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Light Blue USA-Rayhil

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Client:

LumCAT: INV-16-CCT-UNV-\*\*-5000K

Luminaire: LED lamp

Report No:

Ballast type:

Test No:

Voltage(V): 120.020

LampCAT:

Current(A): 0.202

Lamp flux(lm): 1477.1

Power (W): 24.080

Number of Lamps: 1

PF: 0.993

Length(mm): -380

Width(mm): -380

Phm Type: C

Height(mm): 0

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Photometric Results

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Lumens(lm): 1477.06, Efficiency(%): 100.00% , Luminous Efficacy(lm/W): 61.34

Central intensity(cd): 509.798, Maximum intensity(cd): 509.798

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

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

[C90/270]Total=114.2

Field angle(10%Imax): [C0/180]Total=162.4

[C90/270]Total=162.0

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

Maximum s/h(1/4): C0\_180=1.39 C90\_270=1.38

Up flux rate of lamp(%): 0.44%

Down flux rate of lamp(%): 99.56%

Up flux rate of LUM(%): 0.44%

Down flux rate of LUM(%): 99.56%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 78.220%

Light Blue USA-Rayhil INV-16-CCT-UNV-\*\*-5000K

Zonal flux distribution table

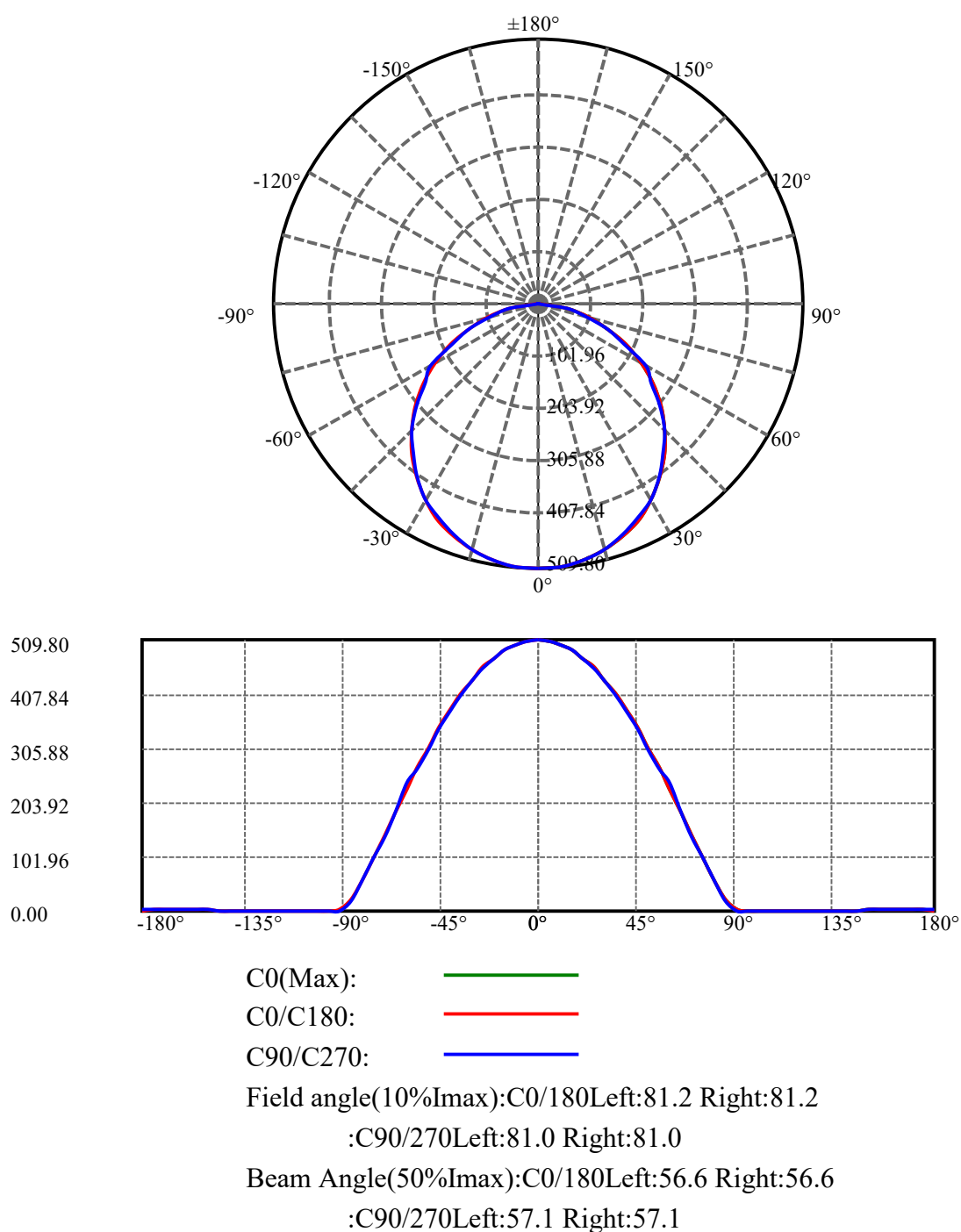
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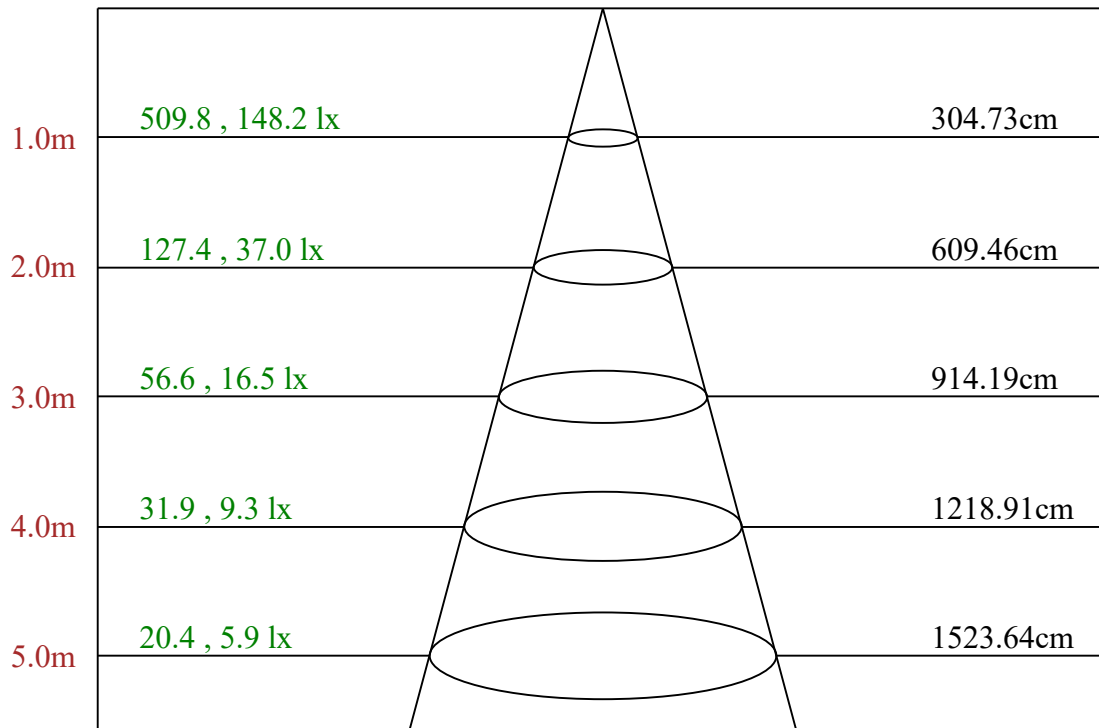
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	509.798	0.000	0	0.00%	0.00%
5.0	507.738	12.164	12.164	0.82%	0.82%
10.0	501.253	36.095	48.259	2.44%	3.27%
15.0	490.417	58.825	107.084	3.98%	7.25%
20.0	475.421	79.599	186.683	5.39%	12.64%
25.0	456.804	97.773	284.456	6.62%	19.26%
30.0	434.256	112.764	397.22	7.63%	26.89%
35.0	407.587	123.967	521.188	8.39%	35.29%
40.0	378.018	131.072	652.26	8.87%	44.16%
45.0	343.070	133.515	785.775	9.04%	53.20%
50.0	306.061	131.166	916.942	8.88%	62.08%
55.0	266.382	124.468	1041.41	8.43%	70.51%
60.0	226.590	113.949	1155.359	7.71%	78.22%
65.0	183.781	99.762	1255.121	6.75%	84.97%
70.0	141.204	82.288	1337.409	5.57%	90.55%
75.0	99.694	62.967	1400.376	4.26%	94.81%
80.0	60.015	42.734	1443.11	2.89%	97.70%
85.0	19.799	21.688	1464.797	1.47%	99.17%
90.0	1.220	5.755	1470.552	0.39%	99.56%
95.0	0.763	0.543	1471.095	0.04%	99.60%
100.0	0.686	0.394	1471.489	0.03%	99.62%
105.0	0.534	0.326	1471.815	0.02%	99.64%
110.0	0.496	0.269	1472.084	0.02%	99.66%
115.0	0.648	0.290	1472.374	0.02%	99.68%
120.0	0.992	0.399	1472.773	0.03%	99.71%
125.0	0.916	0.441	1473.214	0.03%	99.74%
130.0	0.916	0.398	1473.612	0.03%	99.77%
135.0	0.916	0.370	1473.982	0.03%	99.79%
140.0	0.916	0.339	1474.321	0.02%	99.81%
145.0	1.374	0.382	1474.703	0.03%	99.84%
150.0	1.640	0.444	1475.147	0.03%	99.87%
155.0	2.289	0.497	1475.644	0.03%	99.90%
160.0	2.289	0.480	1476.124	0.03%	99.94%
165.0	2.289	0.377	1476.502	0.03%	99.96%
170.0	2.747	0.299	1476.8	0.02%	99.98%
175.0	2.976	0.205	1477.005	0.01%	100.00%
180.0	1.717	0.056	1477.061	0.00%	100.00%

ZONAL LUMEN SUMMARY			
Zone	Lumens	%Lamp	%Fixt
0-30	397.22	26.89%	26.89%
0-40	652.26	44.16%	44.16%
0-60	1155.36	78.22%	78.22%
0-90	1470.55	99.56%	99.56%
0-120	1472.77	99.71%	99.71%
0-180	1477.06	100.00%	100.00%
60-90	315.19	21.34%	21.34%
90-120	2.22	0.15%	0.15%
90-130	3.06	0.21%	0.21%
90-150	4.59	0.31%	0.31%
90-180	6.45	0.44%	0.44%
0-61.32	1181.65	80.00%	80.00%

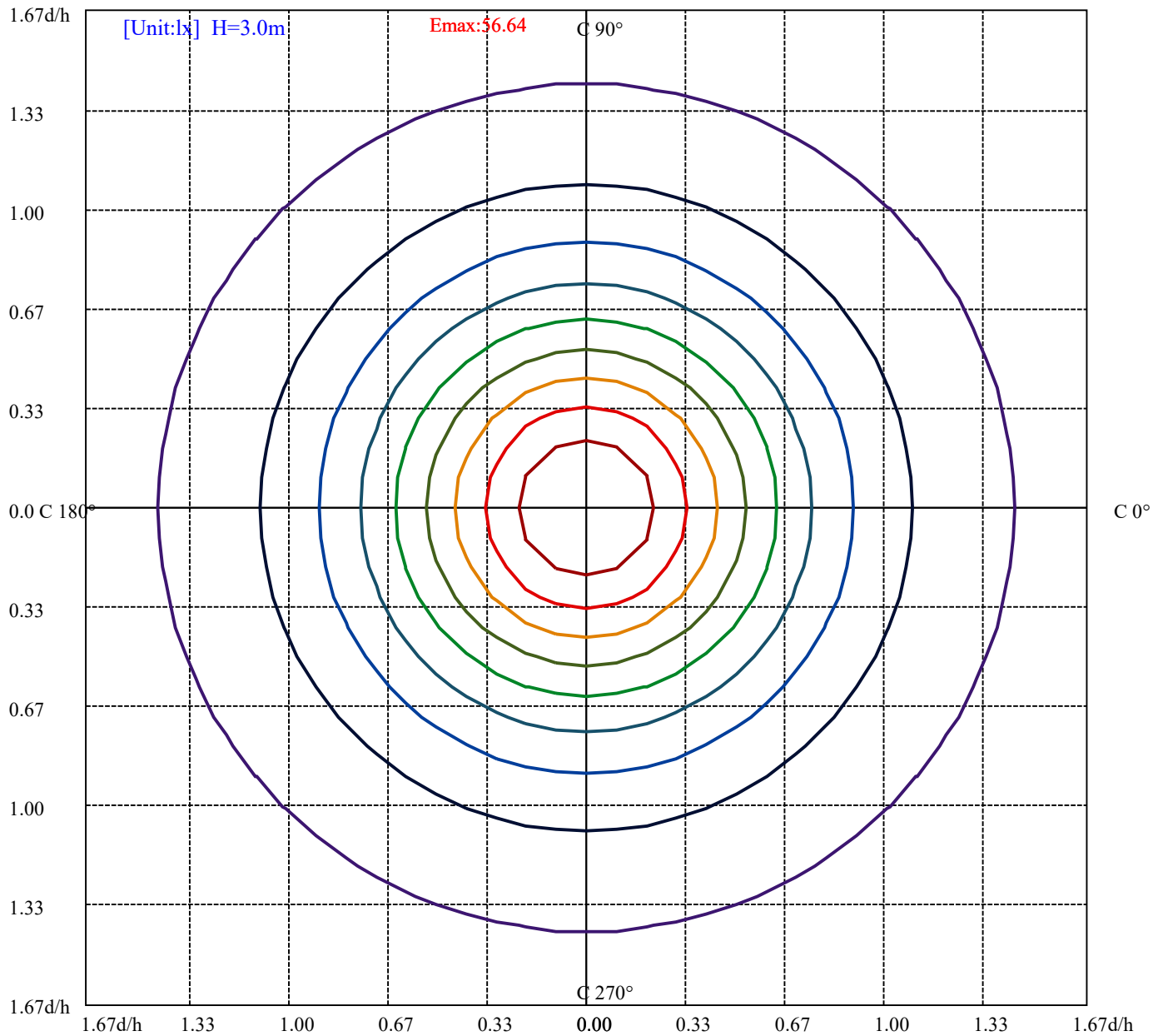
ZONAL LUMEN SUMMARY

0-10	48.26
10-20	138.42
20-30	210.54
30-40	255.04
40-50	264.68
50-60	238.42
60-70	182.05
70-80	105.70
80-90	27.44
90-100	0.94
100-110	0.60
110-120	0.69
120-130	0.84
130-140	0.71
140-150	0.83
150-160	0.98
160-170	0.68
170-180	0.20

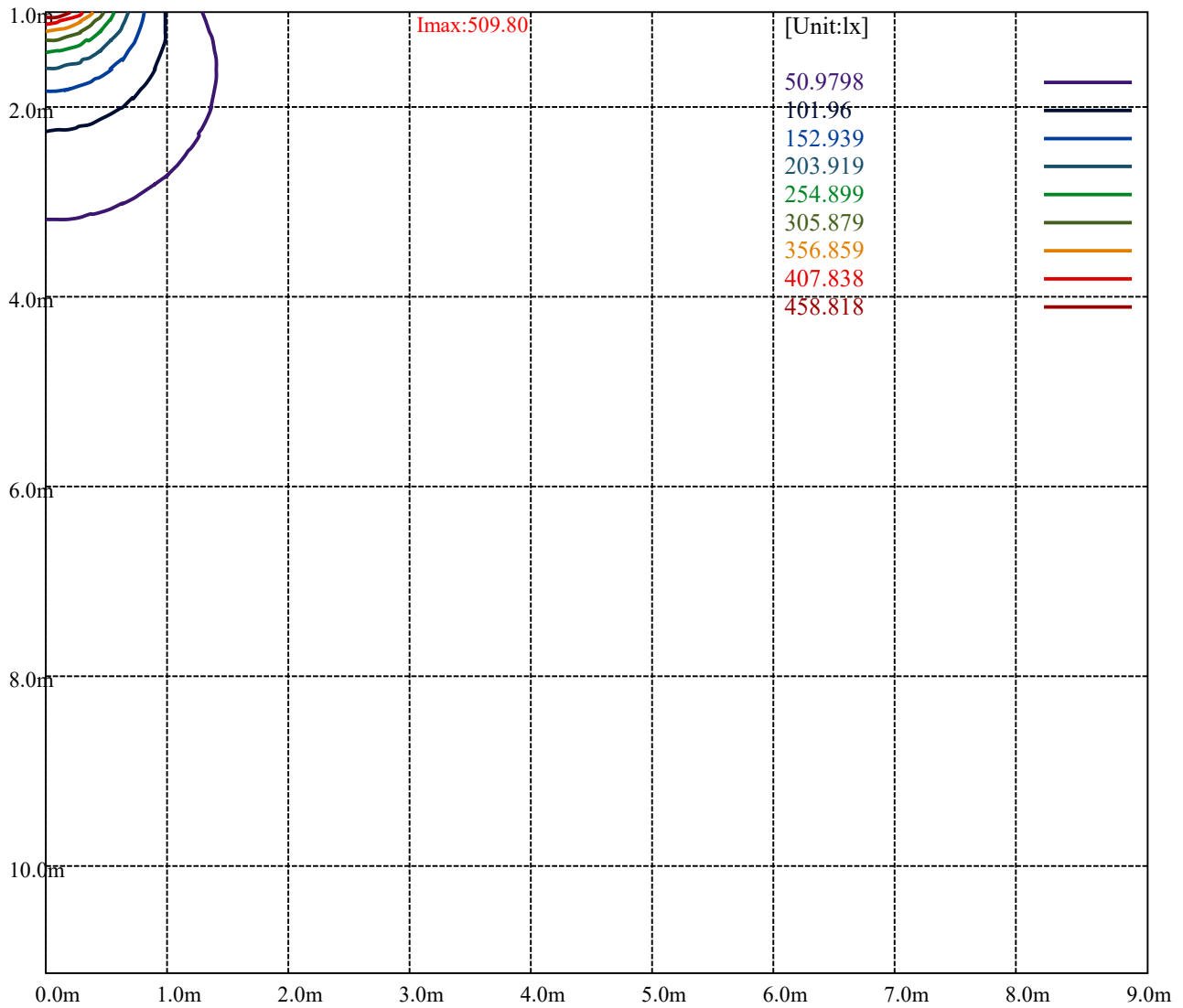




Max , Ave      Beam angle of C0 plane 113.44



(10%Emax) 5.664423	—
(20%Emax) 11.32889	—
(30%Emax) 16.99322	—
(40%Emax) 22.65767	—
(50%Emax) 28.32211	—
(60%Emax) 33.98656	—
(70%Emax) 39.65089	—
(80%Emax) 45.31533	—
(90%Emax) 50.97978	—



# Light Blue USA-Rayhil INV-16-CCT-UNV-\*\*-5000K

## Luminance Limiting Curve(no luminous side)

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Luminance Table

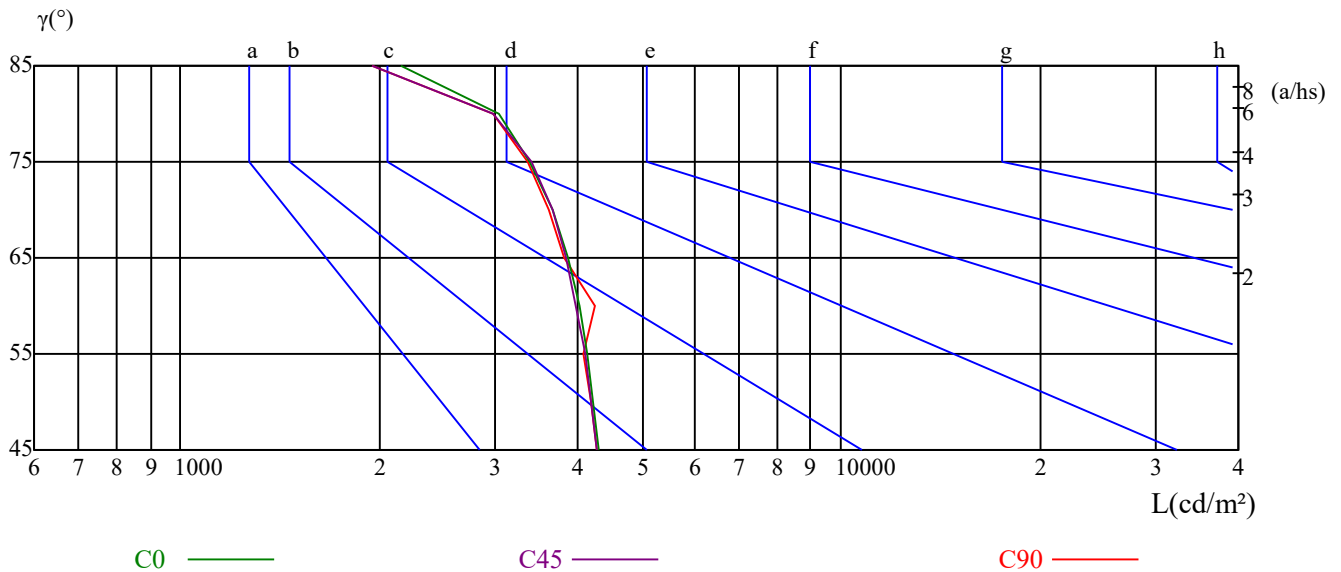
$\gamma$	45	50	55	60	65	70	75	80	85
C0	4293	4225	4121	4007	3851	3660	3384	3040	2157
C45	4279	4195	4095	3957	3826	3652	3405	2980	1948
C90	4270	4176	4081	4236	3807	3617	3358	2980	1948

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3851	3807	3826	3384	3358	3405	2157	1948	1948

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





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	0.99	0.96	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	0.78	0.88	0.82	0.77	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	0.63	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	0.57	0.52	0.61	0.56	0.52	0.49
5	0.63	0.53	0.47	0.61	0.53	0.46	0.59	0.52	0.46	0.57	0.51	0.45	0.55	0.49	0.45	0.43
6	0.56	0.47	0.41	0.55	0.47	0.41	0.53	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	0.46	0.38	0.32	0.46	0.38	0.32	0.44	0.37	0.32	0.43	0.36	0.31	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	0.31	0.26	0.39	0.31	0.26	0.38	0.31	0.26	0.37	0.30	0.26	0.36	0.30	0.26	0.24

Light Blue USA-Rayhil INV-16-CCT-UNV-\*\*-5000K

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	509.80	509.80	505.26	497.10	483.49	467.16	446.30	420.90	392.78		
15.0	509.80	509.80	505.25	496.14	482.49	466.10	445.16	420.58	391.45		
30.0	509.80	508.89	504.33	495.21	482.44	466.02	443.22	418.60	391.24		
45.0	509.80	508.88	504.32	494.27	482.39	462.29	442.19	417.52	388.29		
60.0	509.80	508.88	503.39	494.24	480.51	462.20	440.24	414.61	384.41		
75.0	509.80	508.88	503.38	493.29	478.62	460.29	437.36	413.52	384.18		
90.0	509.80	507.96	502.46	492.38	478.62	459.37	437.36	410.77	381.43		
105.0	509.80	507.96	501.55	491.46	476.79	457.53	436.45	408.94	380.51		
120.0	509.80	507.96	502.45	491.43	476.73	458.36	436.31	410.59	379.36		
135.0	509.80	508.88	502.44	491.39	476.67	458.27	436.18	411.34	378.21		
150.0	509.80	508.88	502.44	491.39	462.87	459.19	438.02	409.49	379.13		
165.0	509.80	507.96	502.44	490.47	476.67	459.19	436.18	409.49	377.29		
180.0	509.80	506.17	497.10	484.40	468.07	448.11	423.62	394.59	364.66		
195.0	509.80	505.25	497.05	485.22	467.92	448.80	425.14	396.00	363.23		
210.0	509.80	505.24	497.03	485.17	468.76	448.70	424.07	397.62	364.79		
225.0	509.80	506.14	497.92	485.13	469.60	449.50	424.83	397.42	364.53		
240.0	509.80	506.14	497.90	486.00	469.53	449.39	425.59	398.14	367.02		
255.0	509.80	507.05	498.80	487.79	471.29	451.12	428.19	400.69	368.59		
270.0	509.80	507.05	499.71	487.79	471.29	452.03	429.11	401.60	370.43		
285.0	509.80	507.05	499.71	488.71	473.12	453.87	430.94	402.52	395.19		
300.0	509.80	507.04	500.61	489.59	485.92	454.68	432.64	405.08	375.69		
315.0	509.80	507.96	501.52	490.47	474.83	457.35	434.34	407.65	376.37		
330.0	509.80	507.96	501.52	490.47	475.75	457.35	434.34	407.65	376.37		
345.0	509.80	507.96	501.52	490.47	475.75	456.43	434.34	406.73	377.29		
360.0	509.80	509.80	505.26	497.10	483.49	467.16	446.30	420.90	392.78		
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	359.22	324.75	285.74	244.92	202.29	159.65	117.02	77.10	37.19		
15.0	358.68	322.27	283.12	243.97	202.10	159.31	117.44	75.56	34.59		
30.0	355.67	321.02	281.80	240.76	198.81	155.95	114.00	74.78	34.66		
45.0	355.40	318.85	279.57	238.45	198.25	153.49	113.29	71.26	31.06		
60.0	353.29	317.59	278.24	237.05	194.95	151.93	109.83	69.56	28.37		
75.0	350.26	313.58	274.15	231.98	192.55	150.37	108.19	66.93	27.51		
90.0	349.34	310.83	273.24	231.98	189.80	147.62	105.44	66.02	23.84		
105.0	346.59	310.83	271.40	229.23	188.88	144.87	104.53	63.27	22.92		
120.0	347.21	307.72	270.06	229.64	187.39	145.13	102.88	63.38	22.96		
135.0	346.00	308.27	267.78	227.29	184.96	145.39	103.06	61.65	21.16		
150.0	345.08	310.11	267.78	229.13	186.80	144.47	102.14	59.81	22.09		
165.0	345.08	309.19	269.62	229.13	186.80	144.47	103.06	61.65	21.16		
180.0	329.28	291.18	250.36	209.54	166.91	124.27	81.64	42.63	5.44		
195.0	327.73	289.49	249.44	207.56	167.51	125.63	83.75	42.79	5.46		
210.0	329.23	290.92	250.80	208.84	167.80	124.94	85.73	42.86	7.30		
225.0	329.82	292.36	254.90	210.13	170.85	127.91	85.88	44.77	7.31		
240.0	333.15	294.71	254.44	213.25	171.15	128.14	88.78	45.76	10.07		
255.0	332.84	297.08	254.90	215.47	173.29	131.12	89.86	79.77	11.92		
270.0	335.59	297.99	257.65	248.48	175.13	132.95	91.69	51.35	14.67		
285.0	338.34	300.74	260.40	219.14	178.80	133.87	94.44	54.10	15.59		
300.0	338.03	303.12	263.63	222.29	180.04	136.86	95.53	54.19	17.45		
315.0	341.40	303.67	263.18	221.77	179.44	139.87	97.54	57.05	17.48		
330.0	343.24	303.67	265.94	224.53	182.20	139.87	97.54	56.13	16.56		
345.0	343.24	305.51	265.02	223.61	184.04	140.79	99.38	57.97	18.40		
360.0	359.22	324.75	285.74	244.92	202.29	159.65	117.02	77.10	37.19		

Light Blue USA-Rayhil INV-16-CCT-UNV-\*\*-5000K

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	2.72	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	
15.0	2.73	0.91	0.00	0.00	0.00	0.91	0.91	0.91	0.91	
30.0	1.82	0.91	0.91	0.91	0.00	0.91	0.91	0.91	0.91	
45.0	1.83	0.91	0.91	0.00	0.00	0.00	0.91	0.91	0.91	
60.0	1.83	0.92	0.00	0.00	0.00	0.00	0.92	0.92	0.92	
75.0	1.83	0.92	0.92	0.00	0.00	0.00	0.92	0.92	0.92	
90.0	0.92	0.92	0.00	0.00	0.00	0.00	0.92	0.92	0.92	
105.0	0.92	0.00	0.92	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	0.92	0.92	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	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	
195.0	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	
210.0	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	
225.0	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	
240.0	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
255.0	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
270.0	0.92	0.92	0.92	0.92	0.92	0.92	1.83	0.92	0.92	
285.0	0.92	0.92	0.92	0.92	0.92	0.92	1.83	0.92	0.92	
300.0	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
315.0	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
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	2.72	0.91	0.91	0.91	0.91	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	1.81	1.81	2.72	2.72	2.72	2.72	2.72	
15.0	0.91	0.91	1.82	1.82	2.73	2.73	2.73	2.73	2.73	
30.0	0.91	0.91	1.82	1.82	2.74	2.74	2.74	2.74	3.65	
45.0	0.91	0.91	1.83	1.83	2.74	2.74	2.74	2.74	3.65	
60.0	0.92	0.92	1.83	1.83	2.75	2.75	2.75	2.75	3.66	
75.0	0.92	0.92	1.83	1.83	2.75	2.75	2.75	2.75	2.75	
90.0	0.92	0.92	1.83	1.83	2.75	2.75	2.75	2.75	3.67	
105.0	0.92	0.92	1.83	1.83	2.75	2.75	2.75	2.75	2.75	
120.0	0.92	0.92	1.84	1.84	2.76	2.76	2.76	2.76	3.67	
135.0	0.92	0.92	1.84	1.84	2.76	2.76	2.76	2.76	2.76	
150.0	0.92	0.92	1.84	1.84	2.76	2.76	2.76	2.76	3.68	
165.0	0.92	0.92	1.84	1.84	2.76	2.76	2.76	2.76	2.76	
180.0	0.91	0.91	0.91	1.81	1.81	1.81	1.81	2.72	2.72	
195.0	0.91	0.91	0.91	1.82	1.82	1.82	1.82	2.73	2.73	
210.0	0.91	0.91	0.91	1.82	1.82	1.82	1.82	2.74	2.74	
225.0	0.91	0.91	0.91	0.91	1.83	1.83	1.83	2.74	2.74	
240.0	0.92	0.92	0.92	0.92	1.83	1.83	1.83	2.75	2.75	
255.0	0.92	0.92	0.92	1.83	1.83	1.83	1.83	2.75	2.75	
270.0	0.92	0.92	0.92	1.83	1.83	1.83	1.83	2.75	2.75	
285.0	0.92	0.92	0.92	1.83	1.83	1.83	1.83	2.75	2.75	
300.0	0.92	0.92	0.92	0.92	1.84	1.84	1.84	2.76	2.76	
315.0	0.92	0.92	0.92	1.84	1.84	1.84	1.84	2.76	2.76	
330.0	0.92	0.92	0.92	0.92	1.84	1.84	1.84	2.76	2.76	
345.0	0.92	0.92	0.92	0.92	1.84	1.84	1.84	2.76	2.76	
360.0	0.91	0.91	1.81	1.81	2.72	2.72	2.72	2.72	2.72	

Intensity data(cd)

C/γ(°)	180.0
0.0	2.72
15.0	3.64
30.0	2.74
45.0	3.65
60.0	3.66
75.0	3.67
90.0	3.67
105.0	3.67
120.0	3.67
135.0	3.68
150.0	2.76
165.0	3.68
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	2.72