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Light Blue USA-Rayhil

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Client:

LumCAT: INV-9-CCT-120-\*\*-3000K

Luminaire: LED lamp

Report No:

Ballast type:

Test No:

Voltage(V): 120.040

LampCAT:

Current(A): 0.128

Lamp flux(lm): 736.4

Power (W): 14.580

Number of Lamps: 1

PF: 0.949

Length(mm): -210

Width(mm): -210

Phm Type: C

Height(mm): 0

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Photometric Results

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Lumens(lm): 736.39, Efficiency(%): 100.00% , Luminous Efficacy(lm/W): 50.51

Central intensity(cd): 264.018, Maximum intensity(cd): 264.018

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

Beam Angle(50%Imax): [C0/180]Total=110.2

[C90/270]Total=110.0

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

[C90/270]Total=158.2

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

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

Up flux rate of lamp(%): 0.83%

Down flux rate of lamp(%): 99.17%

Up flux rate of LUM(%): 0.83%

Down flux rate of LUM(%): 99.17%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 79.696%

Light Blue USA-Rayhil INV-9-CCT-120-\*\*-3000K

Zonal flux distribution table

Appendix Page: 2 Total:12

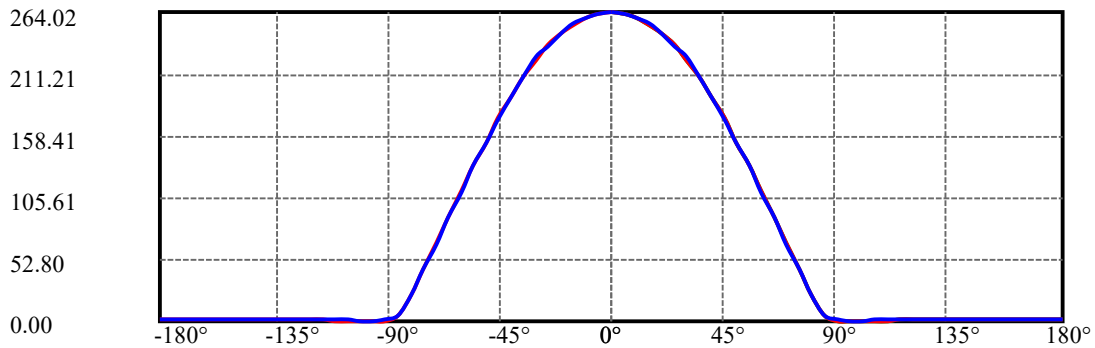
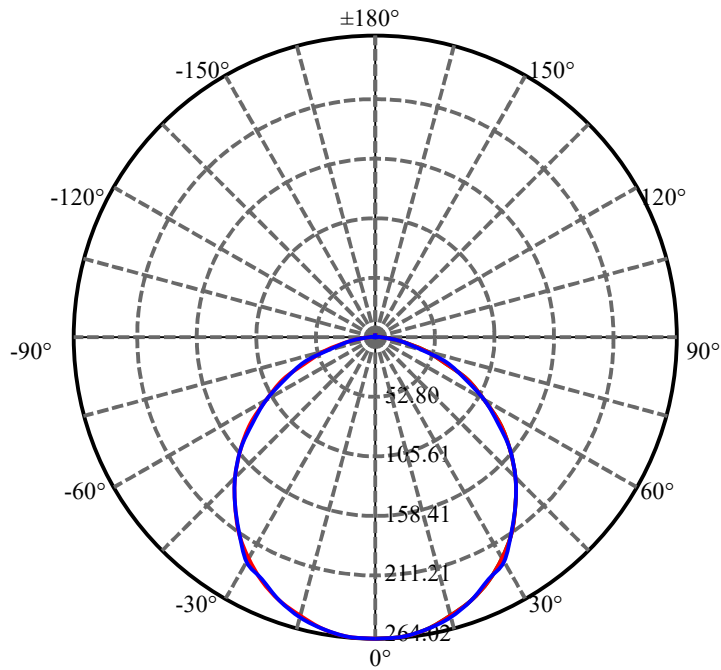
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	264.018	0.000	0	0.00%	0.00%
5.0	263.026	6.301	6.301	0.86%	0.86%
10.0	259.325	18.686	24.987	2.54%	3.39%
15.0	253.564	30.424	55.411	4.13%	7.52%
20.0	245.361	41.118	96.529	5.58%	13.11%
25.0	235.250	50.407	146.937	6.85%	19.95%
30.0	222.736	57.959	204.895	7.87%	27.82%
35.0	208.581	63.514	268.41	8.63%	36.45%
40.0	192.023	66.838	335.247	9.08%	45.53%
45.0	173.366	67.655	402.902	9.19%	54.71%
50.0	152.649	65.876	468.778	8.95%	63.66%
55.0	132.428	61.985	530.764	8.42%	72.08%
60.0	110.300	56.106	586.87	7.62%	79.70%
65.0	88.285	48.276	635.146	6.56%	86.25%
70.0	65.584	38.961	674.107	5.29%	91.54%
75.0	43.875	28.611	702.718	3.89%	95.43%
80.0	23.503	18.028	720.746	2.45%	97.88%
85.0	5.341	7.838	728.584	1.06%	98.94%
90.0	0.763	1.671	730.255	0.23%	99.17%
95.0	0.381	0.313	730.569	0.04%	99.21%
100.0	0.267	0.176	730.745	0.02%	99.23%
105.0	0.420	0.184	730.929	0.02%	99.26%
110.0	0.458	0.229	731.158	0.03%	99.29%
115.0	0.687	0.290	731.448	0.04%	99.33%
120.0	0.916	0.390	731.837	0.05%	99.38%
125.0	0.916	0.423	732.261	0.06%	99.44%
130.0	1.030	0.423	732.684	0.06%	99.50%
135.0	1.183	0.447	733.131	0.06%	99.56%
140.0	1.374	0.473	733.604	0.06%	99.62%
145.0	1.755	0.522	734.127	0.07%	99.69%
150.0	1.908	0.540	734.666	0.07%	99.77%
155.0	2.251	0.526	735.192	0.07%	99.84%
160.0	2.213	0.468	735.661	0.06%	99.90%
165.0	2.060	0.352	736.013	0.05%	99.95%
170.0	1.793	0.229	736.241	0.03%	99.98%
175.0	1.526	0.119	736.36	0.02%	100.00%
180.0	0.916	0.029	736.389	0.00%	100.00%

## ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	204.90	27.82%	27.82%
0-40	335.25	45.53%	45.53%
0-60	586.87	79.70%	79.70%
0-90	730.26	99.17%	99.17%
0-120	731.84	99.38%	99.38%
0-180	736.39	100.00%	100.00%
60-90	143.39	19.47%	19.47%
90-120	1.58	0.21%	0.21%
90-130	2.43	0.33%	0.33%
90-150	4.41	0.60%	0.60%
90-180	6.10	0.83%	0.83%
0-60.23	589.11	80.00%	80.00%

## ZONAL LUMEN SUMMARY

0-10	24.99
10-20	71.54
20-30	108.37
30-40	130.35
40-50	133.53
50-60	118.09
60-70	87.24
70-80	46.64
80-90	9.51
90-100	0.49
100-110	0.41
110-120	0.68
120-130	0.85
130-140	0.92
140-150	1.06
150-160	0.99
160-170	0.58
170-180	0.12



C0(Max): —————

C0/C180: —————

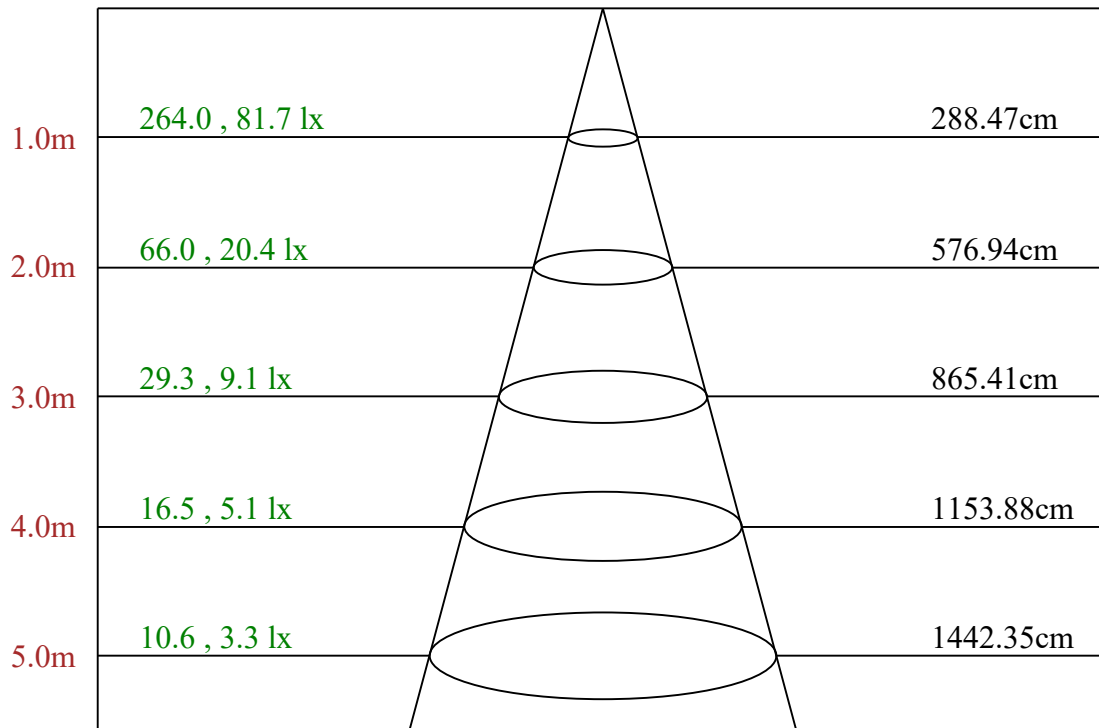
C90/C270: —————

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

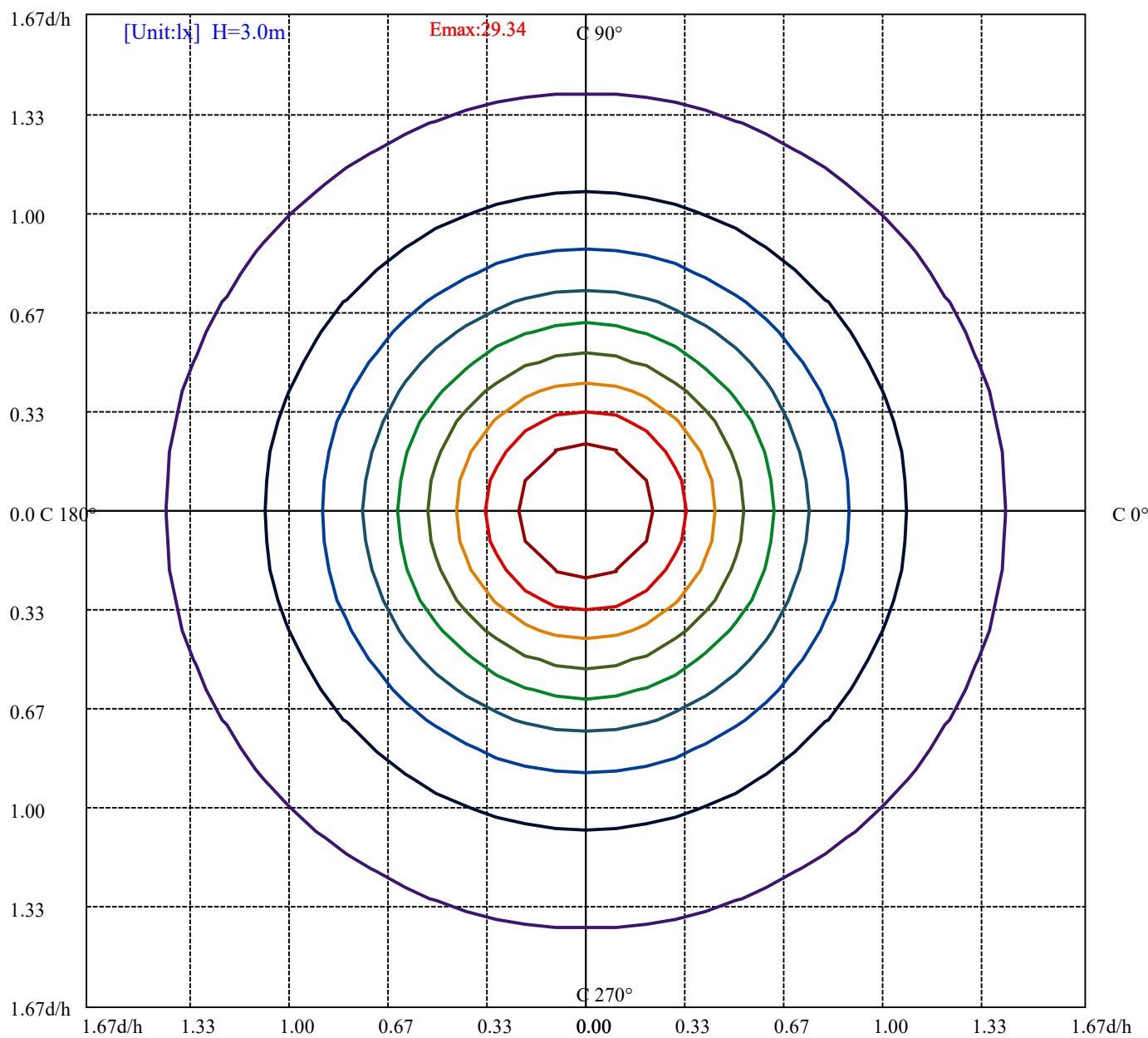
:C90/270Left:79.1 Right:79.1

Beam Angle(50%Imax):C0/180Left:55.1 Right:55.1

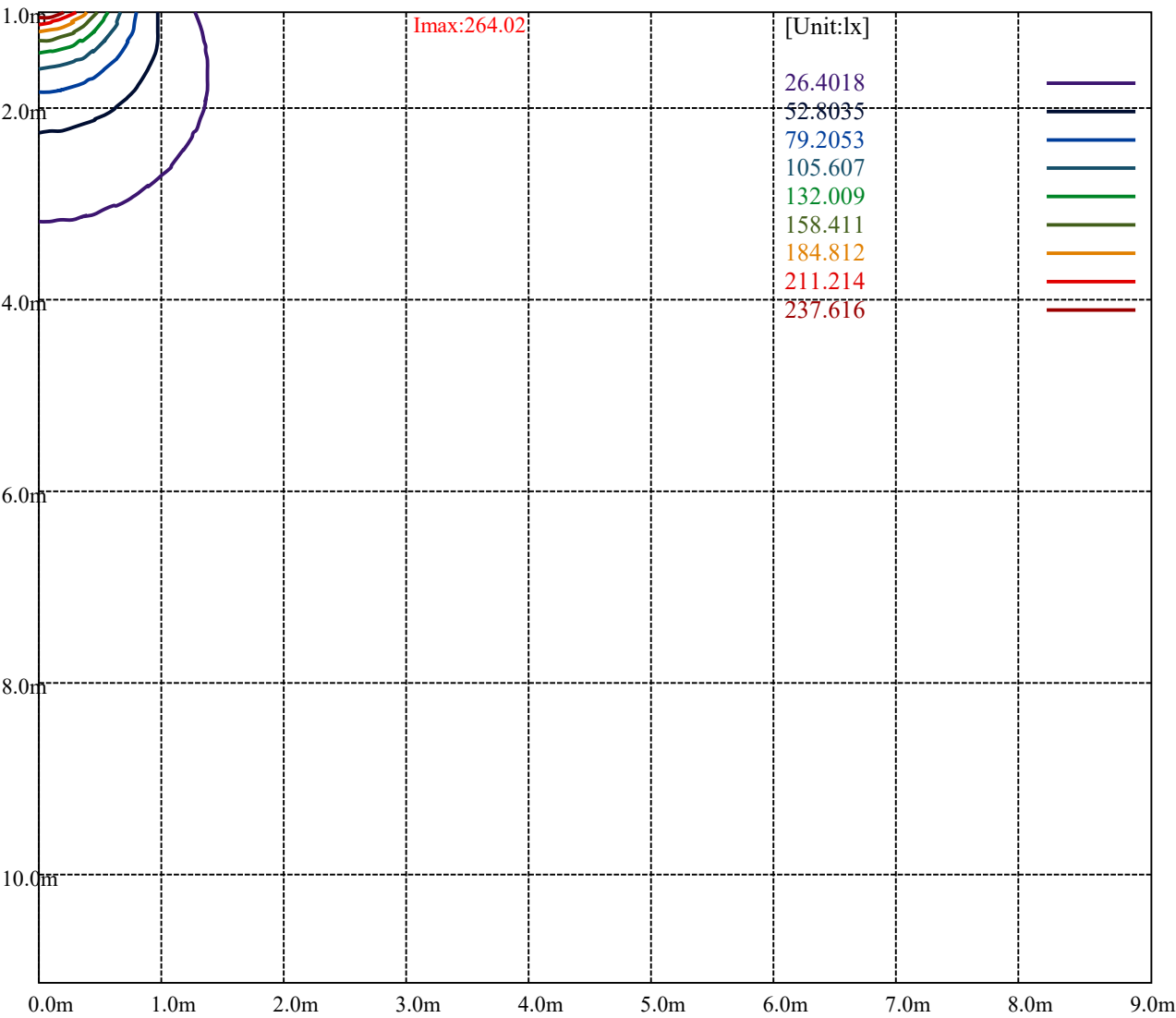
:C90/270Left:55.0 Right:55.0



Max , Ave      Beam angle of C0 plane 110.53



(10%Emax) 2.933533	—
(20%Emax) 5.867056	—
(30%Emax) 8.800589	—
(40%Emax) 11.73411	—
(50%Emax) 14.66767	—
(60%Emax) 17.60122	—
(70%Emax) 20.53467	—
(80%Emax) 23.46822	—
(90%Emax) 26.40178	—



Luminance Table

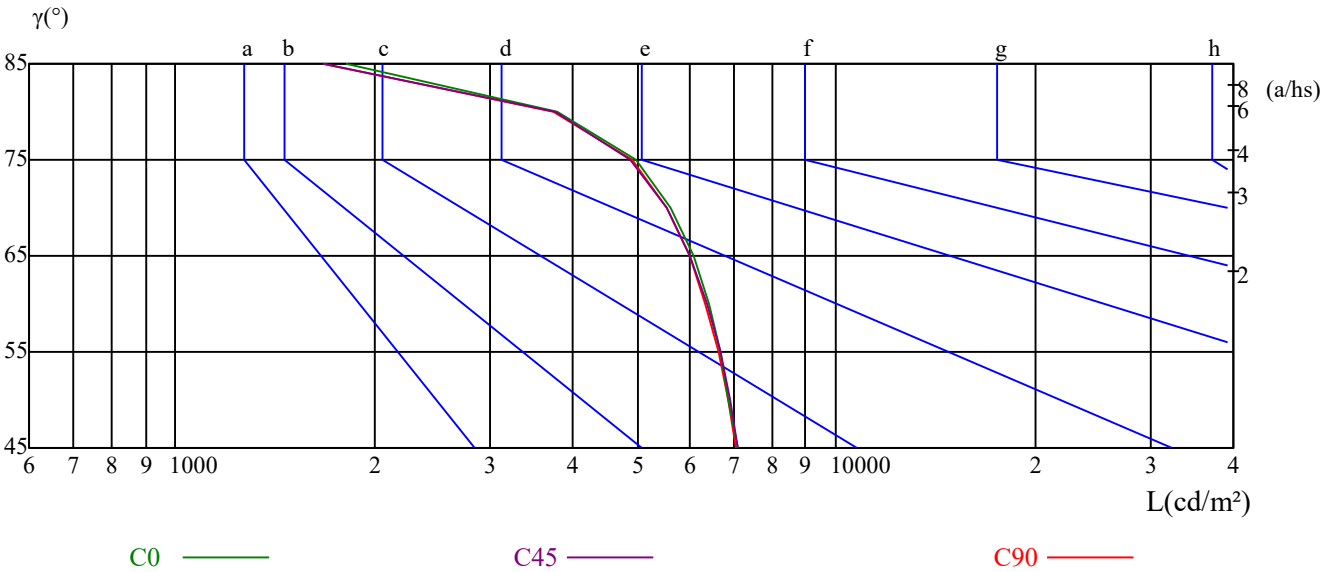
$\gamma$	45	50	55	60	65	70	75	80	85
C0	7081	6870	6668	6414	6095	5610	4976	3784	1810
C45	7093	6907	6668	6365	6012	5552	4883	3772	1670
C90	7056	6856	6645	6352	6012	5533	4909	3734	1670

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
6095	6012	6012	4976	4909	4883	1810	1670	1670

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





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	COEFFCIENTS 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	1.01	1.01	1.01	0.99
1	1.04	1.00	0.96	1.02	0.98	0.95	0.97	0.94	0.92	0.93	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	0.85	0.80	0.76	0.82	0.78	0.74	0.79	0.75	0.72	0.70
3	0.80	0.72	0.66	0.78	0.71	0.65	0.75	0.69	0.64	0.72	0.67	0.62	0.70	0.65	0.61	0.59
4	0.71	0.62	0.56	0.70	0.61	0.55	0.67	0.60	0.54	0.64	0.58	0.53	0.62	0.57	0.53	0.50
5	0.63	0.54	0.48	0.62	0.54	0.48	0.60	0.53	0.47	0.58	0.51	0.46	0.56	0.50	0.46	0.44
6	0.57	0.48	0.42	0.56	0.48	0.42	0.54	0.47	0.41	0.52	0.46	0.41	0.51	0.45	0.40	0.38
7	0.52	0.43	0.37	0.51	0.43	0.37	0.49	0.42	0.36	0.48	0.41	0.36	0.46	0.40	0.36	0.34
8	0.47	0.39	0.33	0.46	0.38	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	0.41	0.34	0.29	0.40	0.34	0.29	0.39	0.33	0.29	0.27
10	0.40	0.32	0.27	0.39	0.32	0.27	0.38	0.31	0.27	0.37	0.31	0.26	0.36	0.31	0.26	0.25

Light Blue USA-Rayhil INV-9-CCT-120-\*\*-3000K

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	264.02	263.11	260.38	254.91	247.63	238.53	225.78	213.03	196.65		
15.0	264.02	264.02	260.36	255.80	248.49	238.44	226.56	212.86	197.33		
30.0	264.02	263.10	260.36	254.88	246.66	237.52	225.65	211.94	195.50		
45.0	264.02	264.02	261.27	254.85	247.52	237.43	225.51	211.76	195.26		
60.0	264.02	264.02	260.35	254.85	247.52	237.43	225.51	211.76	195.26		
75.0	264.02	264.02	260.35	254.85	247.52	237.43	225.51	211.76	196.18		
90.0	264.02	263.10	260.35	254.85	246.60	236.52	224.60	211.76	195.26		
105.0	264.02	264.02	260.35	254.85	247.52	237.43	225.51	211.76	195.26		
120.0	264.02	263.10	256.68	254.85	247.52	238.35	225.51	212.68	196.18		
135.0	264.02	264.02	260.35	255.77	247.52	238.35	216.35	213.60	197.10		
150.0	264.02	263.10	260.35	255.77	248.43	239.27	227.35	213.60	198.01		
165.0	264.02	263.10	260.35	255.77	247.52	239.27	227.35	213.60	198.93		
180.0	264.02	262.20	257.64	251.27	243.08	232.15	219.41	204.84	186.63		
195.0	264.02	263.10	258.54	252.14	243.01	232.96	220.17	205.55	187.28		
210.0	264.02	262.19	258.54	252.14	243.01	232.96	220.17	205.55	188.19		
225.0	264.02	263.10	259.43	253.02	243.85	232.85	220.93	205.35	188.85		
240.0	264.02	263.10	258.52	253.02	243.85	232.85	220.01	205.35	187.93		
255.0	264.02	263.10	258.52	252.10	243.85	232.85	220.01	205.35	188.85		
270.0	264.02	262.18	258.52	252.10	243.85	232.85	229.18	203.51	187.93		
285.0	264.02	262.18	261.27	252.10	242.93	231.93	219.10	204.43	187.93		
300.0	264.02	262.18	257.60	252.10	242.93	232.85	219.10	204.43	187.93		
315.0	264.02	262.18	258.52	251.18	242.93	231.93	219.10	204.43	187.01		
330.0	264.02	262.18	257.60	251.18	242.93	231.93	219.10	204.43	187.01		
345.0	264.02	262.18	257.60	251.18	242.02	231.93	218.18	202.60	186.10		
360.0	264.02	263.11	260.38	254.91	247.63	238.53	225.78	213.03	196.65		
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	178.44	158.41	137.47	117.44	94.68	71.92	50.07	28.22	8.19		
15.0	178.14	158.96	137.95	115.11	93.18	71.26	48.42	28.32	8.22		
30.0	177.23	157.13	137.95	114.19	93.18	69.43	48.42	27.41	8.22		
45.0	177.85	157.68	137.51	114.59	92.59	70.59	49.50	26.59	7.33		
60.0	176.93	157.68	136.59	114.59	93.51	70.59	48.59	26.59	7.33		
75.0	175.09	157.68	136.59	114.59	91.67	69.67	47.67	27.50	7.33		
90.0	176.93	156.76	136.59	114.59	93.51	70.59	48.59	26.59	7.33		
105.0	178.76	157.68	138.43	115.51	93.51	70.59	48.59	28.42	7.33		
120.0	177.85	158.59	137.51	117.34	94.42	70.59	48.59	28.42	8.25		
135.0	178.76	159.51	137.51	116.42	94.42	71.50	49.50	28.42	8.25		
150.0	179.68	143.93	138.43	117.34	95.34	72.42	51.34	29.34	9.17		
165.0	180.60	160.43	139.34	118.26	95.34	69.67	51.34	29.34	10.08		
180.0	168.42	147.49	127.46	104.70	83.76	61.00	39.15	17.30	2.73		
195.0	169.01	148.91	126.98	105.06	83.13	61.21	39.28	19.18	2.74		
210.0	169.01	148.00	127.90	104.15	83.13	61.21	39.28	18.27	2.74		
225.0	169.59	149.43	128.34	105.42	83.42	61.42	38.50	18.33	2.75		
240.0	169.59	149.43	128.34	106.34	83.42	61.42	39.42	18.33	2.75		
255.0	168.68	148.51	127.43	104.51	82.51	60.50	38.50	33.92	2.75		
270.0	168.68	148.51	127.43	105.42	82.51	60.50	39.42	18.33	2.75		
285.0	168.68	148.51	127.43	105.42	83.42	60.50	38.50	17.42	2.75		
300.0	168.68	147.59	126.51	104.51	82.51	60.50	38.50	17.42	2.75		
315.0	168.68	148.51	126.51	104.51	81.59	59.59	37.59	17.42	1.83		
330.0	167.76	147.59	126.51	103.59	82.51	58.67	37.59	16.50	1.83		
345.0	167.76	146.68	125.59	103.59	81.59	58.67	36.67	16.50	2.75		
360.0	178.44	158.41	137.47	117.44	94.68	71.92	50.07	28.22	8.19		

Light Blue USA-Rayhil INV-9-CCT-120-\*\*-3000K

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	0.91	0.00	0.00	0.00	0.00	0.91	0.91	0.91	0.91	
15.0	0.91	0.00	0.00	0.00	0.00	0.91	0.91	0.91	0.91	
30.0	0.91	0.00	0.00	0.00	0.00	0.00	0.91	0.91	0.91	
45.0	0.92	0.00	0.00	0.00	0.00	0.92	0.92	0.92	0.92	
60.0	0.92	0.00	0.00	0.00	0.00	0.00	0.92	0.92	0.92	
75.0	0.00	0.00	0.00	0.00	0.00	0.92	0.92	0.92	0.92	
90.0	0.92	0.00	0.00	0.92	0.92	0.92	0.92	0.92	0.92	
105.0	0.92	0.00	0.00	0.00	0.00	0.92	0.92	0.92	0.92	
120.0	0.92	0.00	0.00	0.00	0.00	0.92	0.92	0.92	0.92	
135.0	0.92	0.00	0.00	0.00	0.00	0.00	0.92	0.92	0.92	
150.0	0.92	0.00	0.00	0.00	0.00	0.00	0.92	0.92	0.92	
165.0	0.92	0.00	0.00	0.00	0.00	0.00	0.92	0.92	0.92	
180.0	0.00	0.91	0.00	0.91	0.91	0.91	0.91	0.91	0.91	
195.0	0.91	0.91	0.00	0.91	0.91	0.91	0.91	0.91	0.91	
210.0	0.91	0.91	0.91	0.91	0.91	0.00	0.91	0.91	0.91	
225.0	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
240.0	0.00	0.00	0.00	0.00	0.92	0.92	0.92	0.92	0.92	
255.0	0.00	0.00	0.00	0.00	0.00	0.92	0.92	0.92	0.92	
270.0	0.92	0.92	0.00	0.92	0.92	0.92	0.92	0.92	0.92	
285.0	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	1.83	
300.0	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	1.83	
315.0	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	1.83	
330.0	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
345.0	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
360.0	0.91	0.00	0.00	0.00	0.00	0.91	0.91	0.91	0.91	
C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0	
0.0	0.91	0.91	1.82	1.82	2.73	2.73	2.73	1.82	1.82	
15.0	0.91	0.91	1.83	1.83	2.74	2.74	2.74	1.83	1.83	
30.0	0.91	0.91	1.83	1.83	2.74	2.74	2.74	1.83	1.83	
45.0	0.92	1.83	1.83	1.83	1.83	1.83	1.83	2.75	1.83	
60.0	0.92	1.83	1.83	1.83	1.83	2.75	1.83	1.83	1.83	
75.0	0.92	0.92	1.83	1.83	2.75	2.75	1.83	1.83	1.83	
90.0	1.83	1.83	1.83	2.75	2.75	2.75	2.75	1.83	1.83	
105.0	1.83	1.83	2.75	2.75	2.75	2.75	2.75	1.83	1.83	
120.0	1.83	1.83	1.83	2.75	2.75	2.75	2.75	1.83	1.83	
135.0	0.92	1.83	1.83	2.75	2.75	2.75	2.75	2.75	1.83	
150.0	0.92	1.83	1.83	1.83	2.75	2.75	2.75	2.75	1.83	
165.0	0.92	0.92	1.83	1.83	1.83	1.83	2.75	2.75	1.83	
180.0	0.91	0.91	0.91	0.91	1.82	1.82	1.82	1.82	0.91	
195.0	0.91	0.91	0.91	0.91	1.83	1.83	1.83	1.83	0.91	
210.0	0.91	0.91	0.91	0.91	1.83	1.83	1.83	1.83	1.83	
225.0	0.00	0.92	0.92	0.92	1.83	1.83	1.83	1.83	0.92	
240.0	0.92	0.92	1.83	1.83	1.83	0.92	1.83	1.83	1.83	
255.0	0.92	0.92	1.83	1.83	1.83	1.83	0.92	0.92	1.83	
270.0	1.83	1.83	1.83	1.83	1.83	1.83	0.92	0.92	0.92	
285.0	1.83	1.83	1.83	2.75	2.75	1.83	0.92	0.92	0.92	
300.0	1.83	1.83	2.75	2.75	2.75	2.75	1.83	0.92	0.92	
315.0	1.83	1.83	1.83	1.83	1.83	1.83	1.83	0.92	0.92	
330.0	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	
345.0	0.92	0.92	1.83	1.83	1.83	1.83	1.83	1.83	0.92	
360.0	0.91	0.91	1.82	1.82	2.73	2.73	2.73	1.82	1.82	

Intensity data(cd)

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C/γ(°)	180.0
0.0	1.82
15.0	1.83
30.0	1.83
45.0	1.83
60.0	1.83
75.0	1.83
90.0	1.83
105.0	1.83
120.0	1.83
135.0	1.83
150.0	1.83
165.0	1.83
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	1.82