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Light Blue USA-Rayhil

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Client:

LumCAT: INV-12-CCT-UNV-\*\*-3000K-F

Luminaire: LED lamp

Report No:

Ballast type:

Test No:

Voltage(V): 120.020

LampCAT:

Current(A): 0.161

Lamp flux(lm): 1487.7

Power (W): 17.970

Number of Lamps: 1

PF: 0.931

Length(mm): -270

Width(mm): -270

Phm Type: C

Height(mm): 0

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Photometric Results

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Lumens(lm): 1487.72, Efficiency(%): 100.00% , Luminous Efficacy(lm/W): 82.79

Central intensity(cd): 539.639, Maximum intensity(cd): 539.639

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

Beam Angle(50%Imax): [C0/180]Total=109.2

[C90/270]Total=109.4

Field angle(10%Imax): [C0/180]Total=158.4

[C90/270]Total=158.6

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

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

Up flux rate of lamp(%): 0.23%

Down flux rate of lamp(%): 99.77%

Up flux rate of LUM(%): 0.23%

Down flux rate of LUM(%): 99.77%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 80.170%

Light Blue USA-Rayhil INV-12-CCT-UNV-\*\*-3000K-F

Zonal flux distribution table

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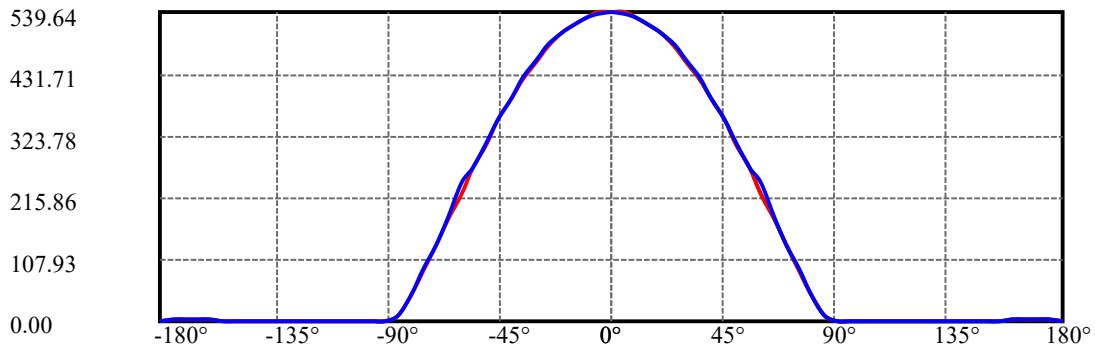
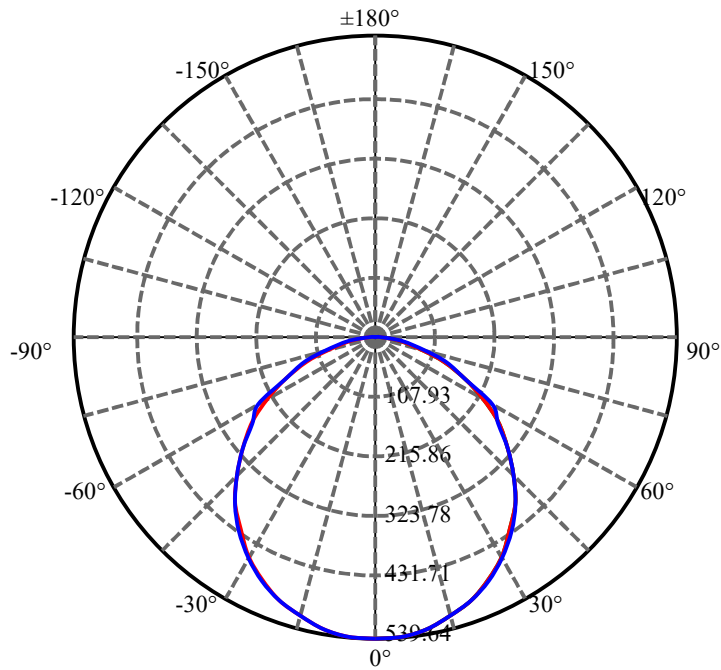
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	539.639	0.000	0	0.00%	0.00%
5.0	537.262	12.874	12.874	0.87%	0.87%
10.0	530.055	38.181	51.055	2.57%	3.43%
15.0	517.713	62.153	113.208	4.18%	7.61%
20.0	501.305	83.981	197.19	5.64%	13.25%
25.0	479.840	102.904	300.094	6.92%	20.17%
30.0	454.158	118.198	418.292	7.94%	28.12%
35.0	423.724	129.274	547.566	8.69%	36.81%
40.0	390.069	135.775	683.342	9.13%	45.93%
45.0	350.700	137.159	820.501	9.22%	55.15%
50.0	309.570	133.417	953.918	8.97%	64.12%
55.0	266.791	125.320	1079.238	8.42%	72.54%
60.0	224.091	113.466	1192.704	7.63%	80.17%
65.0	177.899	97.725	1290.429	6.57%	86.74%
70.0	133.511	78.851	1369.28	5.30%	92.04%
75.0	89.928	58.403	1427.683	3.93%	95.96%
80.0	49.372	37.273	1464.956	2.51%	98.47%
85.0	10.813	16.354	1481.31	1.10%	99.57%
90.0	0.191	3.013	1484.323	0.20%	99.77%
95.0	0.307	0.136	1484.459	0.01%	99.78%
100.0	0.384	0.188	1484.647	0.01%	99.79%
105.0	0.460	0.226	1484.872	0.02%	99.81%
110.0	0.460	0.240	1485.113	0.02%	99.82%
115.0	0.383	0.213	1485.326	0.01%	99.84%
120.0	0.383	0.186	1485.513	0.01%	99.85%
125.0	0.191	0.133	1485.645	0.01%	99.86%
130.0	0.153	0.075	1485.72	0.01%	99.87%
135.0	0.000	0.031	1485.751	0.00%	99.87%
140.0	0.460	0.085	1485.836	0.01%	99.87%
145.0	0.537	0.166	1486.002	0.01%	99.88%
150.0	1.227	0.260	1486.262	0.02%	99.90%
155.0	1.380	0.330	1486.592	0.02%	99.92%
160.0	1.610	0.314	1486.905	0.02%	99.95%
165.0	2.300	0.322	1487.228	0.02%	99.97%
170.0	2.300	0.273	1487.5	0.02%	99.99%
175.0	2.491	0.171	1487.672	0.01%	100.00%
180.0	1.380	0.046	1487.718	0.00%	100.00%

## ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	418.29	28.12%	28.12%
0-40	683.34	45.93%	45.93%
0-60	1192.70	80.17%	80.17%
0-90	1484.32	99.77%	99.77%
0-120	1485.51	99.85%	99.85%
0-180	1487.72	100.00%	100.00%
60-90	291.62	19.60%	19.60%
90-120	1.19	0.08%	0.08%
90-130	1.40	0.09%	0.09%
90-150	1.94	0.13%	0.13%
90-180	3.35	0.23%	0.23%
0-59.89	1190.18	80.00%	80.00%

## ZONAL LUMEN SUMMARY

0-10	51.06
10-20	146.13
20-30	221.10
30-40	265.05
40-50	270.58
50-60	238.79
60-70	176.58
70-80	95.68
80-90	19.37
90-100	0.32
100-110	0.47
110-120	0.40
120-130	0.21
130-140	0.12
140-150	0.43
150-160	0.64
160-170	0.60
170-180	0.17



C0(Max):

C0/C180:

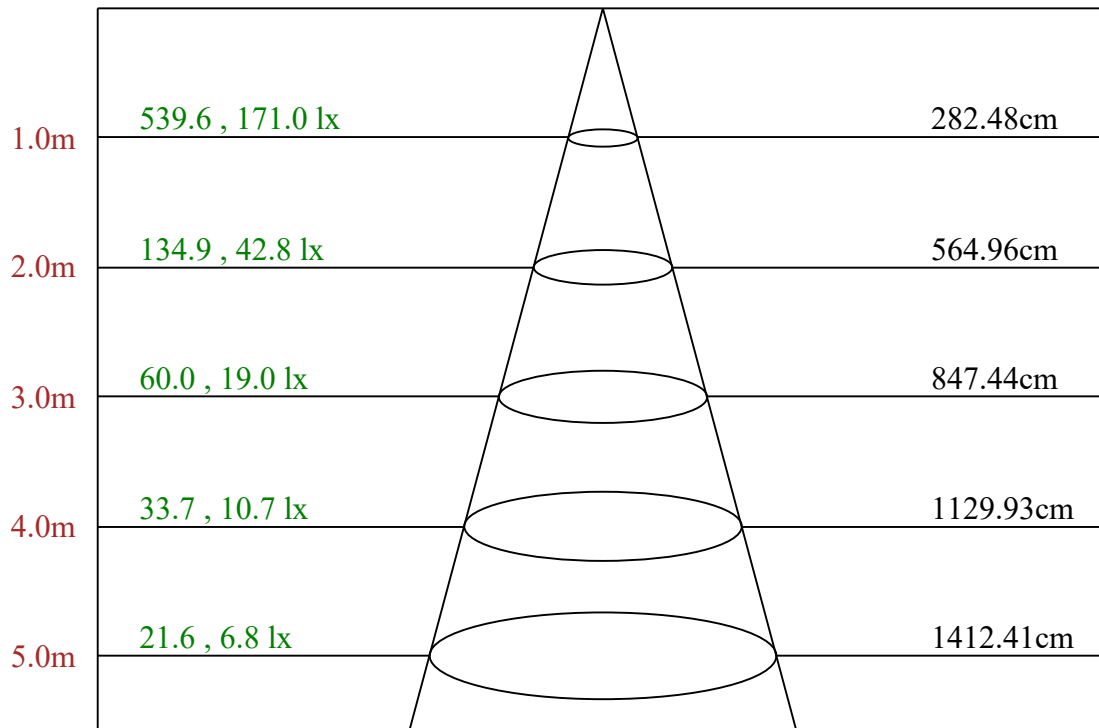
C90/C270:

Field angle(10%Imax):C0/180Left:79.2 Right:79.2

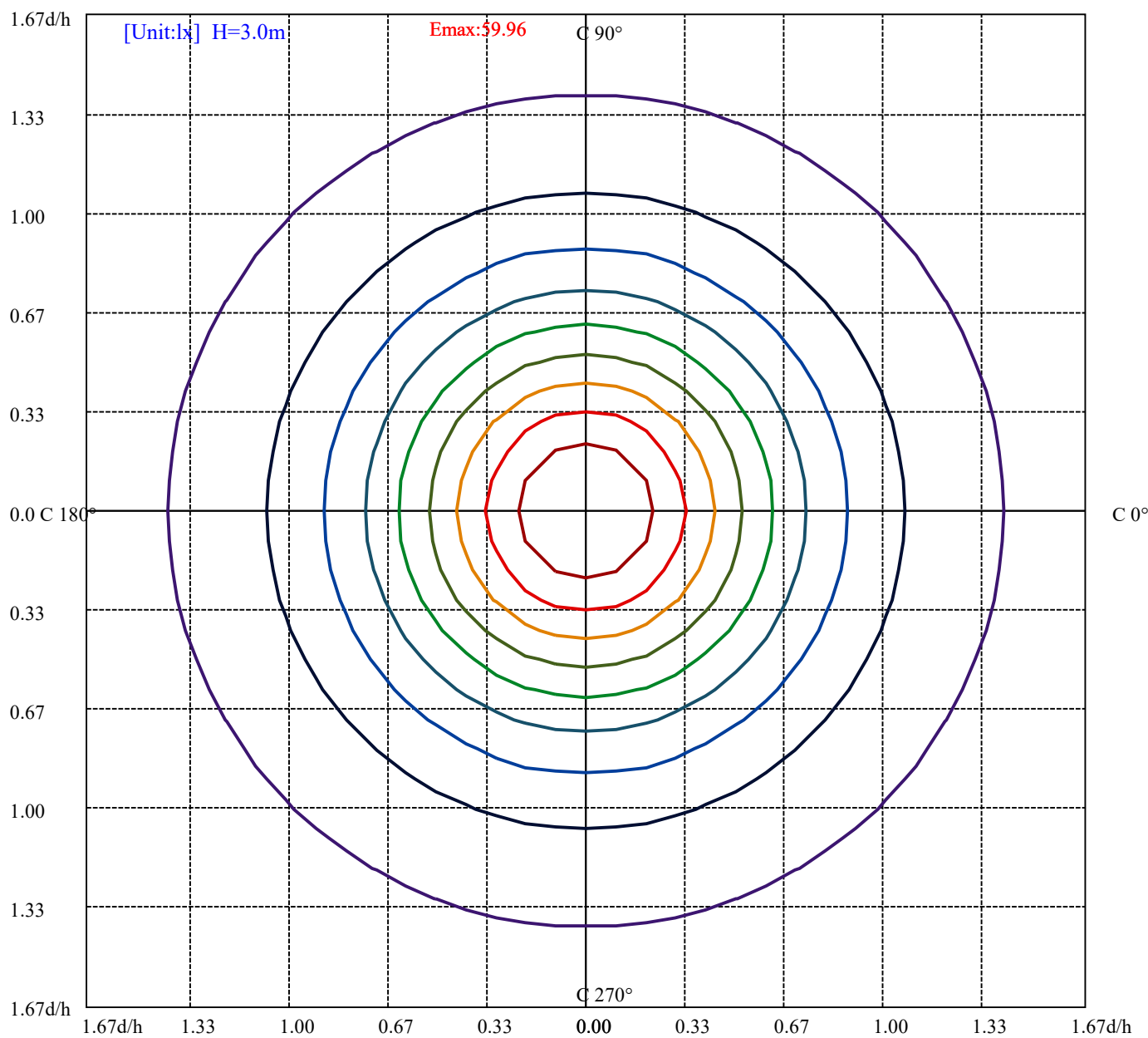
:C90/270Left:79.3 Right:79.3

Beam Angle(50%Imax):C0/180Left:54.6 Right:54.6

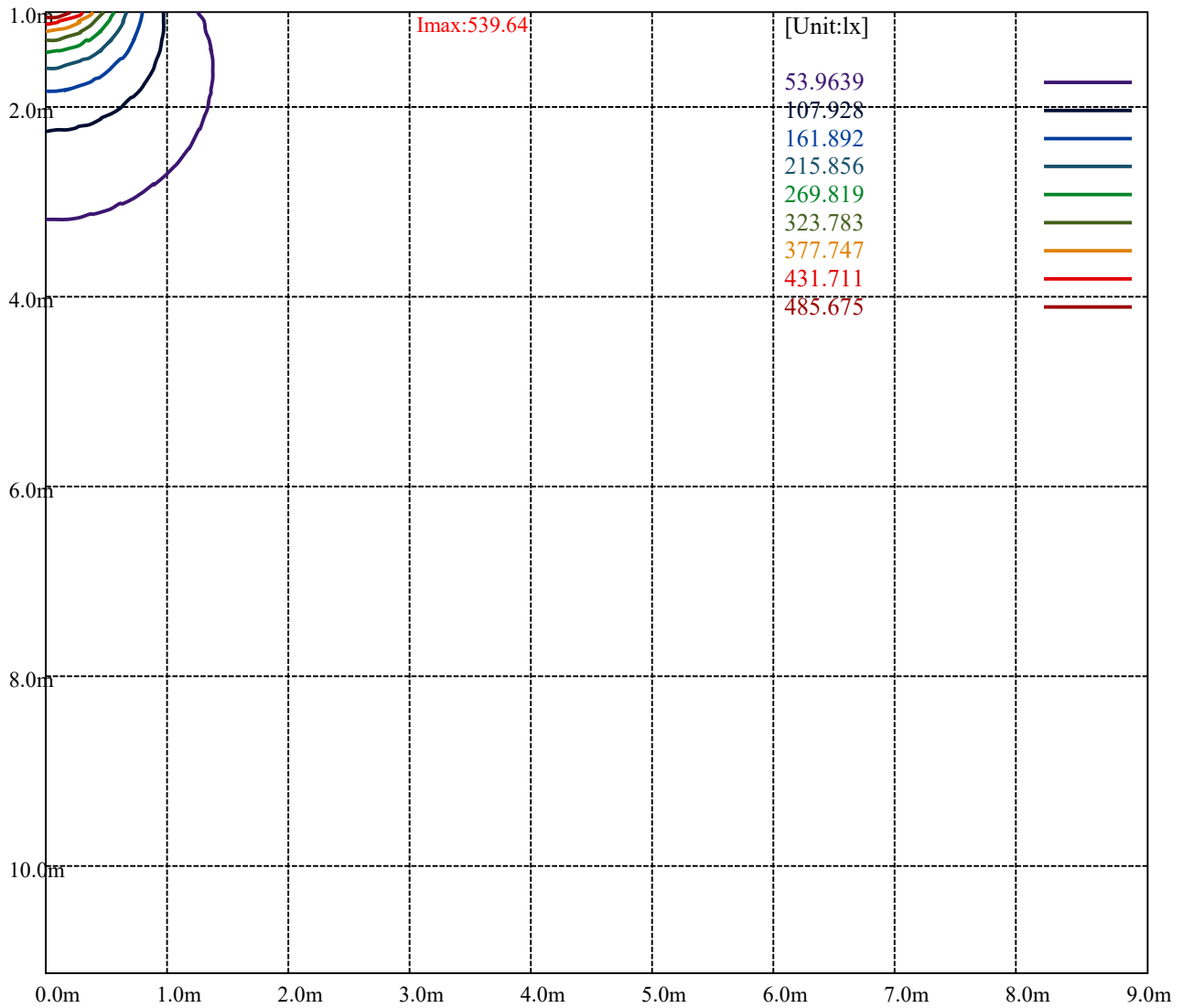
:C90/270Left:54.7 Right:54.7



Max , Ave      Beam angle of C0 plane 109.40



(10%Emax) 5.995989	—
(20%Emax) 11.992	—
(30%Emax) 17.988	—
(40%Emax) 23.98389	—
(50%Emax) 29.97989	—
(60%Emax) 35.97589	—
(70%Emax) 41.97189	—
(80%Emax) 47.96789	—
(90%Emax) 53.96389	—



# Light Blue USA-Rayhil INV-12-CCT-UNV-\*\*-3000K-F

## Luminance Limiting Curve(no luminous side)

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Luminance Table

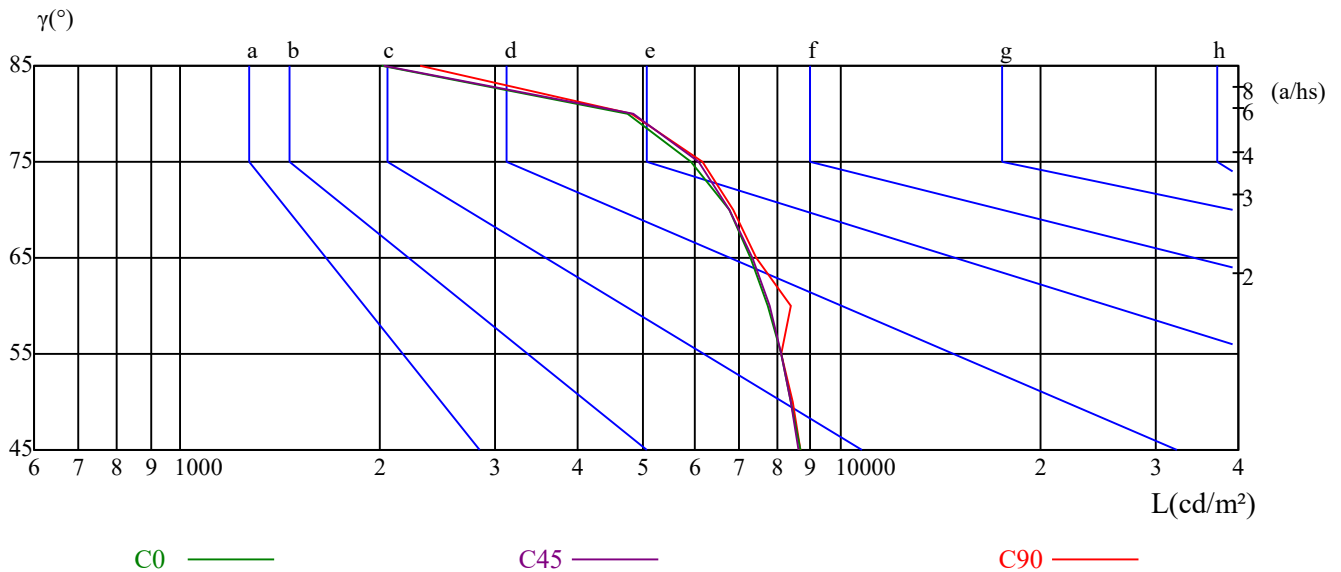
$\gamma$	45	50	55	60	65	70	75	80	85
C0	8675	8388	8119	7764	7295	6773	5925	4738	2016
C45	8653	8406	8125	7786	7329	6789	6085	4858	2029
C90	8689	8445	8146	8428	7440	6889	6183	4816	2307

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
7295	7440	7329	5925	6183	6085	2016	2307	2029

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	1.00
1	1.04	1.00	0.96	1.02	0.98	0.95	0.98	0.95	0.92	0.94	0.91	0.89	0.90	0.88	0.86	0.84
2	0.91	0.84	0.79	0.89	0.83	0.78	0.86	0.80	0.76	0.82	0.78	0.74	0.79	0.76	0.73	0.70
3	0.80	0.72	0.66	0.79	0.71	0.65	0.76	0.69	0.64	0.73	0.67	0.63	0.70	0.66	0.62	0.59
4	0.71	0.62	0.56	0.70	0.62	0.55	0.67	0.60	0.54	0.65	0.59	0.54	0.63	0.57	0.53	0.51
5	0.63	0.55	0.48	0.62	0.54	0.48	0.60	0.53	0.47	0.58	0.52	0.47	0.56	0.51	0.46	0.44
6	0.57	0.48	0.42	0.56	0.48	0.42	0.54	0.47	0.41	0.53	0.46	0.41	0.51	0.45	0.41	0.38
7	0.52	0.43	0.37	0.51	0.43	0.37	0.49	0.42	0.37	0.48	0.41	0.36	0.47	0.41	0.36	0.34
8	0.47	0.39	0.33	0.47	0.39	0.33	0.45	0.38	0.33	0.44	0.37	0.32	0.43	0.37	0.32	0.30
9	0.43	0.35	0.30	0.43	0.35	0.30	0.42	0.35	0.29	0.41	0.34	0.29	0.40	0.34	0.29	0.27
10	0.40	0.32	0.27	0.40	0.32	0.27	0.39	0.32	0.27	0.38	0.31	0.27	0.37	0.31	0.26	0.25

Light Blue USA-Rayhil INV-12-CCT-UNV-\*\*-3000K-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	539.64	538.72	532.32	519.52	504.88	482.93	457.32	426.22	392.38		
15.0	539.64	536.89	531.41	519.52	502.14	481.10	455.49	425.31	391.47		
30.0	539.64	538.72	531.38	519.45	503.85	481.82	457.96	426.76	391.88		
45.0	539.64	536.89	530.46	519.45	503.85	482.74	457.04	427.67	392.80		
60.0	539.64	538.72	532.28	520.33	504.70	483.56	458.74	429.32	394.39		
75.0	539.64	537.80	531.36	520.33	505.62	484.48	457.82	428.40	397.14		
90.0	539.64	537.80	532.27	520.30	505.57	485.31	460.44	430.97	396.90		
105.0	539.64	538.72	533.18	523.03	506.43	487.06	462.15	434.48	398.50		
120.0	539.64	538.72	533.18	522.11	506.43	487.06	464.00	434.48	398.50		
135.0	539.64	538.72	533.18	523.96	507.35	487.06	463.07	433.56	402.19		
150.0	539.64	539.64	534.09	523.93	494.36	487.89	464.79	436.15	402.88		
165.0	539.64	539.64	534.09	523.93	510.99	488.82	464.79	437.07	401.03		
180.0	539.64	537.81	529.58	515.86	498.48	475.61	449.09	416.16	383.24		
195.0	539.64	535.98	527.75	514.94	497.57	476.53	450.00	418.91	384.15		
210.0	539.64	536.89	529.54	515.78	499.26	479.07	452.45	421.25	386.37		
225.0	539.64	536.89	528.63	515.78	499.26	478.15	452.45	421.25	385.46		
240.0	539.64	536.88	528.61	515.74	500.11	477.13	452.30	421.05	387.03		
255.0	539.64	535.96	528.61	514.82	499.19	477.13	451.38	420.13	387.03		
270.0	539.64	535.96	527.67	514.77	498.20	477.02	449.39	419.92	384.01		
285.0	539.64	536.87	527.65	514.73	497.21	475.99	450.16	416.95	408.65		
300.0	539.64	535.03	526.72	513.81	509.20	472.30	445.55	415.11	377.29		
315.0	539.64	535.03	525.80	511.04	493.52	470.45	442.78	410.49	375.44		
330.0	539.64	535.02	525.78	511.92	491.59	469.41	440.77	410.27	372.39		
345.0	539.64	535.02	525.78	510.07	491.59	467.56	439.84	407.50	370.54		
360.0	539.64	538.72	532.32	519.52	504.88	482.93	457.32	426.22	392.38		
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	357.63	314.64	274.39	228.66	183.84	139.03	95.12	53.05	15.55		
15.0	353.97	313.72	271.65	226.83	182.01	139.03	95.12	53.05	13.72		
30.0	353.33	312.04	271.65	226.69	182.63	138.58	94.53	51.39	14.68		
45.0	353.33	313.87	271.65	227.60	182.63	137.66	95.45	53.23	13.77		
60.0	356.69	316.24	274.88	228.91	185.70	140.66	96.53	53.32	15.63		
75.0	359.45	318.08	275.79	231.67	186.62	140.66	99.29	56.08	16.55		
90.0	359.15	318.63	276.27	233.90	188.78	143.66	99.46	56.17	18.42		
105.0	361.60	321.02	277.66	233.38	189.10	143.90	102.39	59.04	19.37		
120.0	362.53	321.94	279.51	237.07	191.87	147.59	102.39	59.96	20.29		
135.0	363.45	325.63	283.20	237.99	192.79	147.59	106.08	62.73	21.22		
150.0	365.92	326.19	283.68	241.17	194.05	150.62	106.26	63.76	24.03		
165.0	366.84	328.03	285.53	241.17	196.82	151.54	109.96	66.53	25.87		
180.0	344.82	302.75	258.84	215.86	169.21	126.22	80.49	41.16	4.57		
195.0	343.91	304.58	260.67	215.86	171.04	126.22	83.23	41.16	5.49		
210.0	345.99	303.78	259.72	215.67	170.70	128.49	82.60	43.13	5.51		
225.0	347.83	303.78	262.48	218.43	173.46	128.49	84.43	44.05	4.59		
240.0	348.42	306.13	262.01	217.88	175.59	130.54	85.50	43.21	4.60		
255.0	345.66	306.13	262.01	217.88	172.83	127.78	83.66	74.46	4.60		
270.0	344.41	302.97	258.77	248.64	171.28	126.16	83.80	39.60	4.60		
285.0	341.31	298.88	255.52	211.24	168.81	124.53	80.25	39.67	2.77		
300.0	339.47	297.03	253.68	209.40	165.12	119.92	76.56	35.98	0.92		
315.0	336.70	294.26	249.99	207.55	160.51	118.07	74.72	33.21	0.92		
330.0	333.58	292.00	247.64	203.29	158.01	114.58	71.15	32.34	0.92		
345.0	330.81	287.38	245.79	201.44	156.16	112.73	69.30	28.65	0.92		
360.0	357.63	314.64	274.39	228.66	183.84	139.03	95.12	53.05	15.55		

Light Blue USA-Rayhil INV-12-CCT-UNV-\*\*-3000K-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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105.0	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.92	0.00	0.00
180.0	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
195.0	0.91	0.00	0.00	0.91	0.91	0.91	0.91	0.91	0.91
210.0	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
225.0	0.00	0.00	0.92	0.92	0.92	0.92	0.92	0.92	0.92
240.0	0.00	0.00	0.00	0.92	0.92	0.92	0.92	0.92	0.00
255.0	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.00	0.00
270.0	0.92	0.92	0.92	0.92	0.92	0.92	0.00	0.00	0.00
285.0	0.00	0.92	0.92	0.92	0.92	0.00	0.00	0.00	0.00
300.0	0.00	0.92	0.92	0.92	0.92	0.00	0.00	0.00	0.00
315.0	0.00	0.92	0.92	0.92	0.92	0.92	0.92	0.00	0.00
330.0	0.00	0.00	0.92	0.92	0.92	0.92	0.92	0.00	0.00
345.0	0.00	0.92	0.92	0.92	0.92	0.92	0.92	0.00	0.00
360.0	0.00	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	0.91	0.91	0.91	1.83	1.83	2.74	2.74	2.74
15.0	0.00	0.91	0.91	1.83	1.83	1.83	2.74	2.74	2.74
30.0	0.00	0.92	0.92	1.84	1.84	1.84	2.75	2.75	2.75
45.0	0.00	0.92	0.92	1.84	1.84	1.84	2.75	2.75	2.75
60.0	0.00	0.92	0.92	0.92	1.84	1.84	2.76	2.76	2.76
75.0	0.00	0.92	0.92	0.92	1.84	1.84	2.76	2.76	2.76
90.0	0.00	0.92	0.92	1.84	1.84	1.84	2.76	2.76	2.76
105.0	0.00	0.92	0.92	1.84	1.84	1.84	2.77	2.77	2.77
120.0	0.00	0.92	0.92	1.84	1.84	1.84	2.77	2.77	2.77
135.0	0.00	0.92	0.92	1.84	1.84	1.84	2.77	2.77	2.77
150.0	0.00	0.92	0.92	1.85	1.85	1.85	2.77	2.77	2.77
165.0	0.00	0.92	0.92	0.92	1.85	1.85	2.77	2.77	2.77
180.0	0.00	0.00	0.00	0.91	0.91	1.83	1.83	1.83	2.74
195.0	0.00	0.00	0.91	0.91	0.91	0.91	1.83	1.83	2.74
210.0	0.00	0.00	0.00	0.92	0.92	1.84	1.84	1.84	2.75
225.0	0.00	0.00	0.00	0.92	0.92	1.84	1.84	1.84	2.75
240.0	0.00	0.00	0.00	0.92	0.92	1.84	1.84	1.84	1.84
255.0	0.00	0.00	0.00	0.92	0.92	1.84	1.84	1.84	1.84
270.0	0.00	0.00	0.00	0.92	0.92	1.84	1.84	1.84	1.84
285.0	0.00	0.00	0.00	0.92	0.92	0.92	1.84	1.84	1.84
300.0	0.00	0.00	0.00	0.92	0.92	0.92	1.84	1.84	2.77
315.0	0.00	0.00	0.92	0.92	0.92	0.92	1.84	1.84	1.84
330.0	0.00	0.00	0.00	0.92	0.92	0.92	1.85	1.85	1.85
345.0	0.00	0.00	0.00	0.92	0.92	0.92	1.85	1.85	1.85
360.0	0.00	0.91	0.91	0.91	1.83	1.83	2.74	2.74	2.74

Intensity data(cd)

C/γ(°)	180.0
0.0	2.74
15.0	2.74
30.0	2.75
45.0	2.75
60.0	2.76
75.0	2.76
90.0	2.76
105.0	2.77
120.0	2.77
135.0	2.77
150.0	2.77
165.0	2.77
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	2.74