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Light Blue USA-Rayhil

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Client:

LumCAT: INV-16-CCT-UNV-\*\*-2700K-F

Luminaire: LED lamp

Report No:

Ballast type:

Test No:

Voltage(V): 120.040

LampCAT:

Current(A): 0.201

Lamp flux(lm): 1784.9

Power (W): 23.910

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): 1784.94, Efficiency(%): 100.00% , Luminous Efficacy(lm/W): 74.65

Central intensity(cd): 616.092, Maximum intensity(cd): 616.092

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=1.38 C90\_270=1.38

Up flux rate of lamp(%): 0.43%

Down flux rate of lamp(%): 99.57%

Up flux rate of LUM(%): 0.43%

Down flux rate of LUM(%): 99.57%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 78.225%

Light Blue USA-Rayhil INV-16-CCT-UNV-\*\*-2700K-F

Zonal flux distribution table

Appendix Page: 2 Total:12

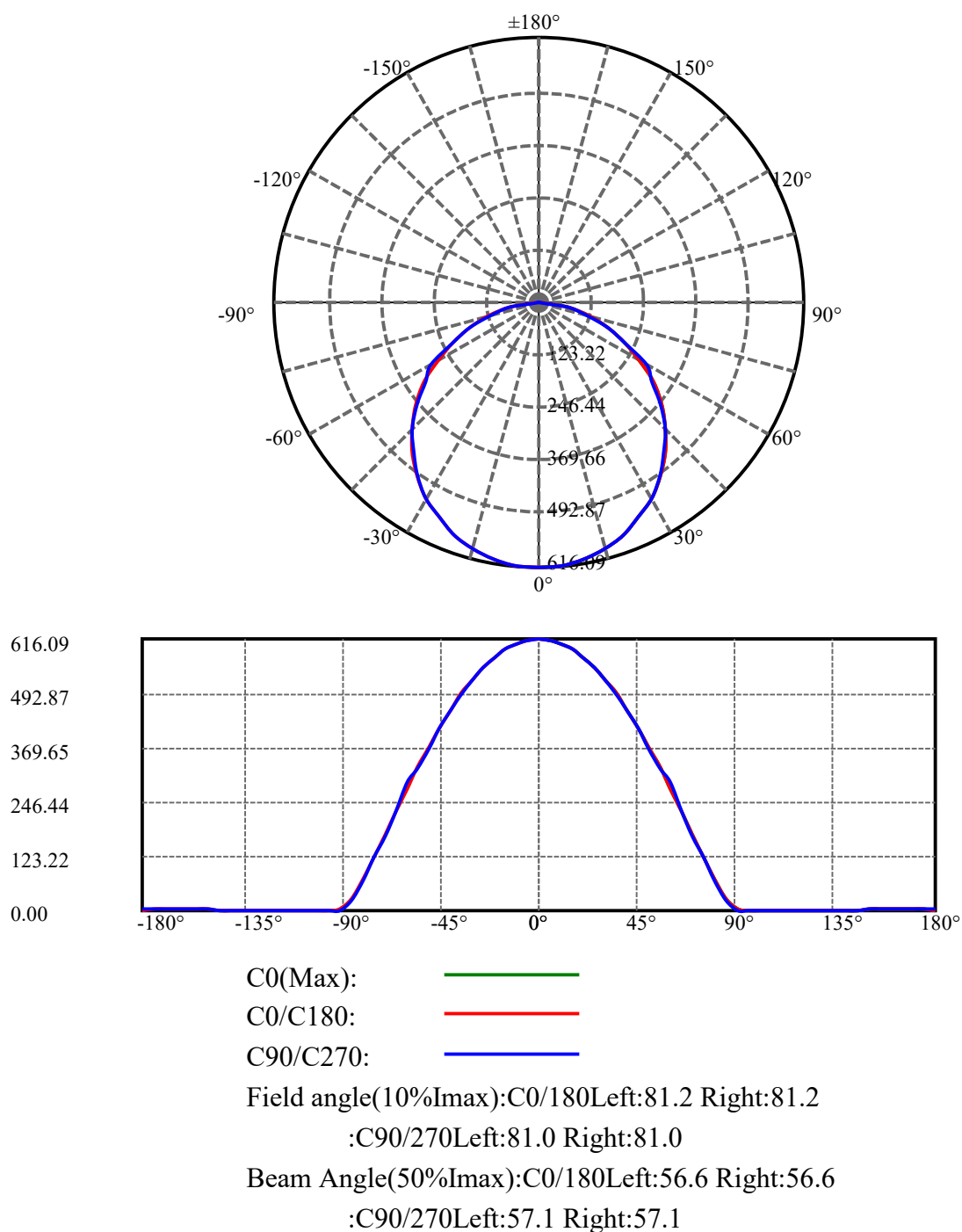
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	616.092	0.000	0	0.00%	0.00%
5.0	613.574	14.700	14.7	0.82%	0.82%
10.0	605.791	43.621	58.321	2.44%	3.27%
15.0	592.819	71.101	129.422	3.98%	7.25%
20.0	574.580	96.210	225.632	5.39%	12.64%
25.0	551.995	118.157	343.789	6.62%	19.26%
30.0	524.678	136.254	480.043	7.63%	26.89%
35.0	492.592	149.800	629.843	8.39%	35.29%
40.0	456.956	158.425	788.267	8.88%	44.16%
45.0	414.492	161.356	949.623	9.04%	53.20%
50.0	369.813	158.480	1108.103	8.88%	62.08%
55.0	322.007	150.425	1258.528	8.43%	70.51%
60.0	273.861	137.733	1396.262	7.72%	78.22%
65.0	222.086	120.566	1516.827	6.75%	84.98%
70.0	170.696	99.455	1616.282	5.57%	90.55%
75.0	120.449	76.101	1692.383	4.26%	94.81%
80.0	72.606	51.656	1744.039	2.89%	97.71%
85.0	23.881	26.218	1770.257	1.47%	99.18%
90.0	1.447	6.935	1777.192	0.39%	99.57%
95.0	0.915	0.647	1777.839	0.04%	99.60%
100.0	0.954	0.508	1778.347	0.03%	99.63%
105.0	0.763	0.459	1778.806	0.03%	99.66%
110.0	0.648	0.369	1779.175	0.02%	99.68%
115.0	0.801	0.367	1779.542	0.02%	99.70%
120.0	0.992	0.436	1779.978	0.02%	99.72%
125.0	0.916	0.441	1780.419	0.02%	99.75%
130.0	0.916	0.398	1780.817	0.02%	99.77%
135.0	0.916	0.370	1781.187	0.02%	99.79%
140.0	1.297	0.410	1781.597	0.02%	99.81%
145.0	1.374	0.446	1782.042	0.02%	99.84%
150.0	2.289	0.539	1782.582	0.03%	99.87%
155.0	2.289	0.579	1783.161	0.03%	99.90%
160.0	3.091	0.564	1783.725	0.03%	99.93%
165.0	3.205	0.519	1784.244	0.03%	99.96%
170.0	3.205	0.380	1784.624	0.02%	99.98%
175.0	3.663	0.246	1784.87	0.01%	100.00%
180.0	1.870	0.066	1784.936	0.00%	100.00%

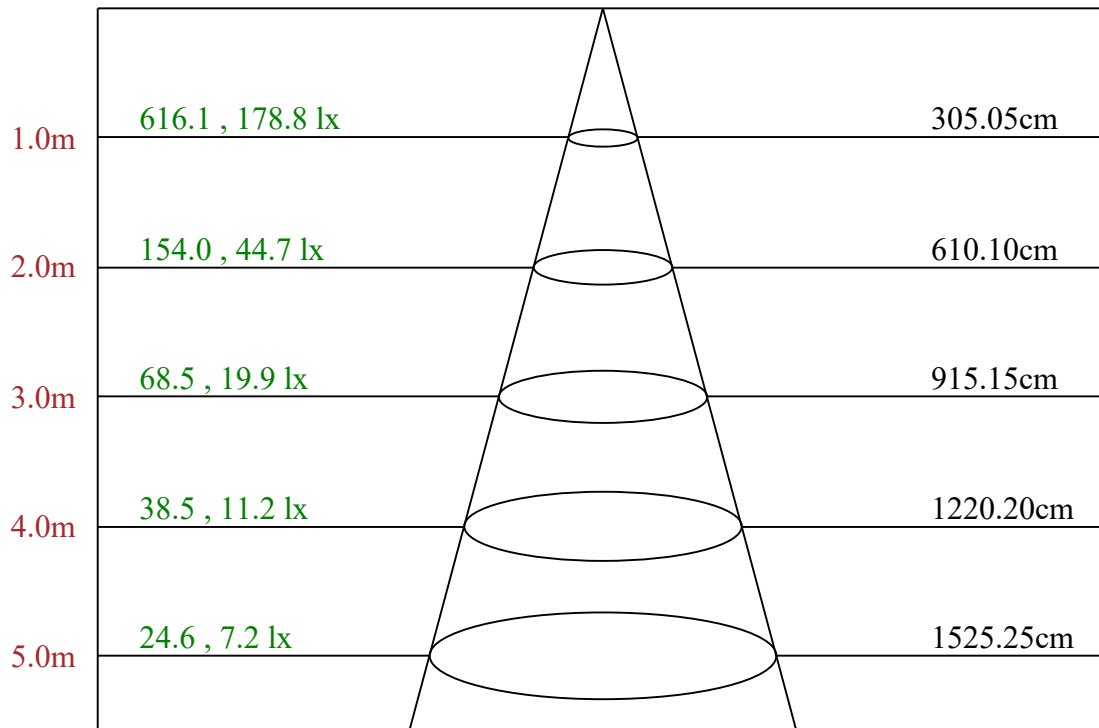
Zonal flux distribution table

ZONAL LUMEN SUMMARY			
Zone	Lumens	%Lamp	%Fixt
0-30	480.04	26.89%	26.89%
0-40	788.27	44.16%	44.16%
0-60	1396.26	78.22%	78.22%
0-90	1777.19	99.57%	99.57%
0-120	1779.98	99.72%	99.72%
0-180	1784.94	100.00%	100.00%
60-90	380.93	21.34%	21.34%
90-120	2.79	0.16%	0.16%
90-130	3.62	0.20%	0.20%
90-150	5.39	0.30%	0.30%
90-180	7.68	0.43%	0.43%
0-61.31	1427.95	80.00%	80.00%

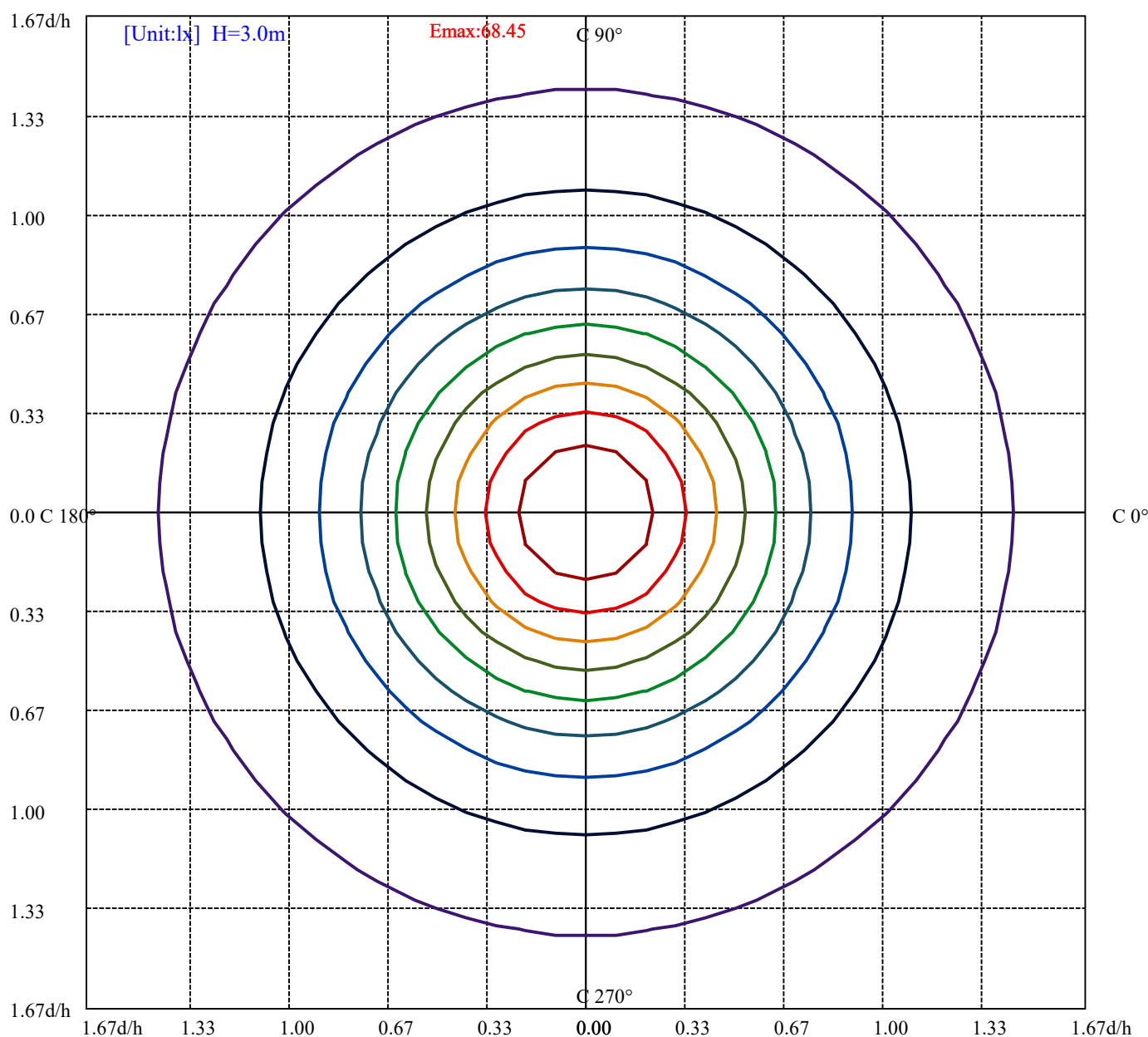
ZONAL LUMEN SUMMARY

0-10	58.32
10-20	167.31
20-30	254.41
30-40	308.22
40-50	319.84
50-60	288.16
60-70	220.02
70-80	127.76
80-90	33.15
90-100	1.15
100-110	0.83
110-120	0.80
120-130	0.84
130-140	0.78
140-150	0.98
150-160	1.14
160-170	0.90
170-180	0.25

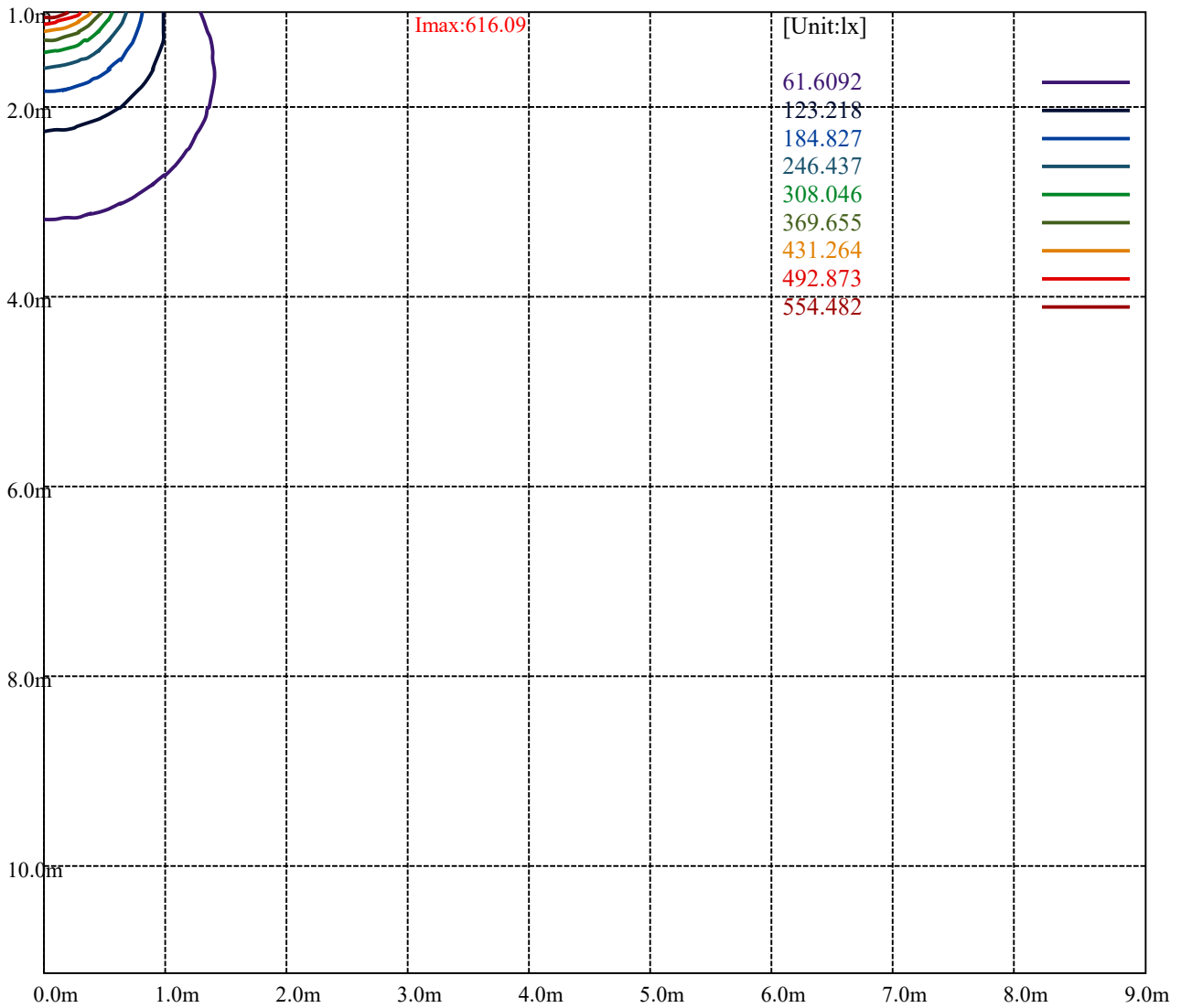




Max , Ave      Beam angle of C0 plane 113.50



(10%Emax) 6.845467	—
(20%Emax) 13.69089	—
(30%Emax) 20.53633	—
(40%Emax) 27.38189	—
(50%Emax) 34.22733	—
(60%Emax) 41.07278	—
(70%Emax) 47.91822	—
(80%Emax) 54.76366	—
(90%Emax) 61.60911	—



Luminance Table

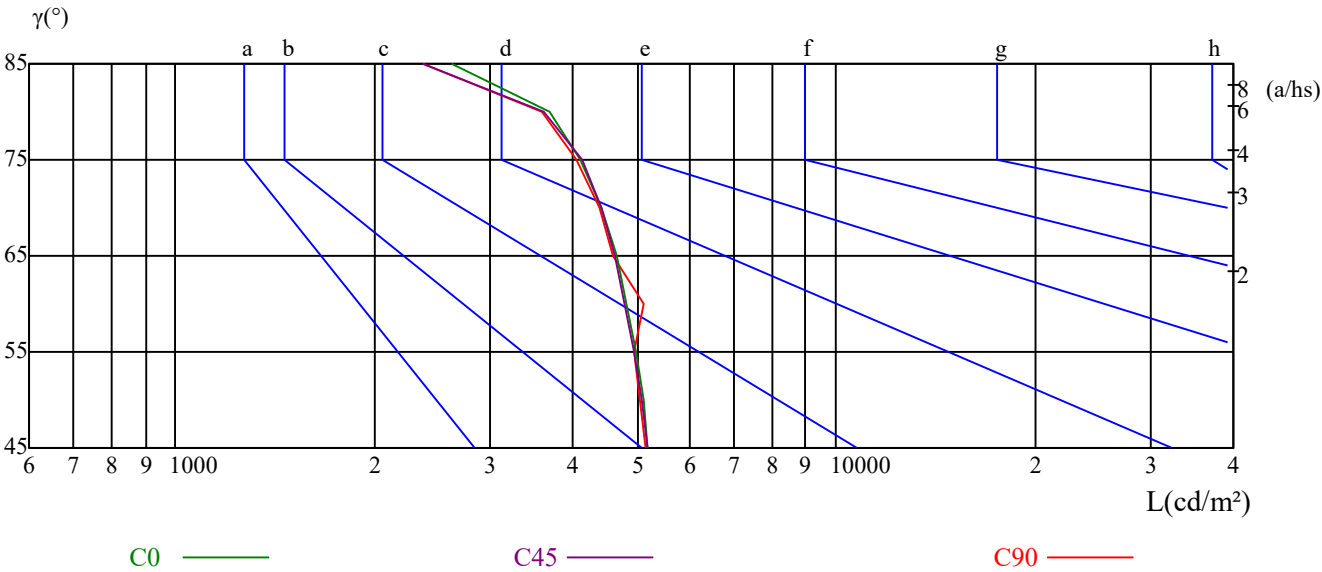
$\gamma$	45	50	55	60	65	70	75	80	85
C0	5174	5102	4979	4833	4650	4415	4090	3680	2612
C45	5171	5069	4954	4785	4628	4411	4134	3622	2367
C90	5156	5043	4933	5125	4600	4373	4045	3585	2365

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4650	4600	4628	4090	4045	4134	2612	2365	2367

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	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-\*\*-2700K-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	616.09	615.19	610.66	599.78	583.47	563.54	538.17	507.37	474.75		
15.0	616.09	616.09	611.53	599.69	584.19	564.14	537.71	509.46	473.92		
30.0	616.09	616.09	609.70	599.66	583.23	563.15	536.68	506.56	472.79		
45.0	616.09	615.18	609.69	597.81	583.18	559.42	534.74	504.57	469.84		
60.0	616.09	614.26	607.85	597.78	580.39	558.42	531.87	501.66	465.04		
75.0	616.09	615.17	607.84	595.92	578.50	556.50	529.00	499.66	464.82		
90.0	616.09	614.26	606.92	595.92	578.50	555.58	528.08	496.91	461.15		
105.0	616.09	614.26	606.92	594.09	575.75	553.75	527.16	494.16	459.32		
120.0	616.09	614.26	606.91	594.06	576.61	553.66	527.03	495.81	458.17		
135.0	616.09	615.17	607.80	594.91	576.49	554.39	526.76	497.29	457.69		
150.0	616.09	614.25	606.90	594.02	559.08	554.48	528.74	494.71	457.93		
165.0	616.09	613.33	605.98	593.10	575.63	553.56	525.98	493.79	456.09		
180.0	616.09	610.66	600.69	585.29	565.35	539.99	510.99	476.56	439.42		
195.0	616.09	611.53	601.51	586.93	565.97	543.18	514.02	479.38	440.20		
210.0	616.09	611.53	601.49	585.97	566.80	542.16	513.87	481.01	441.76		
225.0	616.09	612.44	601.47	586.84	567.65	542.96	513.71	479.89	441.50		
240.0	616.09	611.51	602.36	587.71	567.57	543.77	514.48	481.52	443.99		
255.0	616.09	612.42	603.26	588.59	569.33	545.50	517.08	484.07	444.65		
270.0	616.09	612.42	604.17	589.50	570.25	546.41	518.91	484.99	448.32		
285.0	616.09	612.42	603.26	591.34	572.09	548.25	520.74	486.82	477.65		
300.0	616.09	612.42	605.07	591.30	586.71	549.07	522.44	489.38	453.58		
315.0	616.09	614.25	605.96	593.07	574.65	552.55	524.92	492.69	454.93		
330.0	616.09	613.33	605.98	592.18	573.79	551.72	525.06	491.95	454.25		
345.0	616.09	613.33	605.06	592.18	574.71	551.72	524.14	491.95	455.17		
360.0	616.09	615.19	610.66	599.78	583.47	563.54	538.17	507.37	474.75		
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	433.08	392.31	345.19	295.36	244.62	192.98	141.34	93.32	44.39		
15.0	433.82	389.16	342.68	295.29	244.25	193.21	141.26	91.14	41.92		
30.0	429.90	388.82	341.36	291.16	240.05	188.93	137.82	90.36	41.99		
45.0	429.62	384.83	338.21	287.94	239.49	185.56	137.11	86.84	37.48		
60.0	427.51	383.57	336.88	286.53	235.27	184.00	132.74	84.22	33.87		
75.0	423.56	378.64	330.97	280.54	231.95	181.53	131.10	80.68	33.00		
90.0	421.73	374.97	330.05	280.54	229.20	177.86	126.52	79.76	29.34		
105.0	418.98	374.97	327.30	277.79	229.20	175.11	126.52	76.09	28.42		
120.0	418.69	370.94	325.95	277.29	225.87	174.45	123.95	76.21	27.55		
135.0	418.10	372.97	324.16	274.43	223.78	175.89	125.24	74.59	25.79		
150.0	416.55	374.25	323.68	276.78	226.21	174.71	123.22	72.64	26.67		
165.0	416.55	374.25	325.52	276.78	225.29	173.79	125.06	74.48	25.75		
180.0	396.84	351.53	302.61	252.78	201.14	149.49	98.76	51.64	7.25		
195.0	396.45	350.88	301.67	251.54	203.24	151.29	101.16	51.95	6.38		
210.0	398.86	352.31	303.03	252.83	202.63	151.51	103.14	52.03	8.21		
225.0	398.54	353.75	308.05	255.03	206.58	154.48	104.21	54.84	9.14		
240.0	401.88	357.02	307.59	257.24	206.89	155.62	107.11	55.84	11.90		
255.0	402.48	358.47	308.05	259.46	209.03	158.61	108.18	97.18	13.75		
270.0	405.23	360.30	311.71	300.71	211.78	161.36	110.93	61.43	17.42		
285.0	408.89	363.05	315.38	264.96	216.37	162.27	114.60	65.09	18.34		
300.0	408.59	366.35	318.60	268.11	217.61	166.19	114.77	65.19	21.12		
315.0	412.57	366.52	318.64	267.99	217.34	168.53	118.80	69.07	21.18		
330.0	414.71	366.90	320.92	271.26	220.69	169.20	117.70	68.05	20.23		
345.0	414.71	368.74	320.00	270.34	221.61	170.11	119.54	69.89	22.07		
360.0	433.08	392.31	345.19	295.36	244.62	192.98	141.34	93.32	44.39		

Light Blue USA-Rayhil INV-16-CCT-UNV-\*\*-2700K-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	3.62	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91		
15.0	2.73	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91		
30.0	2.74	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	0.91	0.91	0.91	0.91		
60.0	1.83	0.92	0.92	0.00	0.00	0.00	0.92	0.92	0.92		
75.0	1.83	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92		
90.0	0.92	0.92	0.92	0.92	0.92	0.00	0.92	0.92	0.92		
105.0	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92		
120.0	0.92	0.92	0.92	0.92	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	0.92	0.00	0.00	0.92	0.92	0.92		
165.0	0.92	0.92	0.92	0.00	0.00	0.00	0.92	0.92	0.92		
180.0	1.81	1.81	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	1.83	0.91	1.83	0.91	0.91	0.91	0.91	0.91	0.91		
225.0	1.83	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91		
240.0	1.83	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	1.83	0.92	0.92	0.92		
270.0	0.92	0.92	0.92	0.92	0.92	1.83	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	1.84	0.92	0.92	0.92	0.92	0.92	0.92		
360.0	3.62	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	1.81	1.81	2.72	2.72	3.62	3.62	3.62	3.62		
15.0	0.91	1.82	1.82	2.73	2.73	3.65	3.65	3.65	3.65		
30.0	0.91	0.91	1.83	2.74	2.74	3.65	3.65	3.65	3.65		
45.0	0.91	1.83	1.83	2.74	2.74	3.66	3.66	3.66	3.66		
60.0	0.92	1.83	1.83	2.75	2.75	3.66	3.66	3.66	3.66		
75.0	0.92	1.83	1.83	2.75	2.75	3.67	3.67	3.67	3.67		
90.0	0.92	1.83	1.83	2.75	2.75	3.67	3.67	3.67	3.67		
105.0	0.92	1.83	1.83	2.75	2.75	3.67	3.67	3.67	3.67		
120.0	0.92	1.84	1.84	2.75	2.75	3.67	3.67	3.67	3.67		
135.0	0.92	1.84	1.84	2.76	2.76	3.68	3.68	3.68	3.68		
150.0	0.92	0.92	1.84	2.76	2.76	3.68	3.68	3.68	3.68		
165.0	0.92	1.84	1.84	2.76	2.76	3.68	3.68	3.68	3.68		
180.0	0.91	0.91	0.91	1.81	1.81	2.72	2.72	2.72	3.62		
195.0	0.91	0.91	0.91	1.82	1.82	1.82	2.73	2.73	3.65		
210.0	0.91	0.91	0.91	1.83	1.83	2.74	2.74	2.74	3.65		
225.0	0.91	0.91	0.91	1.83	1.83	1.83	2.74	2.74	3.66		
240.0	0.92	0.92	0.92	1.83	1.83	2.75	2.75	2.75	3.66		
255.0	0.92	0.92	0.92	1.83	1.83	2.75	2.75	2.75	3.67		
270.0	0.92	0.92	0.92	1.83	1.83	2.75	2.75	2.75	3.67		
285.0	0.92	0.92	0.92	1.83	1.83	2.75	2.75	2.75	3.67		
300.0	0.92	0.92	0.92	1.84	1.84	1.84	2.75	2.75	3.67		
315.0	0.92	0.92	0.92	1.84	1.84	2.76	2.76	2.76	3.68		
330.0	0.92	0.92	0.92	1.84	1.84	2.76	2.76	2.76	3.68		
345.0	0.92	0.92	0.92	1.84	1.84	2.76	2.76	2.76	3.68		
360.0	0.91	1.81	1.81	2.72	2.72	3.62	3.62	3.62	3.62		

Intensity data(cd)

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C/γ(°)	180.0
0.0	3.62
15.0	3.65
30.0	3.65
45.0	3.66
60.0	3.66
75.0	3.67
90.0	4.58
105.0	3.67
120.0	3.67
135.0	3.68
150.0	3.68
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	3.62