
Light Blue USA-Rayhil

Client:

LumCAT: LCD-RD-9-5CCT-UNV-120-**

Luminaire: LED lamp

Report No:

Ballast type:

Test No:

Voltage(V): 120.020

LampCAT:

Current(A): 0.106

Lamp flux(lm): 1055.0

Power (W): 12.520

Number of Lamps: 1

PF: 0.982

Length(mm): -60

Width(mm): -60

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 1055.02, Efficiency(%): 100.00% , Luminous Efficacy(lm/W): 84.27

Central intensity(cd): 1598.524, Maximum intensity(cd): 1598.524

Angle of maximum intensity: C=15.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=43.0

[C90/270]Total=42.4

Field angle(10%Imax): [C0/180]Total=75.6

[C90/270]Total=75.2

Maximum s/h(1/2): C0_180=0.69 C90_270=0.68

Maximum s/h(1/4): C0_180=0.69 C90_270=0.68

Up flux rate of lamp(%): 0.27%

Down flux rate of lamp(%): 99.73%

Up flux rate of LUM(%): 0.27%

Down flux rate of LUM(%): 99.73%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 94.598%

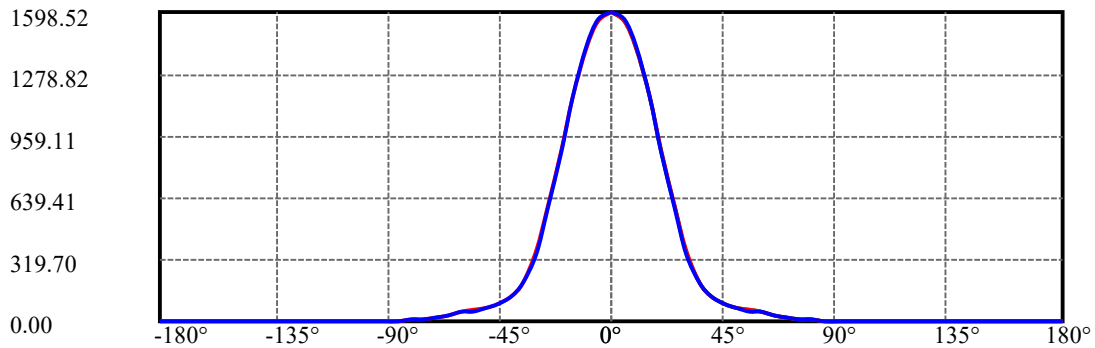
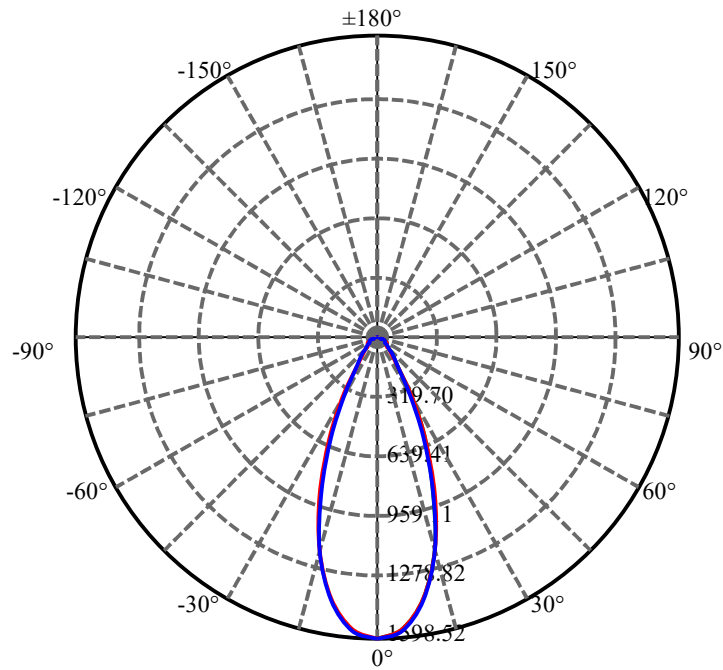
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1598.524	0.000	0	0.00%	0.00%
5.0	1554.666	37.695	37.695	3.57%	3.57%
10.0	1411.623	106.113	143.809	10.06%	13.63%
15.0	1164.236	152.798	296.607	14.48%	28.11%
20.0	876.665	168.199	464.806	15.94%	44.06%
25.0	587.751	153.590	618.396	14.56%	58.61%
30.0	356.972	119.555	737.952	11.33%	69.95%
35.0	197.968	81.719	819.67	7.75%	77.69%
40.0	127.957	54.378	874.048	5.15%	82.85%
45.0	91.028	40.547	914.595	3.84%	86.69%
50.0	69.793	32.496	947.091	3.08%	89.77%
55.0	55.991	27.350	974.441	2.59%	92.36%
60.0	46.031	23.582	998.023	2.24%	94.60%
65.0	33.770	19.400	1017.423	1.84%	96.44%
70.0	21.965	14.112	1031.535	1.34%	97.77%
75.0	14.526	9.538	1041.074	0.90%	98.68%
80.0	9.735	6.492	1047.565	0.62%	99.29%
85.0	3.525	3.603	1051.168	0.34%	99.63%
90.0	0.037	0.976	1052.144	0.09%	99.73%
95.0	0.000	0.010	1052.154	0.00%	99.73%
100.0	0.000	0.000	1052.154	0.00%	99.73%
105.0	0.000	0.000	1052.154	0.00%	99.73%
110.0	0.000	0.000	1052.154	0.00%	99.73%
115.0	0.000	0.000	1052.154	0.00%	99.73%
120.0	0.000	0.000	1052.154	0.00%	99.73%
125.0	0.000	0.000	1052.154	0.00%	99.73%
130.0	0.000	0.000	1052.154	0.00%	99.73%
135.0	0.000	0.000	1052.154	0.00%	99.73%
140.0	0.000	0.000	1052.154	0.00%	99.73%
145.0	0.460	0.077	1052.231	0.01%	99.74%
150.0	1.342	0.265	1052.496	0.03%	99.76%
155.0	2.300	0.461	1052.957	0.04%	99.80%
160.0	3.182	0.575	1053.532	0.05%	99.86%
165.0	4.140	0.603	1054.136	0.06%	99.92%
170.0	4.140	0.491	1054.627	0.05%	99.96%
175.0	4.562	0.311	1054.938	0.03%	99.99%
180.0	2.300	0.082	1055.02	0.01%	100.00%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	737.95	69.95%	69.95%
0-40	874.05	82.85%	82.85%
0-60	998.02	94.60%	94.60%
0-90	1052.14	99.73%	99.73%
0-120	1052.15	99.73%	99.73%
0-180	1055.02	100.00%	100.00%
60-90	54.12	5.13%	5.13%
90-120	0.01	0.00%	0.00%
90-130	0.01	0.00%	0.00%
90-150	0.35	0.03%	0.03%
90-180	2.79	0.26%	0.26%
0-37.24	844.02	80.00%	80.00%

ZONAL LUMEN SUMMARY

0-10	143.81
10-20	321.00
20-30	273.15
30-40	136.10
40-50	73.04
50-60	50.93
60-70	33.51
70-80	16.03
80-90	4.58
90-100	0.01
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.34
150-160	1.04
160-170	1.09
170-180	0.31



C15(Max):

C0/C180:

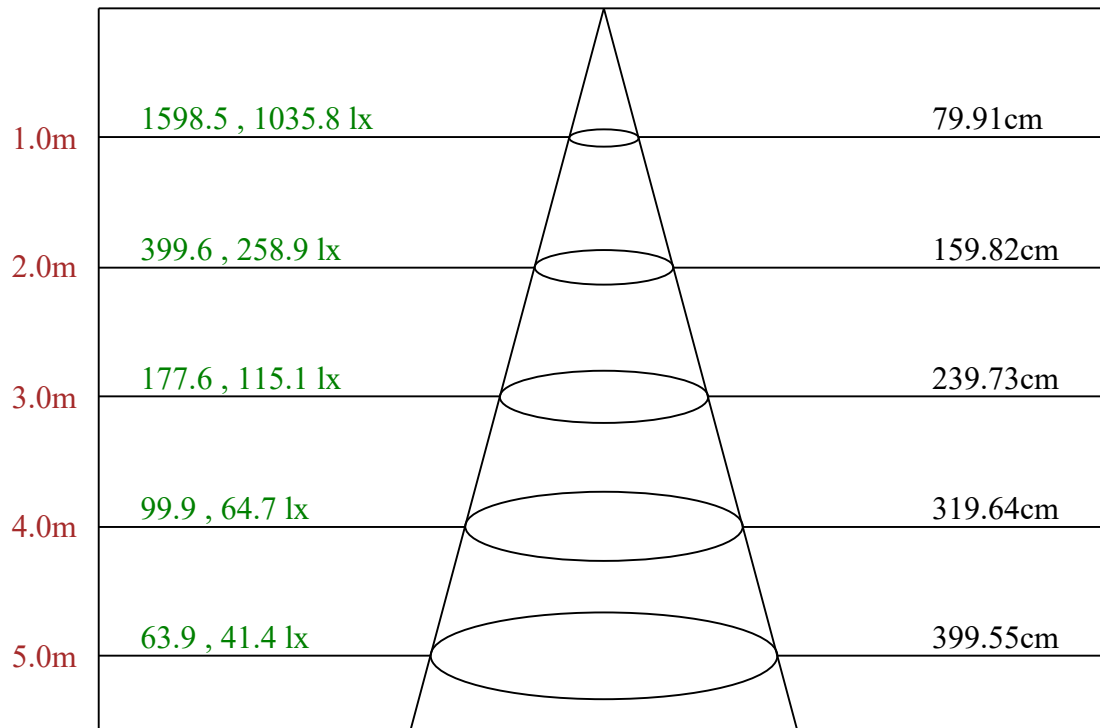
C90/C270:

Field angle(10%Imax):C0/180Left:37.8 Right:37.8

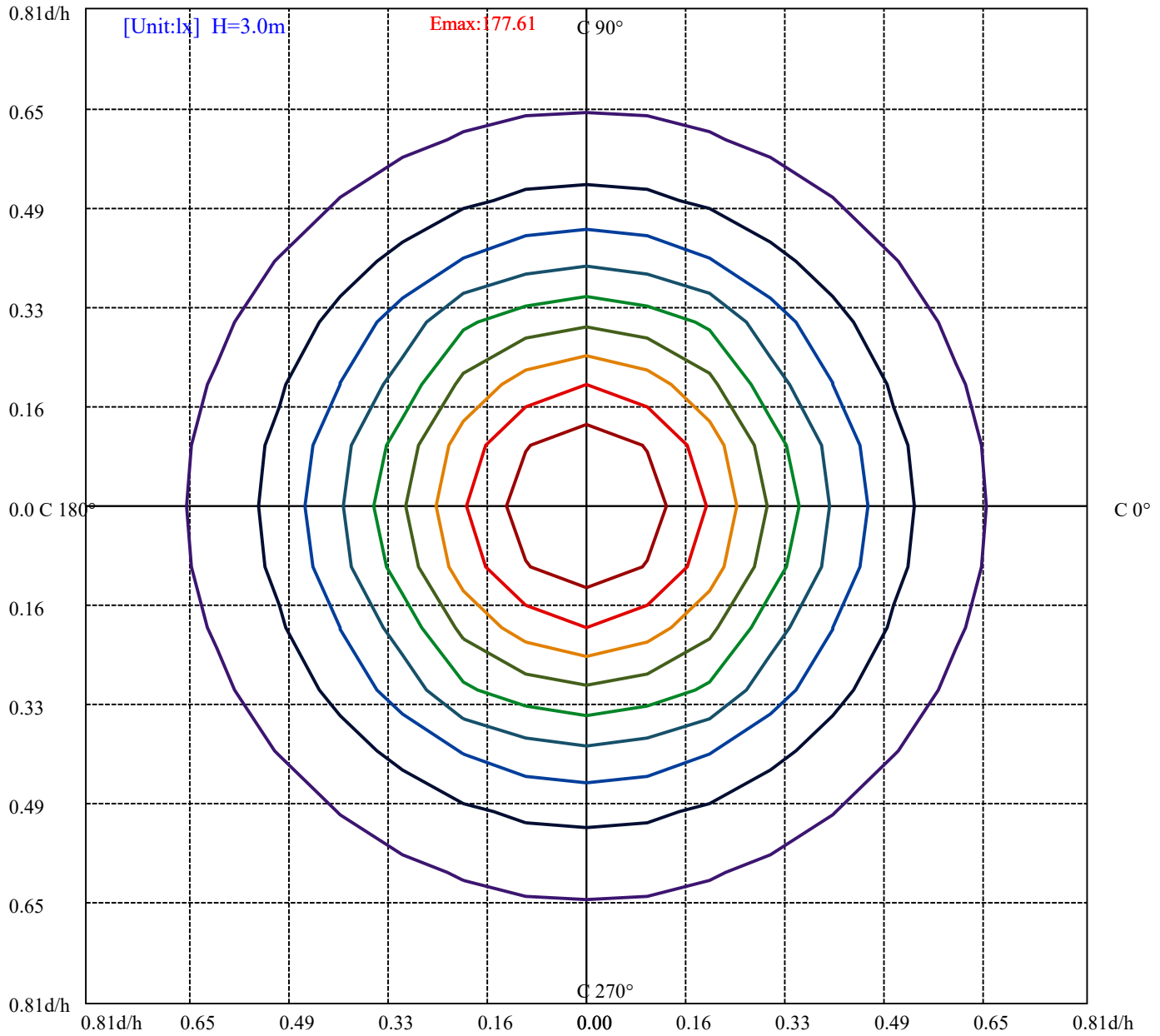
:C90/270Left:37.6 Right:37.6

Beam Angle(50%Imax):C0/180Left:21.5 Right:21.5

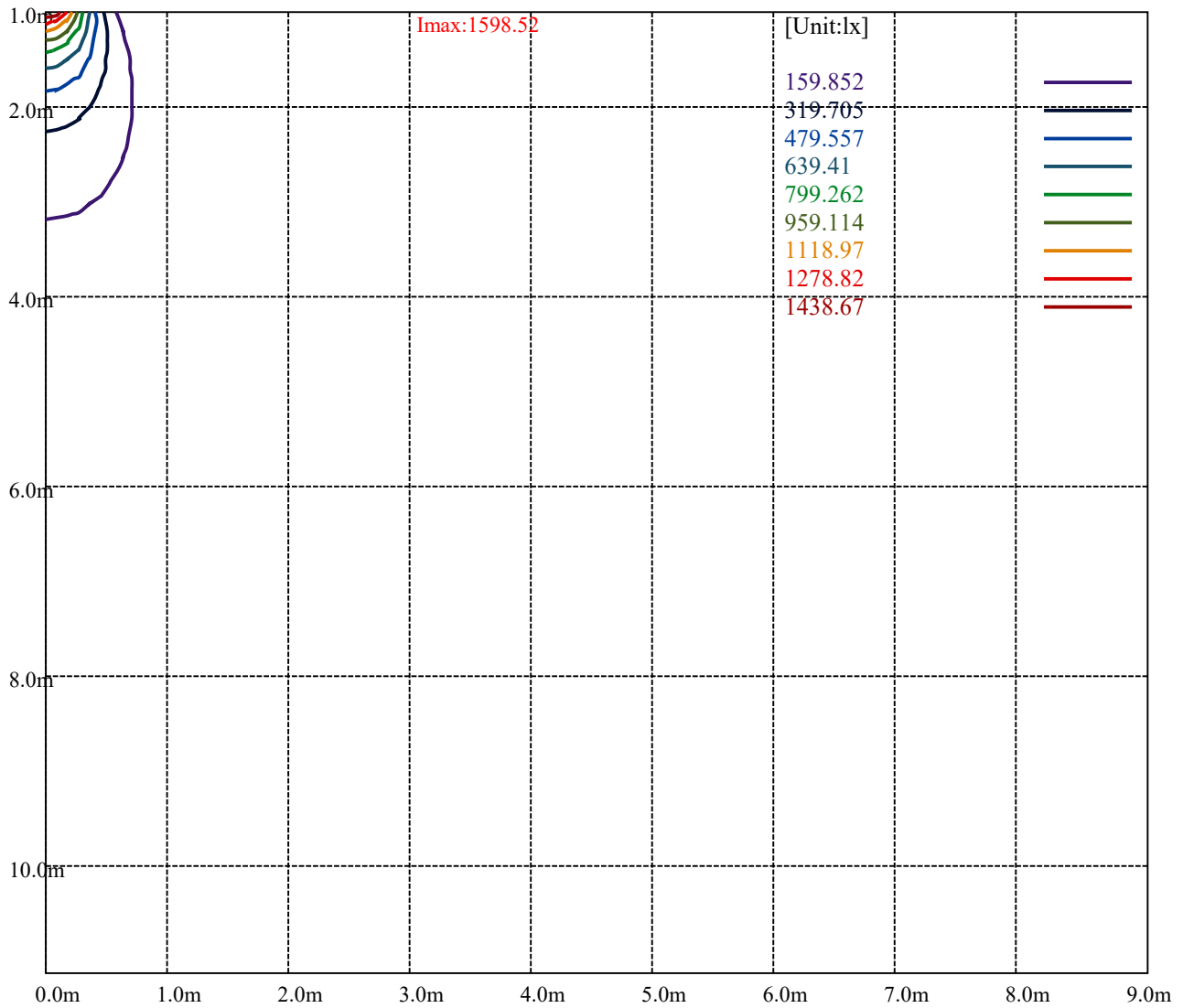
:C90/270Left:21.2 Right:21.2



Max , Ave Beam angle of C15 plane 43.56



(10%Emax)	17.76133	
(20%Emax)	35.52278	
(30%Emax)	53.28411	
(40%Emax)	71.04544	
(50%Emax)	88.80678	
(60%Emax)	106.5682	
(70%Emax)	124.33	
(80%Emax)	142.0911	
(90%Emax)	159.8522	



Luminance Table

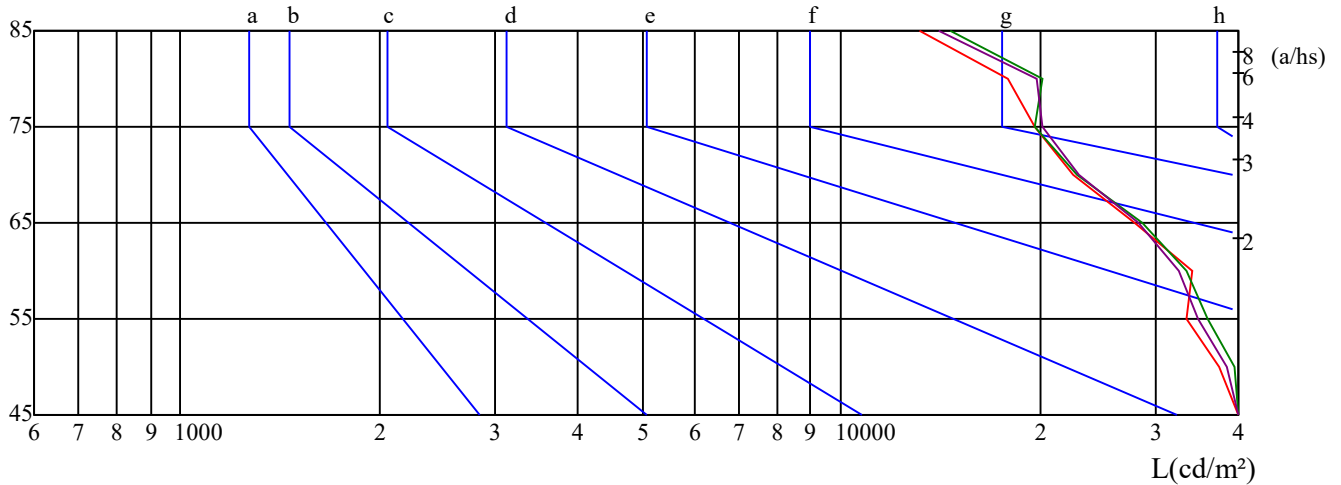
γ	45	50	55	60	65	70	75	80	85
C0	46569	39349	36055	33406	28607	22790	19668	20154	14602
C45	45626	38472	34688	32425	28291	22986	20246	19801	14088
C90	44676	37433	33389	34046	27886	22493	19605	17910	13146

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
28607	27886	28291	19668	19605	20246	14602	13146	14088

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

 $\gamma(^{\circ})$ 

C0 ———

C45 ———

C90 ———

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	1.10	1.07	1.04	1.07	1.05	1.03	1.03	1.01	1.00	1.00	0.98	0.97	0.96	0.95	0.94	0.92
2	1.01	0.97	0.93	1.00	0.96	0.92	0.96	0.93	0.90	0.93	0.90	0.88	0.90	0.88	0.86	0.84
3	0.94	0.89	0.84	0.93	0.88	0.84	0.90	0.86	0.82	0.87	0.84	0.81	0.85	0.82	0.80	0.78
4	0.88	0.82	0.77	0.87	0.81	0.77	0.84	0.80	0.76	0.82	0.78	0.75	0.80	0.77	0.74	0.73
5	0.82	0.76	0.72	0.81	0.75	0.71	0.79	0.74	0.71	0.78	0.73	0.70	0.76	0.72	0.69	0.68
6	0.77	0.71	0.67	0.76	0.71	0.66	0.75	0.70	0.66	0.73	0.69	0.65	0.72	0.68	0.65	0.63
7	0.73	0.67	0.62	0.72	0.66	0.62	0.71	0.66	0.62	0.70	0.65	0.61	0.68	0.64	0.61	0.60
8	0.69	0.63	0.59	0.68	0.63	0.59	0.67	0.62	0.58	0.66	0.61	0.58	0.65	0.61	0.58	0.56
9	0.65	0.59	0.55	0.65	0.59	0.55	0.64	0.59	0.55	0.63	0.58	0.55	0.62	0.58	0.55	0.53
10	0.62	0.56	0.52	0.62	0.56	0.52	0.61	0.56	0.52	0.60	0.55	0.52	0.59	0.55	0.52	0.51

Light Blue USA-Rayhil LCD-RD-9-5CCT-UNV-120-**

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	1598.52	1606.62	1521.16	1304.37	1021.00	712.45	435.39	237.48	142.13
15.0	1598.52	1606.69	1517.74	1306.23	1009.40	699.86	436.62	236.92	141.61
30.0	1598.52	1598.52	1507.08	1302.23	1005.94	695.92	421.58	227.71	139.00
45.0	1598.52	1601.28	1506.55	1282.13	997.93	671.42	415.73	224.42	137.04
60.0	1598.52	1601.28	1487.23	1269.25	970.34	662.22	397.33	214.30	135.20
75.0	1598.52	1599.45	1485.00	1248.73	958.93	642.36	394.09	214.12	132.90
90.0	1598.52	1590.19	1480.05	1242.17	941.34	638.67	385.05	217.52	131.44
105.0	1598.52	1585.57	1463.46	1236.82	937.10	640.15	391.31	219.24	135.06
120.0	1598.52	1575.46	1455.55	1213.88	917.79	629.08	398.48	218.61	138.36
135.0	1598.52	1589.20	1464.23	1223.61	941.02	650.97	404.76	229.43	139.89
150.0	1598.52	1567.94	1441.91	1226.00	727.44	650.53	404.03	230.74	142.71
165.0	1598.52	1563.41	1438.67	1212.29	938.79	659.74	426.89	233.77	138.60
180.0	1598.52	1495.97	1295.37	1028.20	747.54	488.46	293.26	166.42	113.34
195.0	1598.52	1492.32	1304.42	1029.37	766.13	507.42	300.46	169.75	114.37
210.0	1598.52	1502.50	1314.12	1046.17	769.08	497.48	315.50	171.01	114.31
225.0	1598.52	1505.63	1336.40	1058.63	790.98	527.02	315.47	175.67	115.89
240.0	1598.52	1510.23	1333.64	1077.03	791.90	525.18	312.71	174.75	116.81
255.0	1598.52	1515.46	1349.33	1077.07	805.72	534.38	317.49	178.13	117.21
270.0	1598.52	1530.03	1354.16	1090.37	798.80	524.82	310.08	175.87	117.55
285.0	1598.52	1525.44	1356.16	1084.18	786.31	526.37	310.82	174.84	156.34
300.0	1598.52	1522.89	1365.16	1093.05	1048.77	503.63	304.39	170.64	114.38
315.0	1598.52	1551.89	1364.43	1104.23	797.40	515.74	298.44	168.81	115.65
330.0	1598.52	1538.29	1365.00	1090.70	782.12	500.41	293.76	161.24	112.13
345.0	1598.52	1535.69	1372.14	1094.94	788.17	501.73	283.67	159.85	109.03
360.0	1598.52	1606.62	1521.16	1304.37	1021.00	712.45	435.39	237.48	142.13

C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	102.55	77.36	62.97	51.28	38.68	26.09	16.19	11.69	5.40
15.0	101.67	78.07	61.73	50.83	38.12	24.51	16.34	11.80	5.45
30.0	101.51	76.82	61.27	50.30	36.58	24.69	16.46	10.97	5.49
45.0	99.33	75.42	60.70	48.75	35.87	23.91	15.64	11.04	4.60
60.0	97.49	74.50	58.86	47.83	34.95	22.99	14.72	10.12	4.60
75.0	95.06	71.99	57.22	47.07	35.07	23.07	14.77	10.15	3.69
90.0	95.34	71.27	56.46	46.28	35.17	23.14	14.81	9.26	3.70
105.0	95.28	72.16	56.43	47.18	36.08	24.05	14.80	10.18	3.70
120.0	96.85	72.87	57.19	46.12	36.90	23.98	15.68	11.07	4.61
135.0	97.93	73.68	58.76	47.56	37.31	25.18	15.85	11.19	4.66
150.0	99.15	74.13	59.31	48.19	37.99	25.95	15.75	11.12	5.56
165.0	99.79	75.77	59.14	49.90	38.81	25.87	15.71	12.01	5.54
180.0	83.66	65.67	53.97	43.18	29.69	17.99	12.59	8.10	1.80
195.0	85.33	66.26	54.46	43.57	29.96	19.06	13.62	8.17	1.82
210.0	85.05	66.76	53.95	43.90	31.09	19.20	14.63	8.23	2.74
225.0	84.62	65.30	54.27	44.15	31.27	20.23	14.72	9.20	2.76
240.0	82.78	65.30	53.35	44.15	31.27	20.23	13.80	9.20	2.76
255.0	83.99	64.61	52.61	43.38	31.38	20.30	13.84	12.92	2.77
270.0	83.30	64.79	51.83	49.98	31.47	20.36	13.88	8.33	2.78
285.0	84.18	64.76	51.80	42.55	31.45	20.35	12.95	8.33	2.78
300.0	83.02	63.65	51.65	42.43	31.36	19.37	12.91	8.30	1.84
315.0	83.00	65.28	51.29	42.90	30.78	19.59	13.06	7.46	1.87
330.0	82.47	63.94	51.89	41.70	30.58	18.53	12.97	7.41	1.85
345.0	81.31	64.68	52.67	41.58	28.64	18.48	12.94	7.39	1.85
360.0	102.55	77.36	62.97	51.28	38.68	26.09	16.19	11.69	5.40

Light Blue USA-Rayhil LCD-RD-9-5CCT-UNV-120-**

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	0.90	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	0.00	0.00	0.00
180.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
195.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
210.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
225.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
240.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
255.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
270.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
285.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
300.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
315.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
330.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
345.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
360.0	0.90	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	0.00	0.90	1.80	2.70	3.60	4.50	4.50	4.50
15.0	0.00	0.00	0.91	0.91	2.72	3.63	4.54	4.54	4.54
30.0	0.00	0.00	0.91	1.83	2.74	3.66	4.57	4.57	4.57
45.0	0.00	0.00	0.92	1.84	2.76	3.68	4.60	4.60	4.60
60.0	0.00	0.00	0.92	1.84	2.76	3.68	4.60	4.60	4.60
75.0	0.00	0.00	0.92	1.85	2.77	3.69	4.61	4.61	4.61
90.0	0.00	0.00	0.93	1.85	2.78	3.70	4.63	4.63	4.63
105.0	0.00	0.00	0.93	1.85	2.78	3.70	4.63	4.63	4.63
120.0	0.00	0.00	0.92	1.84	2.77	3.69	4.61	4.61	4.61
135.0	0.00	0.00	0.93	1.87	2.80	3.73	4.66	4.66	4.66
150.0	0.00	0.00	0.93	1.85	2.78	3.71	4.63	4.63	4.63
165.0	0.00	0.00	0.92	1.85	2.77	3.70	4.62	4.62	4.62
180.0	0.00	0.00	0.00	0.90	1.80	2.70	3.60	3.60	4.50
195.0	0.00	0.00	0.00	0.91	1.82	1.82	3.63	3.63	4.54
210.0	0.00	0.00	0.00	0.91	1.83	2.74	3.66	3.66	4.57
225.0	0.00	0.00	0.00	0.92	1.84	2.76	3.68	3.68	4.60
240.0	0.00	0.00	0.00	0.92	1.84	2.76	3.68	3.68	3.68
255.0	0.00	0.00	0.00	0.92	1.85	2.77	3.69	3.69	4.61
270.0	0.00	0.00	0.00	0.93	1.85	2.78	3.70	3.70	4.63
285.0	0.00	0.00	0.00	0.93	1.85	2.78	3.70	3.70	4.63
300.0	0.00	0.00	0.00	0.92	1.84	2.77	3.69	3.69	4.61
315.0	0.00	0.00	0.00	0.93	1.87	2.80	3.73	3.73	4.66
330.0	0.00	0.00	0.00	0.93	1.85	2.78	3.71	3.71	4.63
345.0	0.00	0.00	0.00	0.92	1.85	2.77	3.70	3.70	4.62
360.0	0.00	0.00	0.90	1.80	2.70	3.60	4.50	4.50	4.50

Intensity data(cd)

C/ γ (°)	180.0
0.0	4.50
15.0	4.54
30.0	4.57
45.0	4.60
60.0	4.60
75.0	4.61
90.0	4.63
105.0	4.63
120.0	4.61
135.0	4.66
150.0	4.63
165.0	4.62
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	4.50