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Light Blue USA-Rayhil

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Client:

LumCAT: LCD-RDD-2x12-5CCT-36-UNV-\*\*

Luminaire: LED lamp

Report No:

Ballast type:

Test No:

Voltage(V): 119.970

LampCAT:

Current(A): 0.211

Lamp flux(lm): 1976.3

Power (W): 25.220

Number of Lamps: 1

PF: 0.994

Length(mm): 185

Width(mm): 55

Phm Type: C

Height(mm): 0

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Photometric Results

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Lumens(lm): 1976.26, Efficiency(%): 100.00% , Luminous Efficacy(lm/W): 78.36

Central intensity(cd): 2878.815, Maximum intensity(cd): 2878.815

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

Beam Angle(50%Imax): [C0/180]Total=42.2

[C90/270]Total=43.0

Field angle(10%Imax): [C0/180]Total=77.6

[C90/270]Total=77.6

Maximum s/h(1/2): C0\_180=0.67 C90\_270=0.69

Maximum s/h(1/4): C0\_180=0.69 C90\_270=0.70

Up flux rate of lamp(%): 0.30%

Down flux rate of lamp(%): 99.70%

Up flux rate of LUM(%): 0.30%

Down flux rate of LUM(%): 99.70%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 93.740%

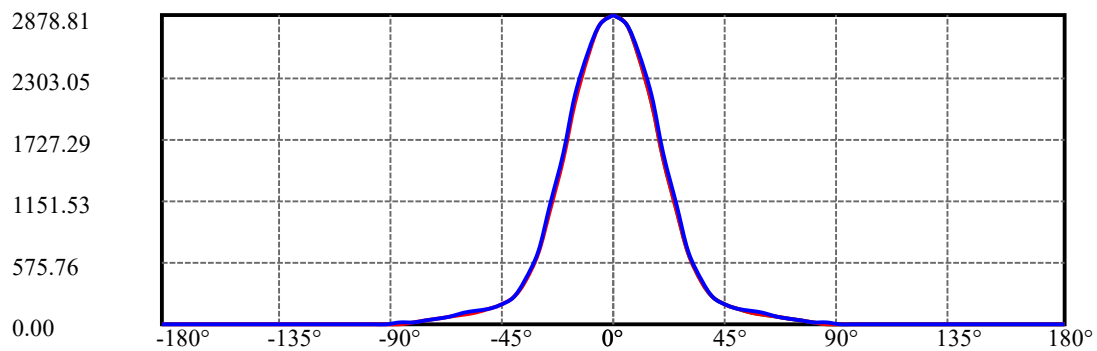
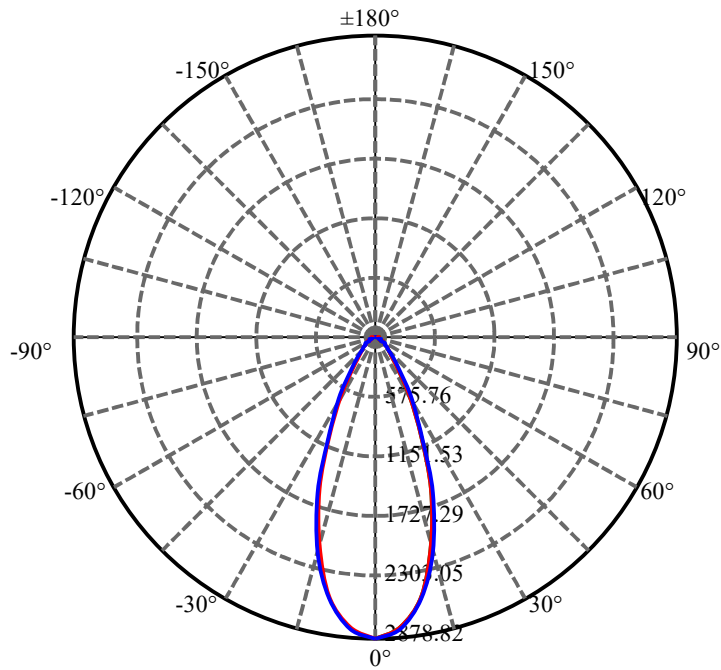
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	2878.815	0.000	0	0.00%	0.00%
5.0	2791.131	67.783	67.783	3.43%	3.43%
10.0	2526.988	190.246	258.028	9.63%	13.06%
15.0	2088.870	273.810	531.838	13.85%	26.91%
20.0	1576.130	302.047	833.886	15.28%	42.20%
25.0	1077.053	278.270	1112.155	14.08%	56.28%
30.0	665.258	220.491	1332.646	11.16%	67.43%
35.0	405.519	157.679	1490.326	7.98%	75.41%
40.0	254.738	110.159	1600.485	5.57%	80.99%
45.0	185.148	81.449	1681.933	4.12%	85.11%
50.0	143.260	66.360	1748.293	3.36%	88.46%
55.0	115.240	56.206	1804.499	2.84%	91.31%
60.0	92.627	48.048	1852.547	2.43%	93.74%
65.0	68.693	39.217	1891.764	1.98%	95.72%
70.0	48.529	29.681	1921.445	1.50%	97.23%
75.0	33.898	21.545	1942.99	1.09%	98.32%
80.0	22.330	15.045	1958.035	0.76%	99.08%
85.0	10.214	8.843	1966.878	0.45%	99.53%
90.0	2.112	3.375	1970.253	0.17%	99.70%
95.0	0.000	0.578	1970.832	0.03%	99.73%
100.0	0.000	0.000	1970.832	0.00%	99.73%
105.0	0.000	0.000	1970.832	0.00%	99.73%
110.0	0.000	0.000	1970.832	0.00%	99.73%
115.0	0.000	0.000	1970.832	0.00%	99.73%
120.0	0.000	0.000	1970.832	0.00%	99.73%
125.0	0.000	0.000	1970.832	0.00%	99.73%
130.0	0.000	0.000	1970.832	0.00%	99.73%
135.0	0.000	0.000	1970.832	0.00%	99.73%
140.0	0.689	0.128	1970.959	0.01%	99.73%
145.0	1.113	0.301	1971.26	0.02%	99.75%
150.0	2.300	0.503	1971.762	0.03%	99.77%
155.0	3.911	0.786	1972.548	0.04%	99.81%
160.0	5.752	1.013	1973.562	0.05%	99.86%
165.0	7.323	1.078	1974.639	0.05%	99.92%
170.0	7.897	0.903	1975.542	0.05%	99.96%
175.0	8.166	0.575	1976.117	0.03%	99.99%
180.0	4.179	0.148	1976.265	0.01%	100.00%

## ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1332.65	67.43%	67.43%
0-40	1600.48	80.99%	80.99%
0-60	1852.55	93.74%	93.74%
0-90	1970.25	99.70%	99.70%
0-120	1970.83	99.73%	99.73%
0-180	1976.26	100.00%	100.00%
60-90	117.71	5.96%	5.96%
90-120	0.58	0.03%	0.03%
90-130	0.58	0.03%	0.03%
90-150	1.51	0.08%	0.08%
90-180	5.86	0.30%	0.30%
0-39.12	1581.01	80.00%	80.00%

## ZONAL LUMEN SUMMARY

0-10	258.03
10-20	575.86
20-30	498.76
30-40	267.84
40-50	147.81
50-60	104.25
60-70	68.90
70-80	36.59
80-90	12.22
90-100	0.58
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.13
140-150	0.80
150-160	1.80
160-170	1.98
170-180	0.57



C0(Max):

C0/C180:

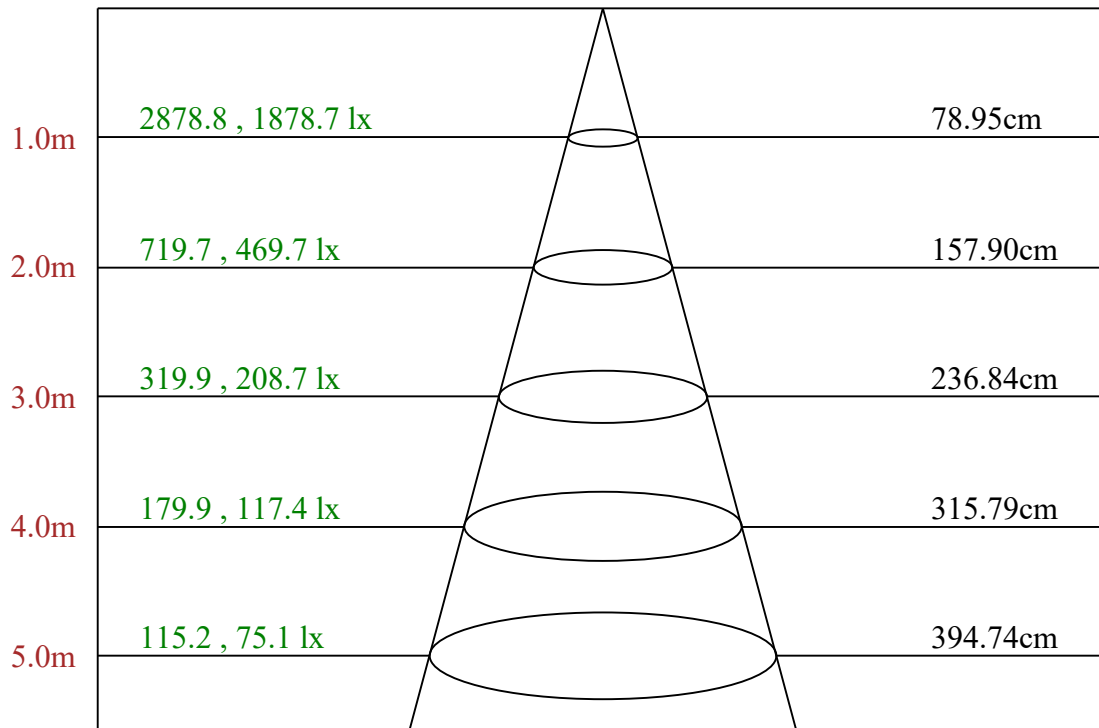
C90/C270:

Field angle(10%Imax):C0/180Left:38.8 Right:38.8

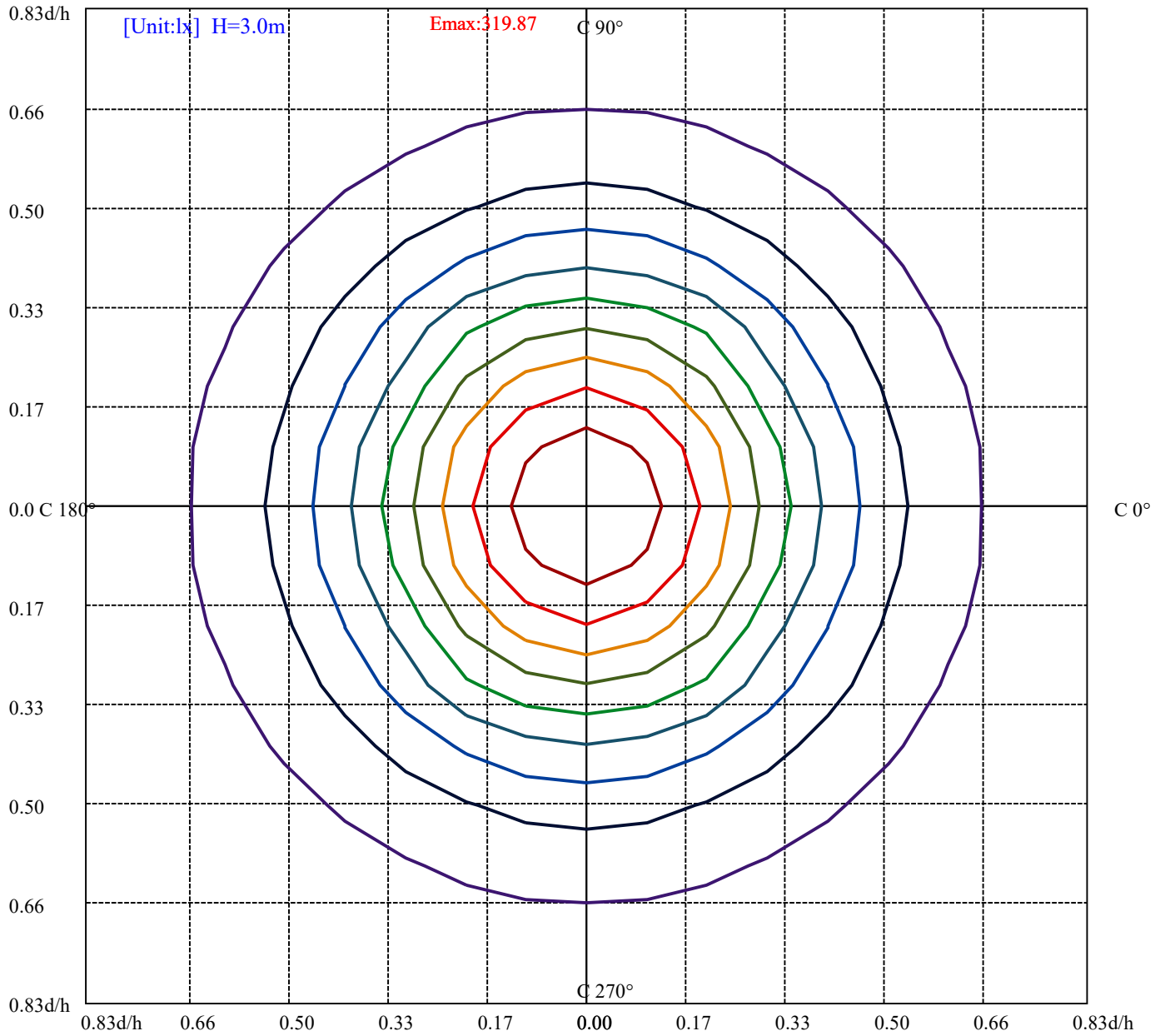
:C90/270Left:38.8 Right:38.8

Beam Angle(50%Imax):C0/180Left:21.1 Right:21.1

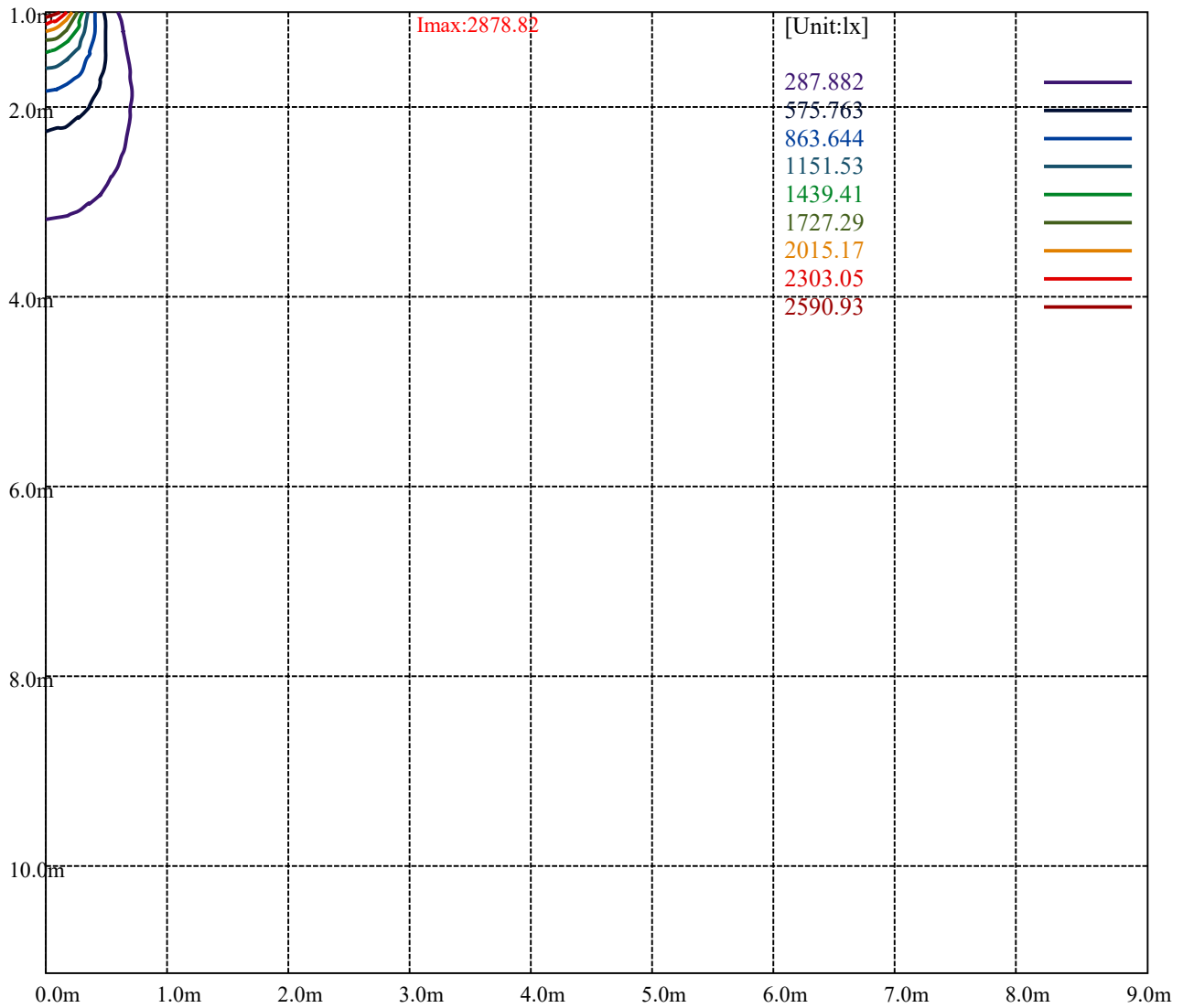
:C90/270Left:21.5 Right:21.5



Max , Ave      Beam angle of C0 plane 43.08



(10%Emax) 31.98678	—
(20%Emax) 63.97356	—
(30%Emax) 95.96044	—
(40%Emax) 127.9467	—
(50%Emax) 159.9344	—
(60%Emax) 191.9211	—
(70%Emax) 223.9078	—
(80%Emax) 255.8945	—
(90%Emax) 287.8811	—



Luminance Table

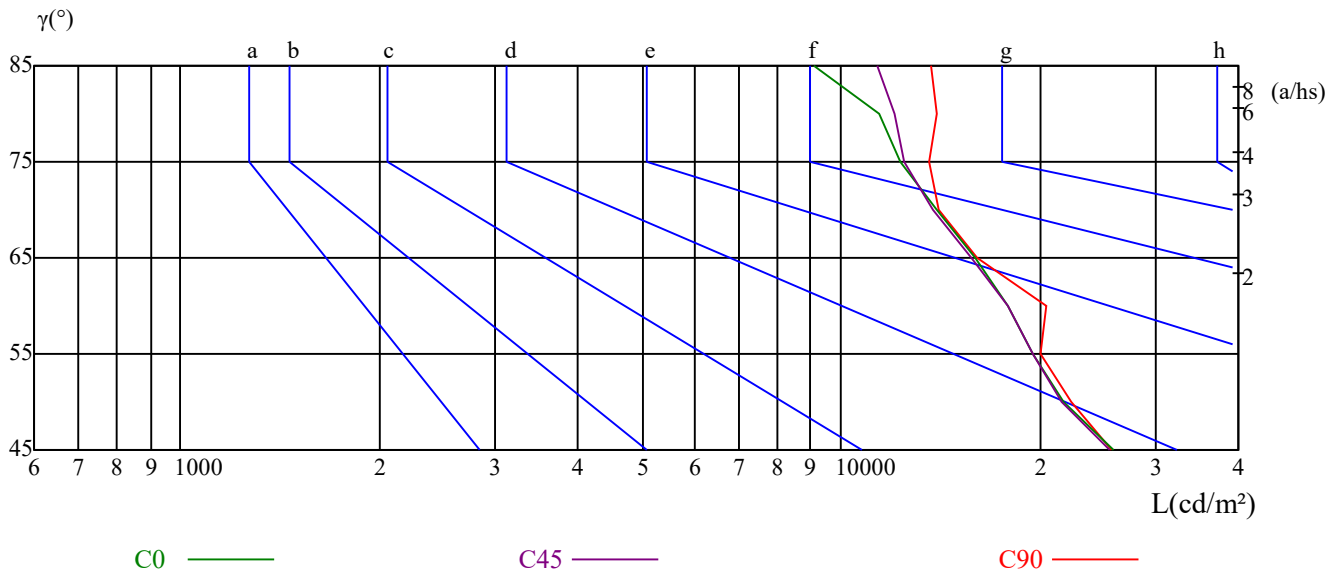
$\gamma$	45	50	55	60	65	70	75	80	85
C0	25967	21768	19546	17920	15980	13938	12279	11438	9116
C45	25605	21643	19498	17857	15792	13777	12457	12074	11383
C90	25656	22307	20047	20432	16043	14064	13629	13982	13666

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
15980	16043	15792	12279	13629	12457	9116	13666	11383

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	1.09	1.06	1.04	1.07	1.05	1.02	1.03	1.01	0.99	0.99	0.98	0.96	0.96	0.94	0.93	0.91
2	1.01	0.96	0.92	0.99	0.95	0.91	0.96	0.92	0.89	0.93	0.90	0.87	0.90	0.87	0.85	0.84
3	0.93	0.88	0.83	0.92	0.87	0.83	0.89	0.85	0.81	0.87	0.83	0.80	0.84	0.81	0.79	0.77
4	0.87	0.81	0.76	0.86	0.80	0.76	0.83	0.79	0.75	0.81	0.77	0.74	0.79	0.76	0.73	0.71
5	0.81	0.75	0.70	0.80	0.74	0.70	0.78	0.73	0.69	0.76	0.72	0.69	0.75	0.71	0.68	0.66
6	0.76	0.70	0.65	0.75	0.69	0.65	0.74	0.68	0.64	0.72	0.68	0.64	0.71	0.67	0.64	0.62
7	0.72	0.65	0.61	0.71	0.65	0.61	0.70	0.64	0.60	0.68	0.64	0.60	0.67	0.63	0.60	0.58
8	0.68	0.61	0.57	0.67	0.61	0.57	0.66	0.61	0.57	0.65	0.60	0.57	0.64	0.60	0.56	0.55
9	0.64	0.58	0.54	0.64	0.58	0.54	0.63	0.57	0.54	0.62	0.57	0.53	0.61	0.56	0.53	0.52
10	0.61	0.55	0.51	0.60	0.55	0.51	0.60	0.54	0.51	0.59	0.54	0.51	0.58	0.54	0.50	0.49

Light Blue USA-Rayhil LCD-RDD-2x12-5CCT-36-UNV-\*\*

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	2878.82	2869.83	2702.76	2300.36	1803.64	1272.79	815.59	480.55	297.31		
15.0	2878.81	2888.80	2722.76	2343.52	1842.70	1280.18	837.42	495.38	303.94		
30.0	2878.81	2910.12	2775.70	2408.37	1890.98	1337.68	850.66	496.22	311.17		
45.0	2878.82	2921.74	2782.92	2411.19	1886.94	1367.25	867.66	512.38	300.49		
60.0	2878.82	2919.26	2789.66	2422.91	1897.15	1353.01	852.98	500.94	307.00		
75.0	2878.82	2929.86	2801.79	2412.93	1912.71	1355.88	856.59	498.36	289.55		
90.0	2878.81	2919.83	2778.13	2400.57	1877.57	1350.84	846.49	506.22	284.34		
105.0	2878.82	2923.13	2780.75	2395.08	1865.15	1312.58	819.42	504.48	286.66		
120.0	2878.81	2896.50	2719.60	2342.53	1823.00	1283.92	800.71	505.56	278.38		
135.0	2878.81	2870.52	2676.87	2272.07	1752.00	1215.34	772.72	503.47	272.94		
150.0	2878.81	2855.89	2655.96	2216.66	1310.55	1172.99	719.02	501.66	268.71		
165.0	2878.82	2837.90	2600.57	2159.57	1630.36	1114.79	704.70	491.02	250.06		
180.0	2878.82	2698.27	2317.42	1809.03	1279.97	838.94	494.02	299.11	211.08		
195.0	2878.81	2681.03	2316.30	1786.44	1285.62	824.72	485.40	295.77	209.58		
210.0	2878.81	2678.12	2271.20	1807.20	1287.04	823.04	486.09	296.44	211.75		
225.0	2878.82	2660.53	2273.28	1817.53	1279.57	840.26	491.37	296.83	208.24		
240.0	2878.82	2654.54	2289.63	1794.20	1273.04	836.44	490.83	296.89	207.73		
255.0	2878.82	2675.57	2294.14	1818.05	1294.63	835.25	509.50	304.40	213.45		
270.0	2878.81	2673.72	2298.95	1847.74	1294.91	857.68	510.88	303.92	215.35		
285.0	2878.82	2679.85	2332.85	1831.20	1330.50	875.05	519.56	315.89	281.94		
300.0	2878.81	2682.36	2319.25	1854.66	1743.86	894.74	531.63	317.49	218.80		
315.0	2878.81	2699.00	2340.31	1897.69	1391.46	921.18	549.58	326.43	224.07		
330.0	2878.81	2722.91	2392.75	1897.51	1435.28	929.95	575.95	341.17	232.03		
345.0	2878.82	2737.88	2414.17	1885.87	1438.50	954.76	577.40	341.89	229.14		
360.0	2878.82	2869.83	2702.76	2300.36	1803.64	1272.79	815.59	480.55	297.31		
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	213.78	159.88	126.65	102.40	79.94	57.49	39.52	26.95	13.47		
15.0	215.03	162.40	129.74	104.34	80.75	58.97	40.83	27.22	14.52		
30.0	220.03	165.71	129.81	104.03	81.02	59.84	40.51	28.54	14.73		
45.0	213.72	161.66	129.69	104.12	79.46	57.54	40.19	26.49	14.61		
60.0	212.33	161.77	127.76	101.11	78.13	56.99	39.52	26.66	16.54		
75.0	208.81	159.62	127.14	101.16	77.96	55.68	38.98	27.84	17.63		
90.0	203.23	159.42	124.92	101.62	77.38	55.00	39.15	27.04	16.78		
105.0	205.56	156.53	124.47	98.07	77.32	54.69	37.72	26.40	16.03		
120.0	200.18	153.62	121.97	96.83	72.62	52.14	35.38	24.21	13.97		
135.0	200.10	150.30	119.87	95.90	71.92	50.72	35.04	21.21	11.99		
150.0	194.43	148.57	117.39	94.46	73.37	51.36	34.85	22.93	9.17		
165.0	187.31	145.49	115.48	93.66	70.92	50.01	33.64	21.82	10.00		
180.0	159.88	124.85	101.50	79.94	57.49	39.52	25.15	13.47	2.69		
195.0	158.77	124.30	102.52	81.66	58.97	40.83	27.22	13.61	2.72		
210.0	157.43	126.13	102.19	80.09	58.00	39.59	27.62	13.81	4.60		
225.0	156.18	122.39	99.55	79.46	57.54	40.19	26.49	17.35	5.48		
240.0	159.02	125.93	105.70	83.64	59.75	40.44	30.33	19.30	6.43		
255.0	163.34	130.86	108.58	84.45	59.40	41.76	32.48	30.63	7.42		
270.0	165.94	132.38	109.07	106.28	60.60	42.88	32.63	22.37	7.46		
285.0	169.73	133.90	110.32	86.75	62.23	43.38	33.95	21.69	8.49		
300.0	167.59	131.28	108.93	86.59	64.24	43.76	31.66	21.41	8.38		
315.0	166.90	131.86	106.04	83.91	62.70	43.34	29.51	20.29	8.30		
330.0	171.50	133.90	108.22	85.29	62.36	44.02	30.26	16.51	7.34		
345.0	172.77	135.48	108.21	87.29	64.56	44.56	30.92	18.19	6.37		
360.0	213.78	159.88	126.65	102.40	79.94	57.49	39.52	26.95	13.47		

Light Blue USA-Rayhil LCD-RDD-2x12-5CCT-36-UNV-\*\*

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	2.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
15.0	3.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
30.0	4.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
45.0	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
60.0	5.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
75.0	5.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
90.0	4.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
105.0	4.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
120.0	3.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
135.0	3.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
150.0	1.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
165.0	0.91	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	1.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
330.0	1.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
345.0	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
360.0	2.69	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	0.90	0.90	2.69	4.49	7.19	8.08	8.98	8.08		
15.0	0.00	0.91	0.91	2.72	4.54	6.35	8.17	8.17	8.17		
30.0	0.00	0.92	0.92	2.76	4.60	6.44	8.29	8.29	8.29		
45.0	0.00	0.91	0.91	2.74	4.57	6.39	8.22	8.22	8.22		
60.0	0.00	0.92	0.92	2.76	4.60	6.43	8.27	8.27	8.27		
75.0	0.00	0.93	0.93	2.78	4.64	6.50	8.35	8.35	8.35		
90.0	0.00	0.93	0.93	2.80	4.66	7.46	8.39	8.39	8.39		
105.0	0.00	0.94	1.89	2.83	4.71	7.54	8.49	8.49	8.49		
120.0	0.00	0.93	1.86	2.79	4.66	7.45	8.38	9.31	8.38		
135.0	0.00	0.92	1.84	2.77	4.61	7.38	8.30	9.22	8.30		
150.0	0.00	0.92	1.83	2.75	4.59	7.34	8.25	9.17	8.25		
165.0	0.00	0.91	1.82	2.73	4.55	7.27	8.18	9.09	8.18		
180.0	0.00	0.90	0.90	1.80	2.69	4.49	6.29	7.19	8.08		
195.0	0.00	0.91	0.91	1.81	3.63	3.63	6.35	7.26	8.17		
210.0	0.00	0.00	0.92	1.84	3.68	4.60	6.44	7.37	8.29		
225.0	0.00	0.91	0.91	1.83	3.65	4.57	6.39	7.31	8.22		
240.0	0.00	0.92	0.92	1.84	3.68	4.60	6.43	7.35	8.27		
255.0	0.00	0.93	0.93	1.86	3.71	4.64	6.50	7.42	8.35		
270.0	0.00	0.93	0.93	1.86	3.73	4.66	6.53	7.46	8.39		
285.0	0.00	0.00	0.94	1.89	2.83	4.71	6.60	7.54	8.49		
300.0	0.00	0.00	0.93	1.86	2.79	4.66	6.52	7.45	7.45		
315.0	0.00	0.00	0.92	1.84	2.77	4.61	6.45	6.45	8.30		
330.0	0.00	0.00	0.92	1.83	2.75	4.59	6.42	6.42	7.34		
345.0	0.00	0.00	0.91	1.82	2.73	4.55	5.46	6.37	7.27		
360.0	0.00	0.90	0.90	2.69	4.49	7.19	8.08	8.98	8.08		

Intensity data(cd)

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C/γ(°)	180.0
0.0	8.08
15.0	8.17
30.0	8.29
45.0	8.22
60.0	8.27
75.0	8.35
90.0	8.39
105.0	8.49
120.0	8.38
135.0	8.30
150.0	9.17
165.0	8.18
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	8.08