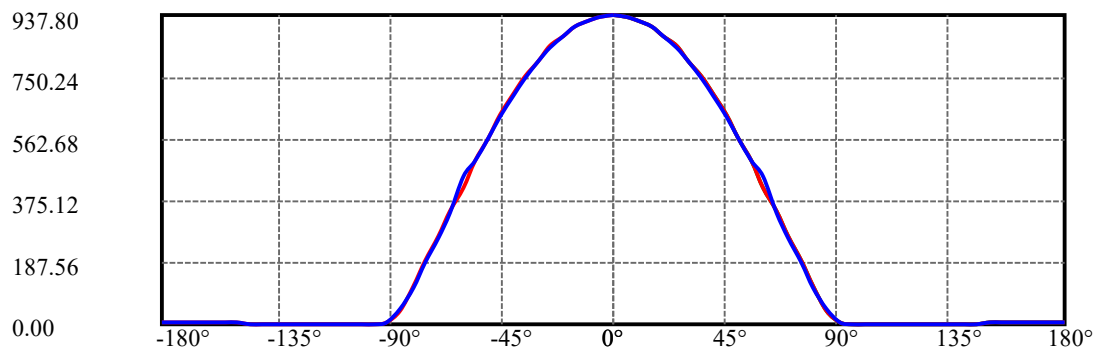
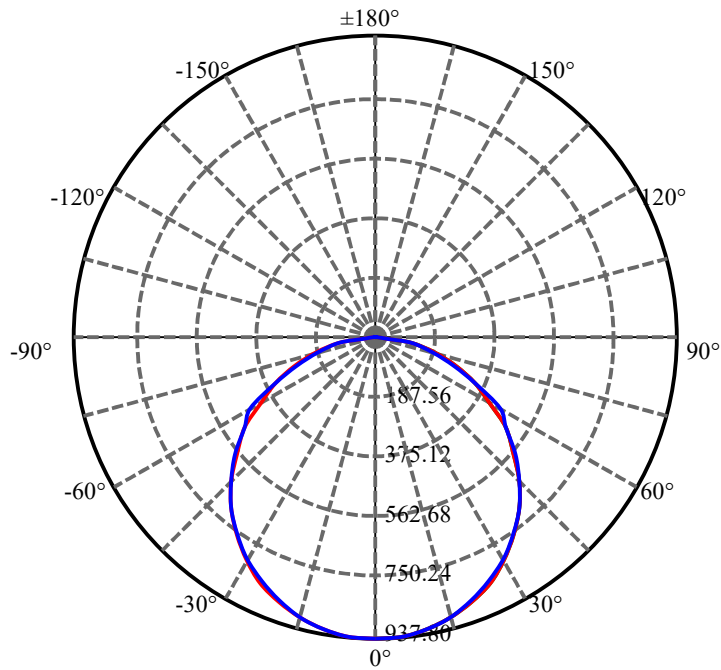
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	937.796	0.000	0	0.00%	0.00%
5.0	933.485	22.371	22.371	0.82%	0.82%
10.0	921.581	66.362	88.732	2.42%	3.24%
15.0	901.819	108.163	196.895	3.95%	7.19%
20.0	874.153	146.365	343.26	5.35%	12.54%
25.0	839.432	179.723	522.984	6.57%	19.10%
30.0	797.885	207.204	730.188	7.57%	26.67%
35.0	749.392	227.847	958.035	8.32%	35.00%
40.0	695.639	241.093	1199.127	8.81%	43.80%
45.0	631.804	245.787	1444.914	8.98%	52.78%
50.0	563.970	241.624	1686.538	8.83%	61.61%
55.0	492.394	229.689	1916.227	8.39%	70.00%
60.0	419.987	210.894	2127.121	7.70%	77.70%
65.0	341.841	185.202	2312.323	6.77%	84.47%
70.0	264.429	153.511	2465.834	5.61%	90.07%
75.0	188.698	118.440	2584.274	4.33%	94.40%
80.0	116.021	81.534	2665.809	2.98%	97.38%
85.0	44.256	43.551	2709.36	1.59%	98.97%
90.0	6.141	13.799	2723.159	0.50%	99.47%
95.0	1.374	2.058	2725.216	0.08%	99.55%
100.0	1.374	0.746	2725.963	0.03%	99.58%
105.0	1.374	0.735	2726.698	0.03%	99.60%
110.0	1.526	0.758	2727.456	0.03%	99.63%
115.0	1.526	0.773	2728.229	0.03%	99.66%
120.0	1.374	0.705	2728.933	0.03%	99.68%
125.0	1.564	0.679	2729.612	0.02%	99.71%
130.0	1.831	0.738	2730.351	0.03%	99.74%
135.0	1.831	0.740	2731.091	0.03%	99.76%
140.0	1.984	0.706	2731.797	0.03%	99.79%
145.0	2.747	0.789	2732.587	0.03%	99.82%
150.0	4.044	1.000	2733.587	0.04%	99.85%
155.0	4.197	1.043	2734.63	0.04%	99.89%
160.0	4.998	0.964	2735.594	0.04%	99.93%
165.0	5.036	0.827	2736.421	0.03%	99.96%
170.0	5.417	0.620	2737.041	0.02%	99.98%
175.0	5.952	0.407	2737.448	0.01%	100.00%
180.0	3.205	0.109	2737.557	0.00%	100.00%

Zonal flux distribution table

ZONAL LUMEN SUMMARY			
Zone	Lumens	%Lamp	%Fixt
0-30	730.19	26.67%	26.67%
0-40	1199.13	43.80%	43.80%
0-60	2127.12	77.70%	77.70%
0-90	2723.16	99.47%	99.47%
0-120	2728.93	99.68%	99.68%
0-180	2737.56	100.00%	100.00%
60-90	596.04	21.77%	21.77%
90-120	5.77	0.21%	0.21%
90-130	7.19	0.26%	0.26%
90-150	10.43	0.38%	0.38%
90-180	14.29	0.52%	0.52%
0-61.70	2190.05	80.00%	80.00%

ZONAL LUMEN SUMMARY

0-10	88.73
10-20	254.53
20-30	386.93
30-40	468.94
40-50	487.41
50-60	440.58
60-70	338.71
70-80	199.97
80-90	57.35
90-100	2.80
100-110	1.49
110-120	1.48
120-130	1.42
130-140	1.45
140-150	1.79
150-160	2.01
160-170	1.45
170-180	0.41



C0(Max): —————

C0/C180: —————

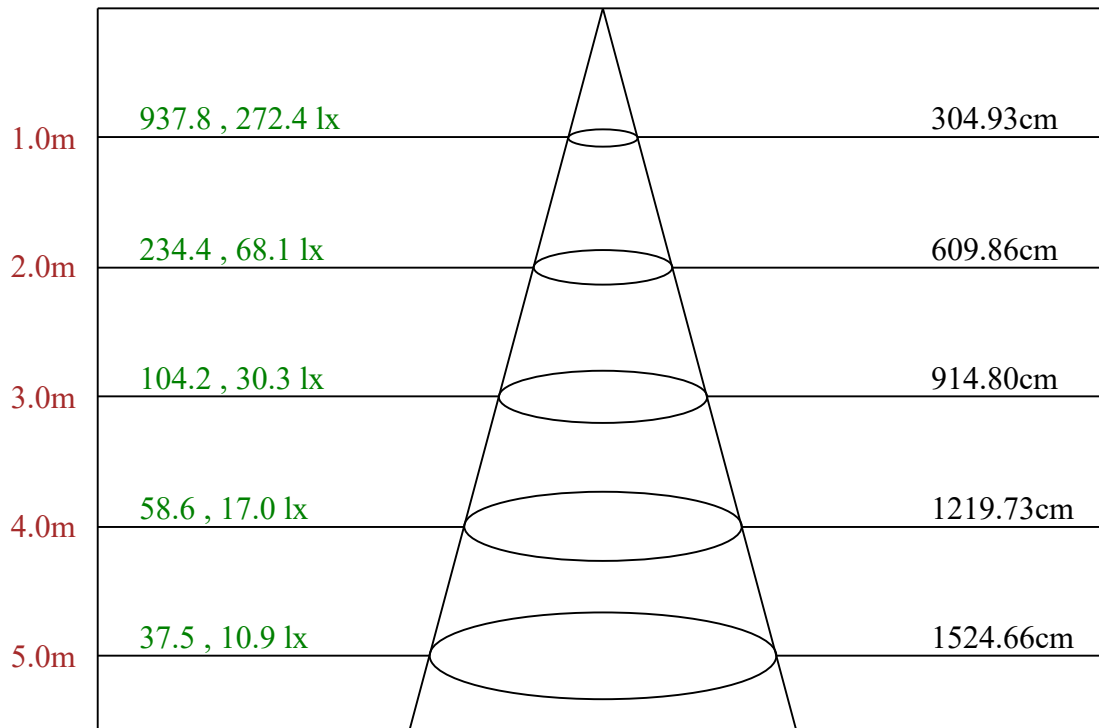
C90/C270: —————

Field angle(10%Imax):C0/180Left:81.4 Right:81.4

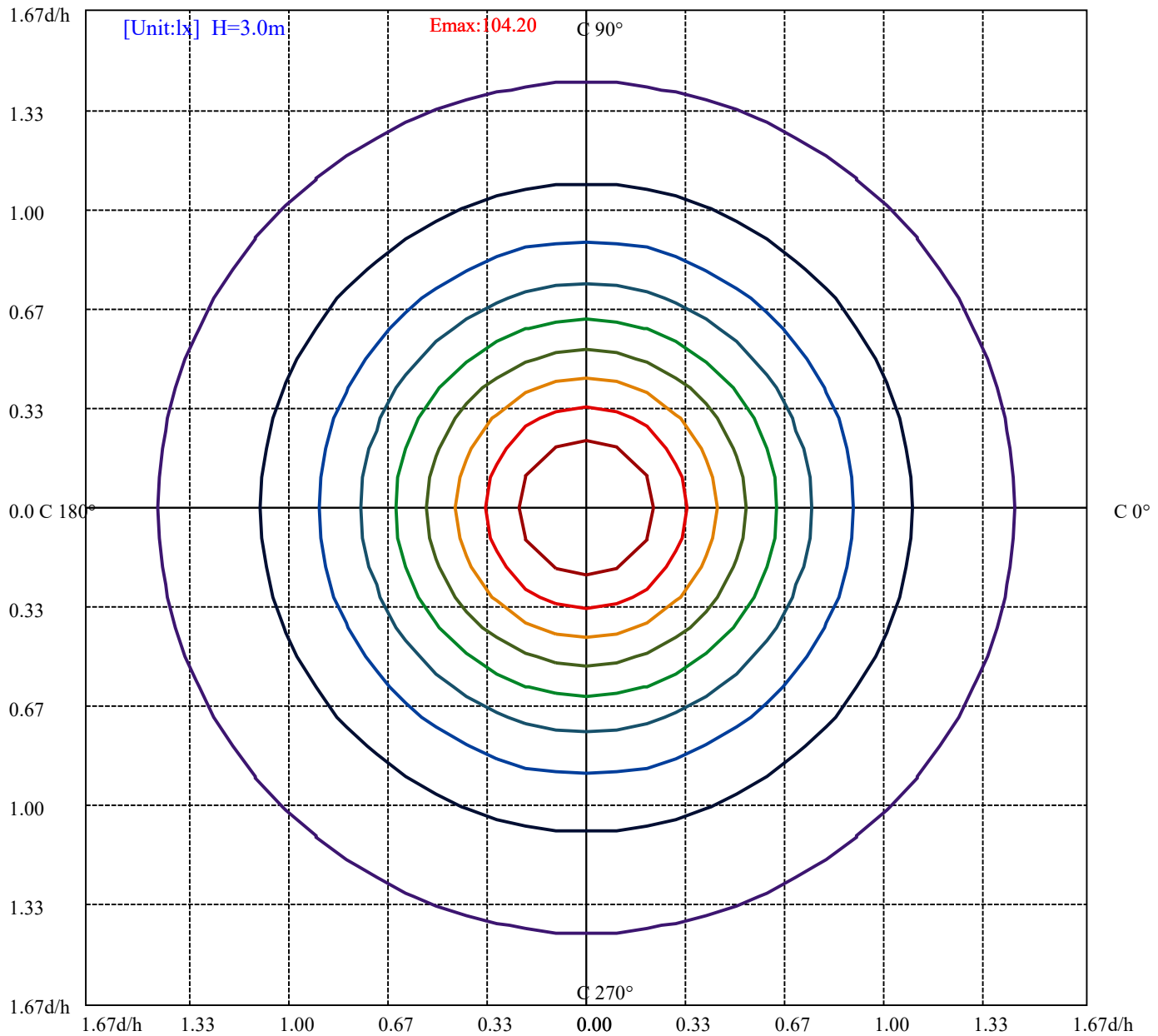
:C90/270Left:81.4 Right:81.4

Beam Angle(50%Imax):C0/180Left:56.6 Right:56.6

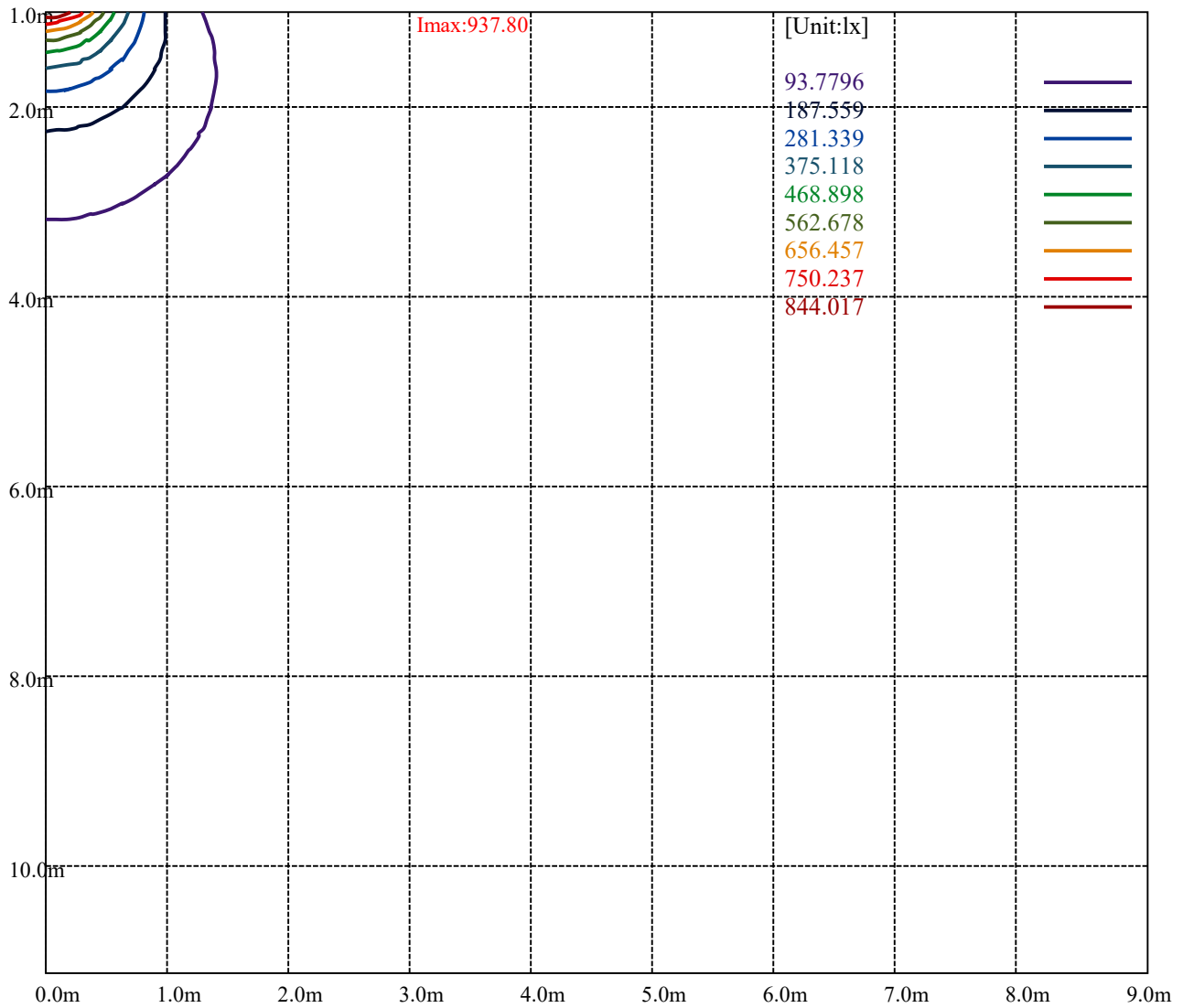
:C90/270Left:57.7 Right:57.7



Max , Ave      Beam angle of C0 plane 113.48



(10%Emax)	10.41996	
(20%Emax)	20.83989	
(30%Emax)	31.25989	
(40%Emax)	41.67978	
(50%Emax)	52.09978	
(60%Emax)	62.51978	
(70%Emax)	72.93967	
(80%Emax)	83.35966	
(90%Emax)	93.77956	



Luminance Table

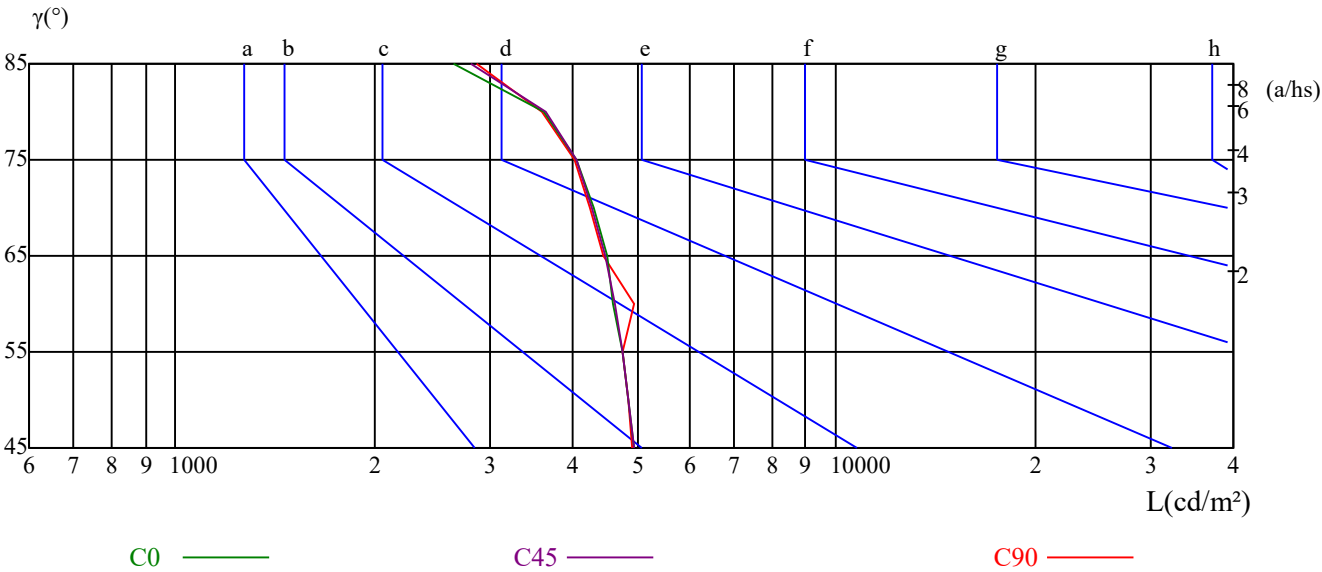
$\gamma$	45	50	55	60	65	70	75	80	85
C0	4945	4852	4758	4602	4492	4300	4049	3615	2640
C45	4944	4855	4745	4622	4476	4268	4044	3648	2805
C90	4927	4864	4752	4949	4446	4255	4026	3592	2851

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4492	4446	4476	4049	4026	4044	2640	2851	2805

Glare Table

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

Luminance Limiting Curve





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	1.19	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	0.99
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	0.84	0.79	0.74	0.81	0.77	0.73	0.78	0.74	0.71	0.69
3	0.79	0.71	0.64	0.77	0.70	0.63	0.74	0.68	0.62	0.71	0.66	0.61	0.69	0.64	0.60	0.58
4	0.70	0.61	0.54	0.68	0.60	0.54	0.66	0.59	0.53	0.63	0.57	0.52	0.61	0.56	0.51	0.49
5	0.62	0.53	0.47	0.61	0.53	0.46	0.59	0.51	0.46	0.57	0.50	0.45	0.55	0.49	0.45	0.42
6	0.56	0.47	0.41	0.55	0.47	0.40	0.53	0.46	0.40	0.51	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	0.48	0.41	0.35	0.47	0.40	0.35	0.45	0.39	0.35	0.33
8	0.46	0.38	0.32	0.46	0.37	0.32	0.44	0.37	0.31	0.43	0.36	0.31	0.42	0.36	0.31	0.29
9	0.42	0.34	0.29	0.42	0.34	0.29	0.41	0.33	0.28	0.40	0.33	0.28	0.38	0.32	0.28	0.26
10	0.39	0.31	0.26	0.39	0.31	0.26	0.38	0.31	0.26	0.37	0.30	0.26	0.36	0.30	0.25	0.24

Light Blue USA-Rayhil INV-20-CCT-UNV-\*\*-3500K-F

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	937.80	937.80	928.74	911.55	886.20	857.23	815.59	774.86	720.55		
15.0	937.80	937.80	928.71	914.17	889.63	859.65	822.39	776.04	724.25		
30.0	937.80	935.98	928.69	913.21	890.45	859.49	824.90	779.37	727.47		
45.0	937.80	938.71	932.31	916.77	894.84	864.67	827.20	783.32	731.23		
60.0	937.80	939.63	933.22	917.65	894.75	863.61	828.81	783.94	734.48		
75.0	937.80	937.80	933.22	918.56	894.75	864.53	826.07	782.11	731.74		
90.0	937.80	939.63	932.29	918.53	895.59	863.47	824.93	780.89	730.42		
105.0	937.80	939.64	932.28	919.41	894.58	864.24	825.63	779.66	730.01		
120.0	937.80	937.80	931.36	914.81	893.66	859.65	821.95	776.90	724.49		
135.0	937.80	937.80	931.35	915.71	889.94	857.73	819.08	773.98	718.76		
150.0	937.80	937.80	929.51	911.08	864.10	854.89	816.20	771.98	717.63		
165.0	937.80	936.88	927.67	910.19	883.50	851.29	811.71	766.62	706.80		
180.0	937.80	929.65	916.98	891.63	863.57	826.46	782.10	731.41	671.66		
195.0	937.80	930.53	914.17	890.54	860.56	823.30	775.14	724.25	668.82		
210.0	937.80	927.78	910.48	888.63	857.67	819.43	773.91	721.10	664.65		
225.0	937.80	928.66	911.29	887.52	855.53	817.14	772.36	718.43	659.02		
240.0	937.80	927.72	912.15	884.68	855.37	816.91	771.12	716.17	655.72		
255.0	937.80	927.72	908.49	883.76	850.79	812.33	767.45	712.51	653.89		
270.0	937.80	928.62	909.35	885.49	851.54	813.92	766.20	712.06	654.26		
285.0	937.80	927.68	911.13	886.31	853.21	812.76	766.79	718.06	701.51		
300.0	937.80	927.68	912.05	888.15	878.95	814.60	771.38	716.22	658.30		
315.0	937.80	928.59	912.03	889.94	854.97	819.08	773.98	721.52	663.54		
330.0	937.80	929.51	913.84	890.81	860.41	822.64	778.43	729.60	670.64		
345.0	937.80	932.27	916.63	894.54	865.09	827.36	785.94	734.41	675.51		
360.0	937.80	937.80	928.74	911.55	886.20	857.23	815.59	774.86	720.55		
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	660.80	592.91	522.31	447.17	375.66	298.72	221.78	144.83	70.61		
15.0	667.00	601.57	532.51	457.99	381.66	307.15	225.36	152.66	78.15		
30.0	670.11	605.47	534.45	460.70	388.78	311.38	233.99	156.60	83.76		
45.0	674.56	606.92	539.28	466.16	390.29	312.60	239.48	162.70	86.83		
60.0	674.96	609.93	539.42	465.23	391.97	315.04	238.11	163.02	91.58		
75.0	675.87	608.10	542.16	468.90	391.97	314.13	236.28	163.02	87.92		
90.0	671.69	609.29	539.55	469.82	389.07	313.82	235.83	159.66	84.42		
105.0	668.41	606.81	536.01	461.54	385.23	308.00	230.77	158.14	82.75		
120.0	665.65	600.37	533.26	456.03	382.47	305.24	227.09	150.78	77.23		
135.0	662.62	598.20	528.26	452.79	375.49	298.18	220.87	148.17	73.62		
150.0	655.90	589.58	518.64	448.63	366.64	293.87	216.49	140.02	66.33		
165.0	649.74	581.64	513.53	438.07	360.76	283.46	210.75	136.21	61.66		
180.0	604.68	535.88	465.28	385.62	311.39	233.54	157.51	82.37	12.67		
195.0	603.39	532.51	457.99	381.66	304.42	227.18	153.57	75.42	10.90		
210.0	595.46	525.35	451.60	378.76	301.37	223.98	147.50	71.93	6.37		
225.0	593.21	521.91	447.88	372.01	297.97	217.54	144.42	70.38	5.48		
240.0	588.87	517.44	443.26	369.99	293.06	216.13	141.04	65.94	5.49		
255.0	587.95	518.35	444.17	368.16	294.89	213.39	141.04	119.97	5.49		
270.0	589.10	522.12	446.88	425.77	290.88	212.89	141.31	66.07	5.51		
285.0	592.10	518.55	446.83	370.52	294.21	216.98	141.59	67.12	5.52		
300.0	593.94	523.14	448.67	373.28	301.57	219.74	148.02	73.55	9.19		
315.0	600.04	531.94	454.63	381.93	305.54	228.24	152.77	77.31	11.04		
330.0	606.16	536.15	463.37	387.83	310.45	233.07	156.61	86.59	17.50		
345.0	611.09	541.14	467.52	391.13	318.43	242.04	166.58	92.03	22.09		
360.0	660.80	592.91	522.31	447.17	375.66	298.72	221.78	144.83	70.61		

Light Blue USA-Rayhil INV-20-CCT-UNV-\*\*-3500K-F

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	6.34	0.91	0.91	0.91	0.91	0.91	0.91	0.91	1.81		
15.0	9.09	0.91	0.91	0.91	0.91	0.91	0.91	0.91	1.82		
30.0	10.93	0.91	0.91	0.91	0.91	3.64	0.91	1.82	1.82		
45.0	15.54	0.91	0.91	0.91	0.91	0.91	0.91	1.83	1.83		
60.0	15.57	0.92	0.92	0.92	0.92	0.92	0.92	1.83	1.83		
75.0	16.48	0.92	0.92	0.92	0.92	1.83	0.92	0.92	1.83		
90.0	14.68	0.92	0.92	0.92	0.92	0.92	0.92	1.84	1.84		
105.0	12.87	0.92	0.92	0.92	0.92	0.92	0.92	0.92	1.84		
120.0	9.19	0.92	0.92	0.92	0.92	0.92	0.92	1.84	1.84		
135.0	6.44	0.92	0.92	0.92	0.92	0.92	0.92	0.92	1.84		
150.0	4.61	0.92	0.92	0.92	0.92	0.92	0.92	0.92	1.84		
165.0	3.68	0.92	0.92	0.92	0.92	0.92	0.92	0.92	1.84		
180.0	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81		
195.0	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82		
210.0	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82		
225.0	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83		
240.0	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83		
255.0	1.83	1.83	1.83	1.83	3.66	1.83	1.83	1.83	1.83		
270.0	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84		
285.0	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84		
300.0	1.84	1.84	1.84	1.84	3.68	1.84	1.84	1.84	1.84		
315.0	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84		
330.0	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84		
345.0	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84		
360.0	6.34	0.91	0.91	0.91	0.91	0.91	0.91	0.91	1.81		
C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0		
0.0	1.81	1.81	3.62	4.53	4.53	5.43	5.43	5.43	6.34		
15.0	1.82	1.82	3.63	4.54	4.54	5.45	5.45	5.45	6.36		
30.0	1.82	3.64	3.64	4.55	5.46	5.46	5.46	5.46	6.37		
45.0	1.83	1.83	3.66	4.57	5.48	5.48	5.48	5.48	6.40		
60.0	1.83	1.83	3.66	4.58	4.58	5.49	5.49	5.49	6.41		
75.0	1.83	1.83	3.66	4.58	4.58	5.49	5.49	5.49	6.41		
90.0	1.84	1.84	3.67	3.67	4.59	5.51	5.51	5.51	5.51		
105.0	1.84	3.68	3.68	4.60	4.60	5.52	5.52	5.52	6.44		
120.0	1.84	1.84	3.68	4.60	4.60	5.52	5.52	5.52	6.44		
135.0	1.84	1.84	3.68	3.68	4.60	5.52	5.52	5.52	6.44		
150.0	1.84	1.84	3.68	4.61	4.61	5.53	5.53	5.53	6.45		
165.0	1.84	1.84	3.68	4.60	4.60	5.52	5.52	5.52	6.44		
180.0	1.81	1.81	1.81	3.62	3.62	4.53	4.53	5.43	5.43		
195.0	1.82	1.82	1.82	3.63	3.63	3.63	4.54	5.45	5.45		
210.0	1.82	1.82	1.82	3.64	3.64	4.55	4.55	5.46	5.46		
225.0	1.83	1.83	1.83	3.66	3.66	4.57	4.57	5.48	5.48		
240.0	1.83	1.83	1.83	3.66	3.66	4.58	4.58	5.49	5.49		
255.0	1.83	1.83	1.83	3.66	3.66	4.58	4.58	5.49	5.49		
270.0	1.84	1.84	1.84	3.67	3.67	4.59	4.59	5.51	6.42		
285.0	1.84	1.84	1.84	3.68	3.68	4.60	4.60	5.52	5.52		
300.0	1.84	1.84	1.84	3.68	3.68	4.60	4.60	5.52	5.52		
315.0	1.84	1.84	1.84	3.68	3.68	4.60	4.60	4.60	5.52		
330.0	1.84	1.84	1.84	3.68	3.68	4.61	4.61	5.53	5.53		
345.0	1.84	1.84	1.84	3.68	3.68	4.60	4.60	4.60	5.52		
360.0	1.81	1.81	3.62	4.53	4.53	5.43	5.43	5.43	6.34		

Intensity data(cd)

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C/γ(°)	180.0
0.0	6.34
15.0	6.36
30.0	6.37
45.0	6.40
60.0	6.41
75.0	6.41
90.0	6.42
105.0	6.44
120.0	6.44
135.0	6.44
150.0	6.45
165.0	6.44
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	6.34