
Light Blue USA-Rayhil

Client:

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

Luminaire: LED lamp

Report No:

Ballast type:

Test No:

Voltage(V): 120.010

LampCAT:

Current(A): 0.112

Lamp flux(lm): 1042.1

Power (W): 13.210

Number of Lamps: 1

PF: 0.984

Length(mm): -60

Width(mm): -60

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 1042.05, Efficiency(%): 100.00% , Luminous Efficacy(lm/W): 78.88

Central intensity(cd): 1578.821, Maximum intensity(cd): 1578.821

Angle of maximum intensity: C=45.0 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=75.0

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

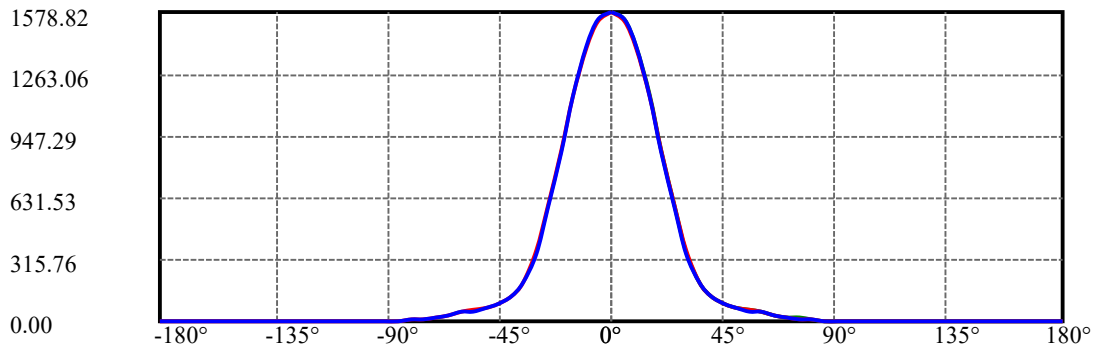
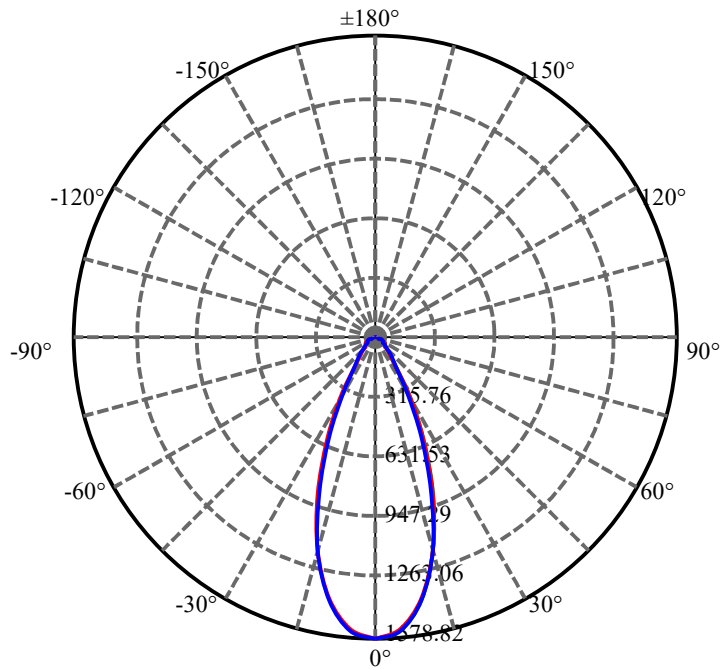
Output flux ratio in π solid angle : 94.600%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1578.821	0.000	0	0.00%	0.00%
5.0	1535.538	37.231	37.231	3.57%	3.57%
10.0	1394.183	104.805	142.037	10.06%	13.63%
15.0	1150.015	150.920	292.957	14.48%	28.11%
20.0	865.818	166.133	459.09	15.94%	44.06%
25.0	580.432	151.685	610.775	14.56%	58.61%
30.0	352.641	118.081	728.856	11.33%	69.94%
35.0	195.515	80.720	809.576	7.75%	77.69%
40.0	126.386	53.707	863.282	5.15%	82.84%
45.0	90.032	40.072	903.354	3.85%	86.69%
50.0	68.911	32.117	935.471	3.08%	89.77%
55.0	55.340	27.016	962.487	2.59%	92.37%
60.0	45.419	23.290	985.777	2.24%	94.60%
65.0	33.349	19.149	1004.926	1.84%	96.44%
70.0	21.659	13.928	1018.854	1.34%	97.77%
75.0	14.450	9.438	1028.293	0.91%	98.68%
80.0	9.505	6.410	1034.702	0.62%	99.30%
85.0	3.487	3.530	1038.232	0.34%	99.63%
90.0	0.037	0.965	1039.197	0.09%	99.73%
95.0	0.000	0.010	1039.208	0.00%	99.73%
100.0	0.000	0.000	1039.208	0.00%	99.73%
105.0	0.000	0.000	1039.208	0.00%	99.73%
110.0	0.000	0.000	1039.208	0.00%	99.73%
115.0	0.000	0.000	1039.208	0.00%	99.73%
120.0	0.000	0.000	1039.208	0.00%	99.73%
125.0	0.000	0.000	1039.208	0.00%	99.73%
130.0	0.000	0.000	1039.208	0.00%	99.73%
135.0	0.000	0.000	1039.208	0.00%	99.73%
140.0	0.000	0.000	1039.208	0.00%	99.73%
145.0	0.460	0.077	1039.284	0.01%	99.73%
150.0	1.342	0.265	1039.55	0.03%	99.76%
155.0	2.300	0.461	1040.011	0.04%	99.80%
160.0	3.182	0.575	1040.586	0.06%	99.86%
165.0	3.948	0.588	1041.173	0.06%	99.92%
170.0	4.140	0.480	1041.653	0.05%	99.96%
175.0	4.562	0.311	1041.965	0.03%	99.99%
180.0	2.300	0.082	1042.047	0.01%	100.00%

ZONAL LUMEN SUMMARY			
Zone	Lumens	%Lamp	%Fixt
0-30	728.86	69.94%	69.94%
0-40	863.28	82.84%	82.84%
0-60	985.78	94.60%	94.60%
0-90	1039.20	99.73%	99.73%
0-120	1039.21	99.73%	99.73%
0-180	1042.05	100.00%	100.00%
60-90	53.42	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	2.77	0.27%	0.27%
0-37.24	833.64	80.00%	80.00%

ZONAL LUMEN SUMMARY

0-10	142.04
10-20	317.05
20-30	269.77
30-40	134.43
40-50	72.19
50-60	50.31
60-70	33.08
70-80	15.85
80-90	4.50
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	1.07
170-180	0.31



C45(Max): —————

C0/C180: —————

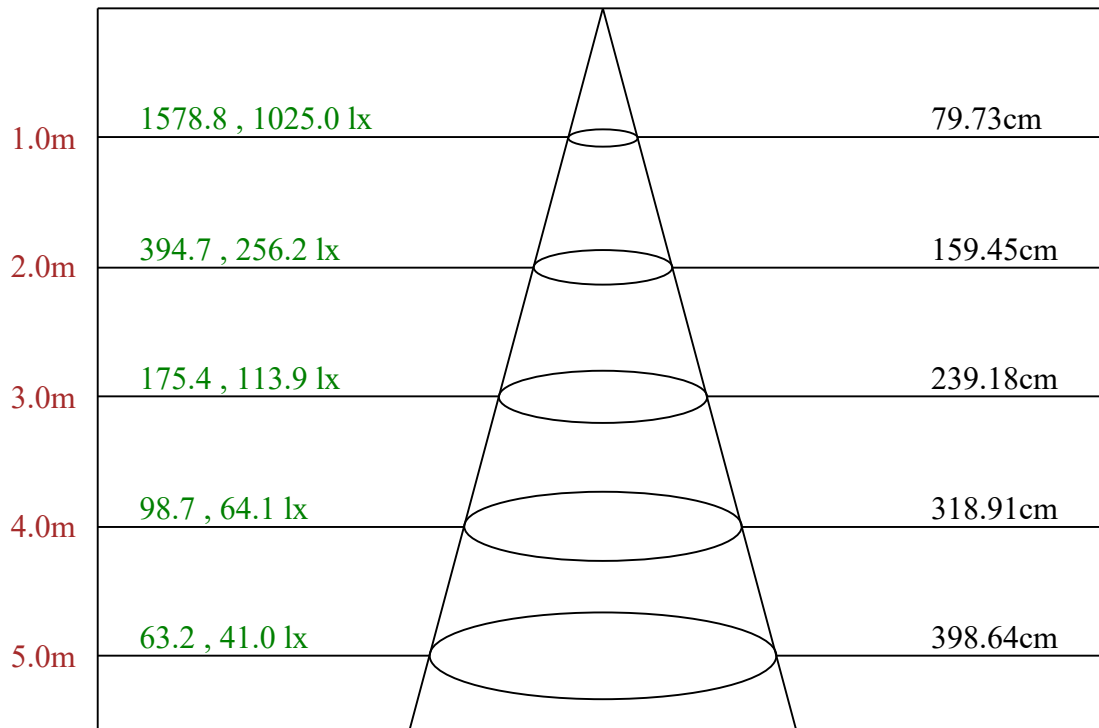
C90/C270: —————

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

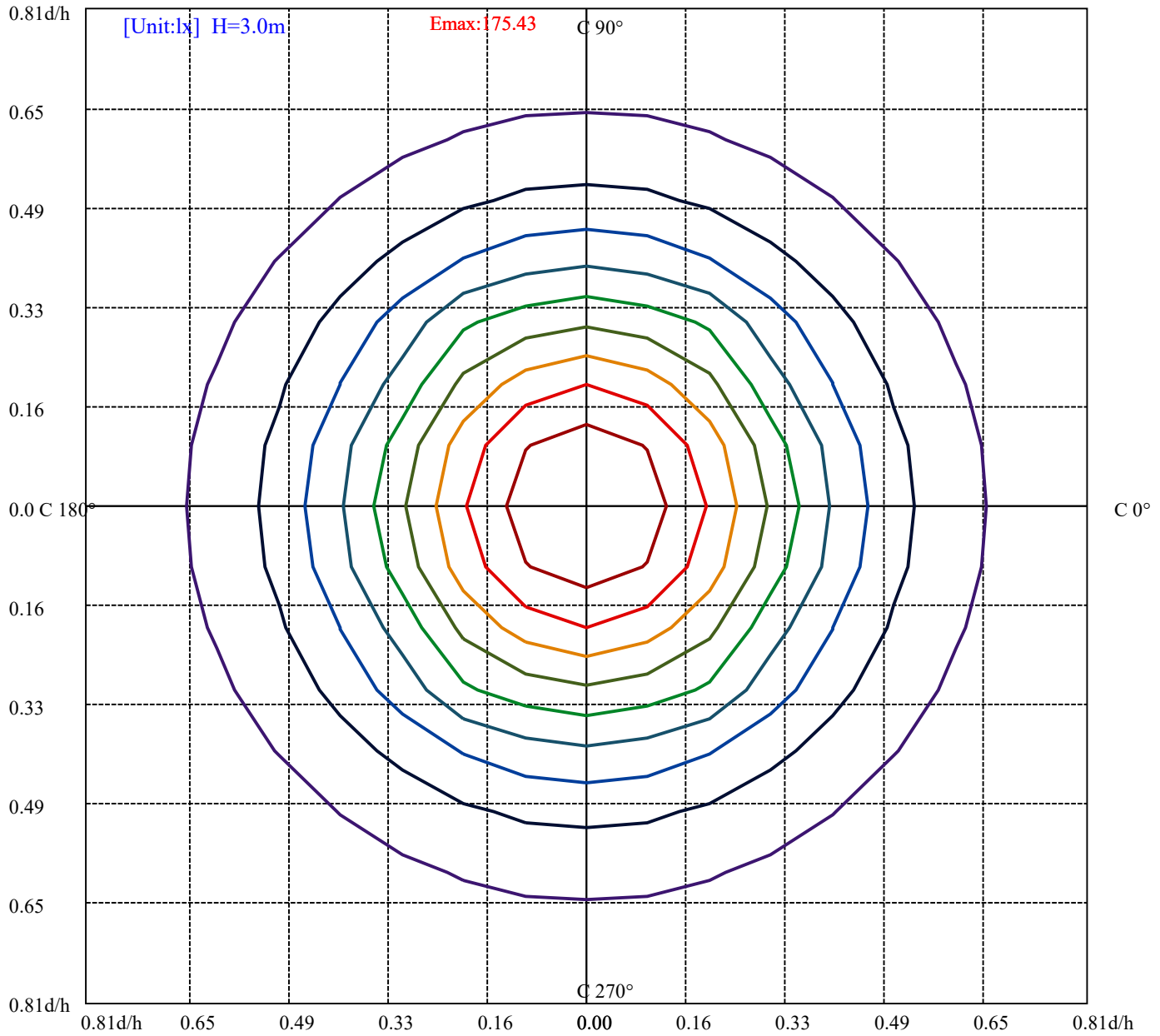
:C90/270Left:37.5 Right:37.5

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

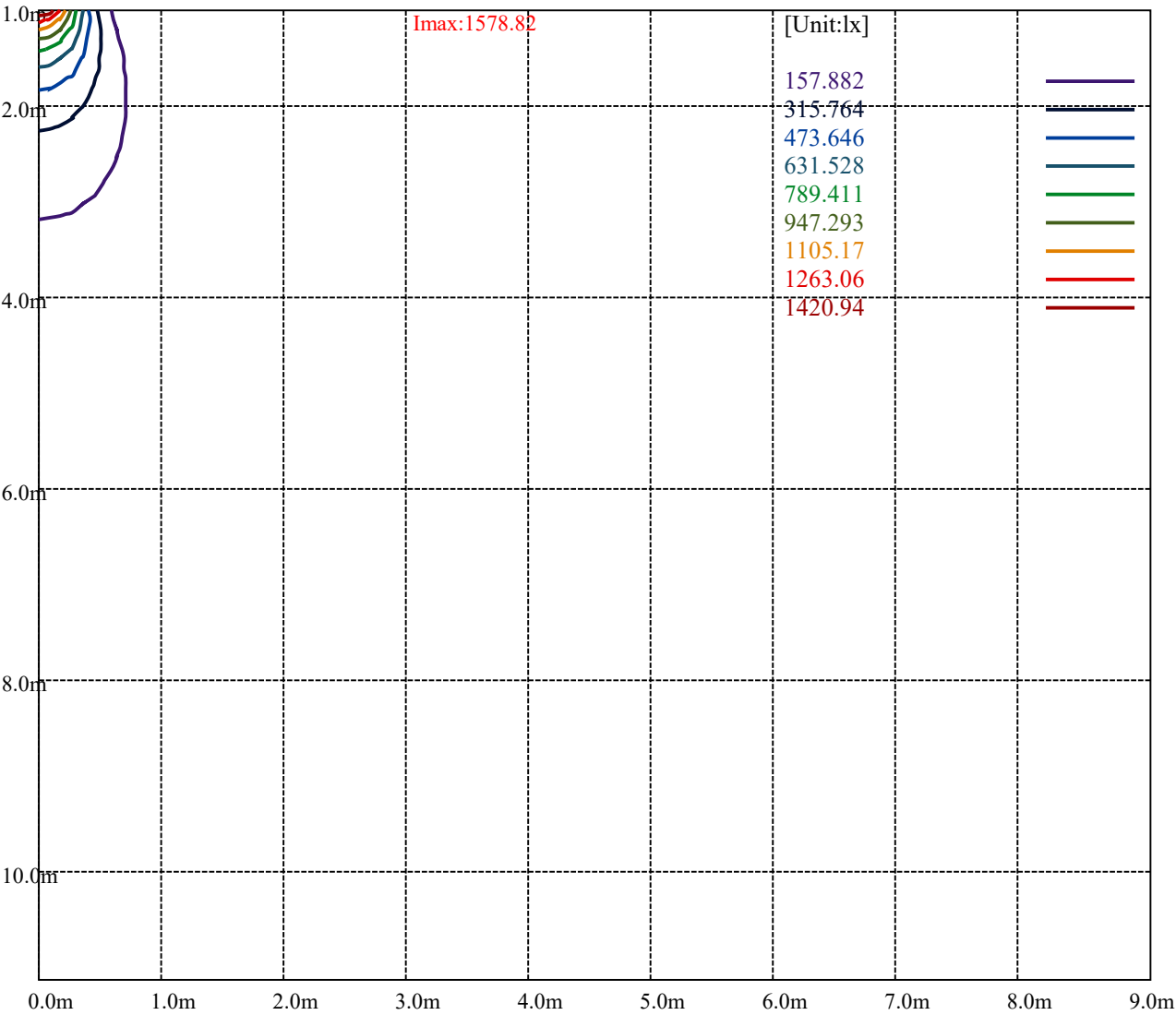
:C90/270Left:21.2 Right:21.2



Max , Ave Beam angle of C45 plane 43.47



(10%Emax)	17.54244	
(20%Emax)	35.08489	
(30%Emax)	52.62733	
(40%Emax)	70.16978	
(50%Emax)	87.71222	
(60%Emax)	105.2547	
(70%Emax)	122.7967	
(80%Emax)	140.34	
(90%Emax)	157.8822	



Luminance Table

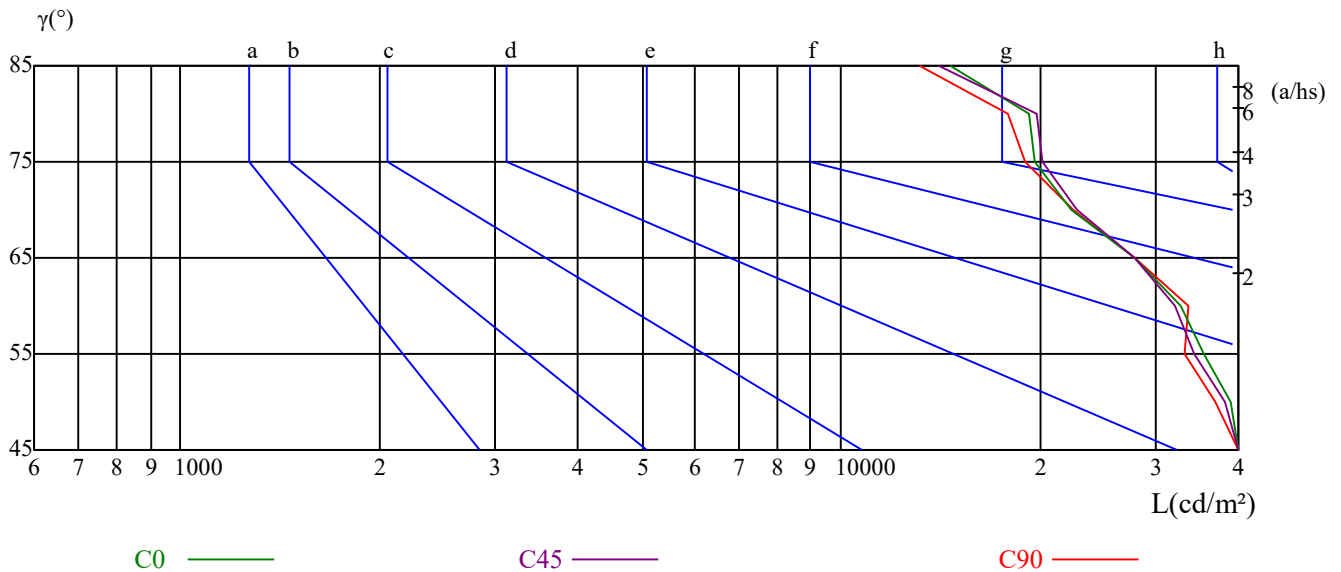
γ	45	50	55	60	65	70	75	80	85
C0	45896	38857	35502	32772	27856	22327	19669	19239	14603
C45	45182	38105	34275	32111	27916	22758	20254	19809	14094
C90	44206	36917	33098	33713	27881	22489	18970	17907	13144

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
27856	27881	27916	19669	18970	20254	14603	13144	14094

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	1.10	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	1578.82	1586.92	1502.35	1288.25	1008.47	703.50	430.02	234.80	140.34		
15.0	1578.82	1587.90	1498.93	1290.11	996.86	690.90	432.16	234.24	139.82		
30.0	1578.82	1579.74	1488.26	1287.02	994.31	686.96	416.20	225.02	137.21		
45.0	1578.82	1582.50	1487.74	1266.92	985.38	663.36	411.27	221.73	136.17		
60.0	1578.82	1581.58	1468.48	1253.31	958.14	653.78	392.64	211.49	133.33		
75.0	1578.82	1578.82	1466.25	1233.71	946.74	634.85	389.40	211.31	131.03		
90.0	1578.82	1570.49	1462.21	1227.15	930.08	630.23	380.36	214.70	129.56		
105.0	1578.82	1565.87	1445.63	1221.81	924.91	631.71	386.61	216.43	133.19		
120.0	1578.82	1555.77	1436.80	1198.87	906.53	620.65	393.78	215.80	136.49		
135.0	1578.82	1570.42	1447.25	1209.31	930.31	642.91	399.37	226.75	139.03		
150.0	1578.82	1548.25	1424.09	1210.99	718.07	643.02	399.34	227.00	140.83		
165.0	1578.82	1543.72	1420.85	1197.28	926.60	652.22	421.27	230.96	136.73		
180.0	1578.82	1477.16	1279.25	1015.66	738.58	482.19	289.68	164.63	111.55		
195.0	1578.82	1473.51	1288.30	1016.84	757.18	501.16	296.88	167.05	112.58		
210.0	1578.82	1484.60	1298.00	1033.64	759.22	492.12	311.92	168.31	113.43		
225.0	1578.82	1487.74	1321.20	1046.11	782.05	520.75	311.90	173.89	115.01		
240.0	1578.82	1491.47	1316.76	1063.89	781.59	518.61	308.96	172.87	115.86		
255.0	1578.82	1496.70	1332.45	1063.93	795.41	527.81	313.73	176.24	115.34		
270.0	1578.82	1511.26	1337.28	1076.30	788.49	518.25	306.32	173.06	116.61		
285.0	1578.82	1506.68	1339.27	1071.05	776.00	519.80	306.15	172.96	154.46		
300.0	1578.82	1504.12	1348.27	1078.98	1035.64	497.07	300.64	168.76	112.51		
315.0	1578.82	1533.10	1348.34	1090.80	787.54	509.48	294.86	167.03	114.77		
330.0	1578.82	1518.60	1348.11	1077.56	772.73	493.84	290.01	159.36	110.26		
345.0	1578.82	1516.00	1354.33	1080.88	778.79	495.17	279.92	157.97	107.16		
360.0	1578.82	1586.92	1502.35	1288.25	1008.47	703.50	430.02	234.80	140.34		
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	101.66	76.47	62.07	50.38	37.78	25.19	16.19	11.69	5.40		
15.0	100.78	77.17	61.74	49.93	37.22	24.51	16.34	11.80	5.45		
30.0	99.71	75.92	61.29	49.40	36.59	23.78	16.47	10.98	5.49		
45.0	98.45	74.52	59.80	48.76	35.88	23.00	15.64	11.04	4.60		
60.0	96.55	73.56	57.93	47.82	34.94	22.99	14.71	10.11	4.60		
75.0	94.12	71.05	56.29	46.14	35.06	23.07	14.76	9.23	3.69		
90.0	94.40	70.33	55.53	46.27	35.17	23.14	14.81	9.25	3.70		
105.0	94.34	71.22	55.49	46.25	35.15	23.12	14.80	10.17	3.70		
120.0	95.91	71.93	56.25	46.11	35.97	23.98	15.68	10.14	4.61		
135.0	97.04	72.78	57.85	47.59	36.39	25.19	15.86	11.20	4.67		
150.0	98.21	73.20	58.37	48.18	37.06	25.02	15.75	11.12	4.63		
165.0	98.85	74.83	59.12	48.96	38.80	24.94	15.71	11.09	5.54		
180.0	81.86	64.77	53.08	42.28	28.79	17.99	12.59	7.20	1.80		
195.0	84.43	65.37	53.57	42.67	29.96	19.07	13.62	8.17	1.82		
210.0	84.16	65.86	53.97	42.99	30.19	19.21	13.72	8.23	2.74		
225.0	83.73	65.32	53.36	43.24	30.36	20.24	14.72	9.20	2.76		
240.0	81.84	64.37	52.41	43.22	30.34	19.31	13.79	8.28	2.76		
255.0	83.05	63.67	51.67	43.37	31.37	20.30	13.84	12.92	2.77		
270.0	82.37	63.86	51.83	49.05	31.47	20.36	12.96	8.33	2.78		
285.0	83.24	63.82	50.87	42.55	31.45	19.42	12.95	8.32	2.77		
300.0	82.08	62.71	51.64	41.50	31.36	19.37	12.91	7.38	1.84		
315.0	82.11	64.38	51.32	41.99	30.79	19.60	13.06	7.46	1.87		
330.0	81.54	63.00	50.96	40.77	29.65	18.53	12.97	7.41	1.85		
345.0	80.37	63.74	51.73	40.65	28.64	18.48	12.93	7.39	1.85		
360.0	101.66	76.47	62.07	50.38	37.78	25.19	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	0.92	1.85	2.77	3.70	4.62	4.62	4.62
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	4.67	4.67	4.67
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	2.76	3.68	3.68
255.0	0.00	0.00	0.00	0.92	1.85	2.77	2.77	3.69	4.61
270.0	0.00	0.00	0.00	0.93	1.85	2.78	2.78	3.70	4.63
285.0	0.00	0.00	0.00	0.92	1.85	2.77	2.77	3.70	4.62
300.0	0.00	0.00	0.00	0.92	1.84	2.77	2.77	3.69	4.61
315.0	0.00	0.00	0.00	0.93	1.87	2.80	3.73	3.73	4.67
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	4.62
120.0	4.61
135.0	4.67
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