

Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



Scaled data based on original data using  
LM-79-2024 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P242569

Luminaire Tested: S123RDRP-S340D835-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P242569  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-30)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S123RDRP-S340D835-X4F0-XX-UDD-A-W  
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 3500K CCT, 80 CRI LEDS  
Ballast/Driver: -

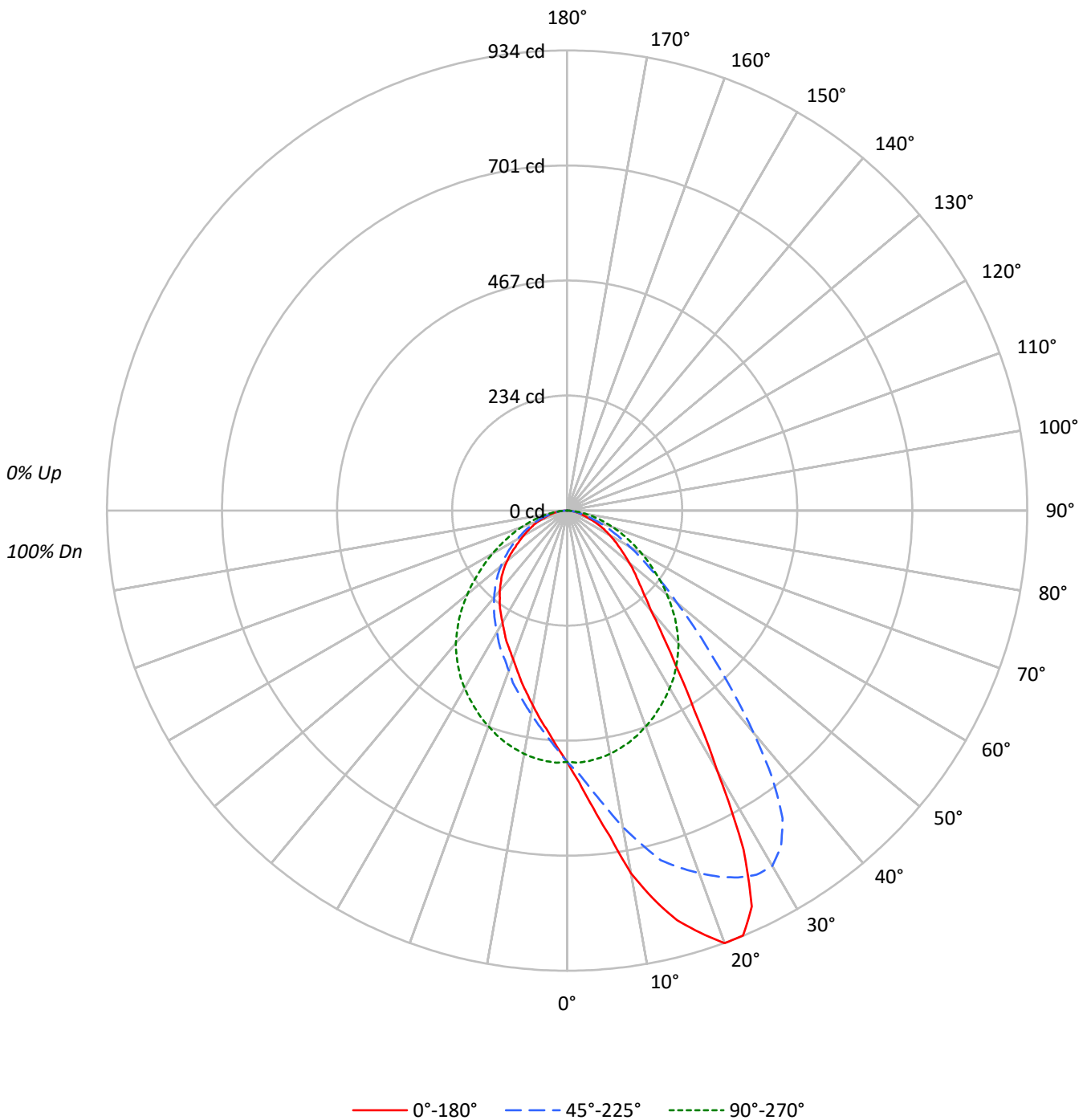
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1269.9 lumens  
Efficiency: N/A  
Efficacy: 109.5 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.22 / 1.35  
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 11.6  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20				20				20				20				20	
RC	80				70				50				30				10	0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	110	106	102	99	108	104	100	97	100	97	94	96	93	91	92	90	89	87
2	101	94	88	83	99	92	87	82	89	84	80	86	82	78	83	79	77	74
3	93	84	76	71	91	82	75	70	79	74	69	77	72	68	74	70	66	64
4	86	75	67	61	84	74	66	61	71	65	60	69	64	59	67	62	58	56
5	80	68	60	53	78	67	59	53	65	58	53	63	57	52	61	56	52	50
6	74	62	53	47	72	61	53	47	59	52	47	57	51	46	56	50	46	44
7	69	56	48	42	67	55	48	42	54	47	42	53	46	42	51	46	41	39
8	64	52	44	38	63	51	43	38	50	43	38	48	42	38	47	42	37	36
9	60	48	40	35	59	47	40	35	46	39	34	45	39	34	44	38	34	32
10	57	44	37	32	55	44	36	32	43	36	31	42	36	31	41	35	31	29

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°	135°	180°
0°	6182	6182	6182	6182	6182
5°	7369	6912	6208	5604	5467
10°	9200	8029	6173	5165	4939
15°	10800	9222	6109	4802	4504
20°	12053	10099	6015	4463	4134
25°	11860	10990	5915	4228	3907
30°	8525	11660	5824	3985	3673
35°	5693	11281	5704	3818	3522
40°	4193	9299	5562	3652	3364
45°	3518	7095	5311	3495	3211
50°	3104	5470	4982	3306	2996
55°	2722	4364	4605	3109	2703
60°	2424	3561	4245	2858	2478
65°	2128	2917	3858	2636	2303
70°	1673	2343	3512	2421	2105
75°	1471	1728	3068	2187	1920
80°	1277	1480	2604	1920	1892
85°	1029	1127	2100	1947	2003

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 60°  
 Vertical Angle: 45°  
 Luminance: 9985 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	50.1	3.9
10°-20°	156.8	12.3
20°-30°	246.9	19.4
30°-40°	256.8	20.2
40°-50°	219.7	17.3
50°-60°	167.4	13.2
60°-70°	107.3	8.4
70°-80°	51.4	4.0
80°-90°	13.5	1.1
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	453.8	35.7
0°-40°	710.6	56.0
0°-60°	1097.7	86.4
0°-90°	1269.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1269.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	510	510	510	510	510	
5°	606	568	510	461	449	62
15°	861	735	487	383	359	244
25°	887	822	442	316	292	385
35°	385	762	386	258	238	250
45°	205	414	310	204	187	161
55°	129	206	218	147	128	116
65°	74	102	134	92	80	73
75°	31	37	66	47	41	34
85°	7	8	15	14	14	9
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	510.0	510.0	510.0	510.0	510.0	510.0	510.0	510.0	510.0	510.0	510.0
2.5°	551.5	552.3	549.5	549.1	545.8	544.9	544.9	540.3	537.5	533.8	531.6
5°	605.6	609.1	607.4	603.4	596.9	595.3	591.2	584.7	577.2	568.1	563.7
7.5°	667.6	674.8	673.5	667.4	660.4	656.0	644.5	635.1	620.9	608.0	598.0
10°	747.5	742.5	738.6	732.7	726.3	716.1	703.9	687.0	667.6	652.3	635.3
12.5°	807.3	807.6	802.3	796.2	786.6	777.0	761.3	739.9	716.5	692.7	672.6
15°	860.6	861.9	858.6	852.3	839.6	822.4	799.7	791.2	758.9	734.9	710.8
17.5°	898.6	898.8	898.2	889.6	875.9	864.1	842.9	823.1	792.5	760.0	727.9
20°	934.4	932.2	932.6	922.8	913.2	899.0	878.5	846.0	822.0	782.9	749.5
22.5°	933.5	933.5	935.5	933.7	927.4	917.4	902.3	876.1	843.8	804.3	765.6
25°	886.8	885.1	895.3	898.2	909.3	911.3	906.4	891.4	862.3	821.7	775.2
27.5°	775.5	769.1	790.5	811.7	839.9	857.8	876.1	880.3	866.5	833.3	784.6
30°	609.1	629.6	639.2	673.7	712.1	758.0	798.2	836.4	845.8	833.1	794.9
32.5°	479.9	497.1	504.7	533.1	568.3	623.9	689.2	747.3	792.7	808.0	788.8
35°	384.7	384.9	403.2	416.3	449.5	504.7	563.3	635.7	707.8	762.4	768.0
37.5°	317.4	318.3	330.1	343.2	369.8	400.8	455.2	516.3	603.0	684.4	726.8
40°	265.0	267.0	275.3	288.2	306.1	328.1	368.3	425.1	494.5	587.7	663.9
42.5°	231.4	234.9	238.2	247.4	256.7	277.0	307.6	348.2	409.8	496.7	587.5
45°	205.2	207.0	210.2	214.8	224.9	239.3	261.1	290.6	343.0	413.9	501.9
47.5°	185.1	184.0	187.8	191.7	198.4	208.9	224.2	249.8	289.1	348.4	424.6
50°	164.6	164.4	166.8	169.6	176.0	183.2	195.2	213.3	243.0	290.1	358.5
52.5°	145.4	146.5	148.0	151.7	155.9	161.3	171.8	183.6	208.1	247.1	301.3
55°	128.8	129.5	131.9	133.8	137.1	143.0	149.8	160.7	178.1	206.5	253.5
57.5°	114.4	114.2	116.6	116.8	120.9	126.0	131.4	139.9	153.3	175.7	208.5
60°	100.0	99.3	101.3	102.8	104.8	108.7	113.1	121.4	131.4	146.9	174.0
62.5°	86.9	86.7	88.0	89.5	91.0	94.5	98.0	103.9	111.3	123.8	143.9
65°	74.2	74.9	75.5	76.2	77.1	79.2	82.7	87.1	92.6	101.7	117.2
67.5°	61.1	62.0	62.2	63.7	65.5	66.6	68.6	72.7	76.8	85.1	94.3
70°	47.2	46.9	47.2	47.8	50.2	52.6	55.5	58.3	60.7	66.1	73.6
72.5°	38.9	38.4	39.1	39.1	40.0	40.2	41.7	44.3	47.6	50.9	55.7
75°	31.4	31.4	31.4	31.4	32.3	32.7	33.4	34.1	35.1	36.9	40.8
77.5°	24.5	24.5	24.9	25.1	25.3	25.5	26.0	26.6	27.1	27.9	29.9
80°	18.3	18.6	18.3	18.6	18.6	19.0	19.2	19.9	20.1	21.2	21.8
82.5°	12.7	12.4	12.7	12.9	12.9	13.3	13.3	13.8	13.8	14.2	14.8
85°	7.4	7.0	7.4	7.2	7.6	7.2	7.4	7.9	7.9	8.1	9.0
87.5°	2.2	2.6	2.2	2.4	2.4	2.6	2.6	2.6	3.1	2.8	3.1
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	510.0	510.0	510.0	510.0	510.0	510.0	510.0	510.0	510.0	510.0	510.0
2.5°	530.7	530.1	527.0	523.5	518.9	515.9	513.5	512.2	508.2	503.4	500.2
5°	559.1	552.6	545.6	537.1	529.2	521.1	516.1	510.2	503.0	494.9	489.2
7.5°	587.3	575.9	563.5	550.6	537.5	525.9	515.2	506.5	495.6	484.4	476.8
10°	620.7	601.9	582.5	562.6	544.5	527.5	514.4	501.5	487.7	474.4	464.4
12.5°	651.0	624.8	601.7	576.1	551.7	530.5	510.2	494.5	477.2	462.8	451.0
15°	675.7	650.4	623.3	586.2	555.4	529.6	506.7	486.8	466.8	449.3	438.2
17.5°	701.4	663.0	627.4	598.6	558.5	527.2	500.4	477.2	455.4	437.5	423.5
20°	716.3	679.4	639.9	600.4	561.1	525.1	492.5	466.3	443.4	422.4	409.8
22.5°	725.2	682.2	640.1	596.9	554.5	516.8	484.7	455.2	429.9	410.2	393.8
25°	731.8	682.0	636.2	594.3	551.7	511.1	472.9	442.3	415.5	394.3	377.7
27.5°	737.0	679.4	626.8	581.2	538.1	496.9	462.4	429.6	402.8	380.7	362.6
30°	738.3	676.1	615.7	565.2	521.3	484.2	447.1	416.1	387.3	363.5	346.9
32.5°	740.1	668.0	600.6	546.2	501.0	464.4	431.6	402.4	372.7	349.3	332.3
35°	734.0	666.1	585.3	523.7	478.8	443.2	412.8	385.5	356.5	333.8	316.6
37.5°	715.4	655.4	570.0	498.6	452.1	419.4	394.1	369.2	342.3	317.4	301.5
40°	684.2	637.9	551.7	476.1	427.0	393.2	370.9	351.5	325.7	302.8	285.3
42.5°	637.7	614.1	534.2	452.6	398.6	366.3	348.4	330.5	308.7	285.3	269.2
45°	578.8	582.5	509.1	427.2	372.9	340.1	322.5	309.8	289.7	270.5	253.7
47.5°	507.1	538.1	482.3	400.6	344.9	314.2	298.7	287.1	273.1	253.2	237.7
50°	437.3	486.8	448.6	373.8	319.0	288.4	273.1	264.2	252.4	237.5	222.9
52.5°	372.9	427.0	408.0	343.8	290.8	263.5	248.7	241.7	232.9	219.2	206.3
55°	314.6	368.5	363.3	313.7	262.6	237.5	226.2	217.9	211.5	201.1	190.6
57.5°	263.9	316.1	317.2	280.3	238.2	212.6	202.8	196.3	191.9	183.6	173.3
60°	216.6	263.5	272.7	246.5	211.5	189.7	180.1	175.1	171.8	165.5	158.1
62.5°	177.3	215.5	226.2	209.1	186.0	165.9	158.9	154.1	152.2	146.9	140.6
65°	141.7	174.9	184.9	174.4	161.1	144.7	138.6	134.5	132.5	129.5	124.7
67.5°	111.8	137.5	148.5	139.7	134.7	123.1	119.0	116.6	114.8	112.7	108.5
70°	85.6	103.5	114.8	112.9	108.9	103.5	100.6	99.1	97.4	95.6	92.1
72.5°	64.6	75.5	86.0	87.8	84.7	84.7	82.3	81.9	81.0	78.8	77.3
75°	45.6	54.1	61.6	64.4	65.7	66.8	65.7	65.5	65.3	63.5	62.4
77.5°	31.7	37.1	42.1	47.2	48.9	50.4	50.6	51.5	50.9	49.8	49.3
80°	22.9	24.0	27.3	31.4	34.7	36.0	36.9	37.3	37.1	36.9	36.0
82.5°	15.1	15.9	17.0	19.6	22.3	24.7	25.1	24.9	25.5	25.8	25.1
85°	9.0	9.2	9.6	10.0	11.6	14.0	14.6	15.1	15.5	15.5	14.2
87.5°	3.5	3.3	3.7	3.7	4.4	4.6	5.9	7.0	7.2	6.3	6.3
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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**CANDELA DISTRIBUTION (continued):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	510.0	510.0	510.0	510.0	510.0	510.0	510.0	510.0	510.0	510.0	510.0
2.5°	499.1	496.2	494.3	489.9	487.1	484.0	481.0	482.9	482.7	482.5	482.5
5°	484.4	479.4	474.8	468.9	465.2	460.6	457.2	456.7	457.6	454.5	452.8
7.5°	470.7	464.1	457.6	451.5	444.7	439.5	436.2	434.9	432.5	430.5	428.8
10°	456.1	448.0	441.7	433.6	426.2	419.6	415.5	412.6	411.1	409.6	406.7
12.5°	441.0	433.1	424.6	415.2	408.3	400.4	397.6	394.3	391.0	389.3	385.1
15°	426.4	416.1	407.6	398.0	390.1	382.7	378.3	372.0	371.1	369.0	365.0
17.5°	412.2	400.8	388.4	381.8	374.0	366.1	359.1	357.2	350.6	348.4	344.7
20°	394.7	384.5	375.5	366.1	353.2	346.0	340.8	338.0	332.9	329.9	327.7
22.5°	379.7	369.2	358.5	347.1	337.1	328.8	325.3	320.5	318.3	313.7	311.3
25°	365.5	354.1	341.7	329.9	322.2	316.1	310.0	306.1	302.1	300.2	295.8
27.5°	348.2	336.9	324.9	315.7	307.0	300.8	294.9	291.7	286.6	283.4	281.0
30°	334.5	320.5	310.4	302.4	290.4	284.7	280.5	276.2	272.7	269.2	266.8
32.5°	318.5	306.1	296.7	286.2	277.7	271.4	265.7	262.0	259.1	255.9	253.5
35°	301.7	291.0	281.2	271.1	264.4	258.0	251.7	248.4	245.6	242.5	240.4
37.5°	286.4	276.4	267.2	257.6	249.3	243.9	238.6	236.4	232.5	230.3	228.1
40°	272.5	262.6	252.6	243.4	234.7	230.8	226.2	222.5	219.0	217.4	215.0
42.5°	257.2	247.4	239.3	229.2	222.5	216.8	212.6	208.5	206.1	203.7	202.6
45°	242.1	233.4	225.1	215.3	208.5	203.9	199.1	195.4	193.0	191.5	189.1
47.5°	227.7	218.8	210.5	201.7	195.2	189.9	184.9	182.5	179.2	177.5	175.7
50°	211.8	203.9	195.0	187.1	180.5	175.3	171.4	168.1	165.3	162.9	161.8
52.5°	197.1	188.6	181.2	174.0	167.0	160.9	157.4	153.9	151.9	149.1	147.8
55°	180.8	172.7	166.1	158.9	152.2	147.1	142.8	139.7	137.5	134.5	132.7
57.5°	165.7	158.7	150.6	144.3	137.1	133.2	129.5	125.1	122.5	120.1	118.3
60°	150.4	142.1	135.4	129.5	123.3	117.9	114.6	111.3	108.5	106.1	104.6
62.5°	134.5	127.5	121.2	114.6	109.2	104.6	100.6	98.0	95.6	94.3	92.8
65°	118.1	112.4	105.9	100.6	95.4	91.9	88.9	86.5	84.7	83.6	82.3
67.5°	103.0	97.6	91.7	86.2	82.7	79.9	77.7	75.5	74.7	73.4	72.5
70°	88.4	82.7	77.7	73.8	70.3	68.3	67.0	65.5	64.6	62.9	62.0
72.5°	72.5	68.8	65.5	62.4	59.8	58.1	56.3	54.4	52.8	50.9	50.0
75°	59.6	55.9	53.1	50.9	49.1	46.7	44.3	42.4	41.7	41.0	40.8
77.5°	46.5	44.1	41.9	40.2	37.8	35.6	34.9	34.5	34.3	33.8	33.8
80°	34.7	32.5	31.0	28.8	27.5	27.5	27.5	27.1	27.3	27.3	27.3
82.5°	23.6	21.6	21.0	20.5	20.5	20.7	20.7	21.0	20.7	21.2	21.0
85°	13.3	13.5	14.0	13.8	14.0	14.0	14.4	14.2	14.4	14.0	14.4
87.5°	6.1	6.8	7.0	7.2	7.4	7.2	7.4	7.4	7.6	7.6	7.6
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P242569

CATALOG NUMBER: S123RDRP-S340D835-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	510.0	510.0	510.0	510.0
2.5°	479.9	479.6	479.9	479.0
5°	452.1	451.9	451.3	449.3
7.5°	427.0	426.6	424.8	425.3
10°	405.2	405.4	402.8	401.3
12.5°	384.0	382.7	380.7	379.0
15°	365.9	363.7	358.5	358.9
17.5°	343.4	341.7	341.4	338.4
20°	324.2	323.1	323.5	320.5
22.5°	309.1	308.0	305.6	305.2
25°	294.5	292.8	291.0	292.1
27.5°	279.7	278.4	276.4	276.4
30°	265.7	264.4	263.5	262.4
32.5°	251.5	251.5	249.8	249.8
35°	239.5	238.2	237.7	238.0
37.5°	227.9	226.2	225.3	224.4
40°	215.3	213.5	213.1	212.6
42.5°	201.1	200.6	200.4	199.5
45°	188.4	188.2	186.9	187.3
47.5°	174.9	173.8	173.1	173.8
50°	160.9	160.5	158.5	158.9
52.5°	146.9	145.0	144.5	144.1
55°	131.2	129.2	128.4	127.9
57.5°	115.7	115.1	114.2	114.8
60°	102.4	102.4	102.4	102.2
62.5°	92.1	91.5	91.3	91.7
65°	81.7	81.4	80.6	80.3
67.5°	72.0	71.2	71.2	70.7
70°	60.9	60.5	59.2	59.4
72.5°	48.9	48.5	48.5	48.0
75°	40.6	40.4	40.2	41.0
77.5°	33.8	33.8	34.1	33.6
80°	27.3	27.3	27.1	27.1
82.5°	20.5	20.7	21.0	20.5
85°	14.4	14.2	14.6	14.4
87.5°	8.1	7.6	7.6	7.9
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P242569  
 CATALOG NUMBER: S123RDRP-S340D835-X4F0-XX-UDD-A-W

**CIE UGR TABLE:**

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	13.97	15.46	14.33	15.77	16.09	17.36	18.86	17.73	19.17	19.48
	3H	15.06	16.40	15.44	16.72	17.09	18.77	20.11	19.15	20.44	20.80
	4H	15.39	16.65	15.79	17.00	17.37	19.27	20.53	19.67	20.87	21.25
	6H	15.64	16.80	16.05	17.16	17.56	19.62	20.78	20.04	21.15	21.54
	8H	15.71	16.81	16.14	17.20	17.60	19.72	20.82	20.15	21.21	21.62
	12H	15.75	16.80	16.18	17.18	17.61	19.79	20.84	20.22	21.22	21.65
4H	2H	14.94	16.20	15.35	16.55	16.93	17.60	18.85	18.00	19.20	19.58
	3H	16.11	17.15	16.53	17.55	17.95	19.29	20.33	19.70	20.73	21.13
	4H	16.50	17.43	16.93	17.85	18.29	19.91	20.84	20.34	21.26	21.70
	6H	16.81	17.62	17.27	18.07	18.53	20.37	21.18	20.83	21.63	22.09
	8H	16.90	17.66	17.37	18.10	18.57	20.52	21.27	20.98	21.72	22.19
	12H	16.96	17.64	17.44	18.11	18.59	20.62	21.29	21.10	21.77	22.24
8H	4H	16.87	17.62	17.33	18.07	18.54	19.96	20.72	20.43	21.16	21.63
	6H	17.24	17.87	17.74	18.36	18.84	20.50	21.12	20.99	21.61	22.09
	8H	17.38	17.93	17.89	18.45	18.93	20.69	21.25	21.20	21.76	22.25
	12H	17.47	17.97	17.98	18.46	19.03	20.85	21.34	21.36	21.83	22.40
12H	4H	16.90	17.57	17.38	18.05	18.52	19.95	20.62	20.43	21.10	21.57
	6H	17.29	17.85	17.80	18.36	18.85	20.48	21.04	21.00	21.55	22.04
	8H	17.46	17.96	17.97	18.45	19.02	20.71	21.21	21.23	21.70	22.27