

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: P243439

Luminaire Tested: S123RDRP-H340D930-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243439
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-69)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123RDRP-H340D930-X4F0-XX-UDD-A-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

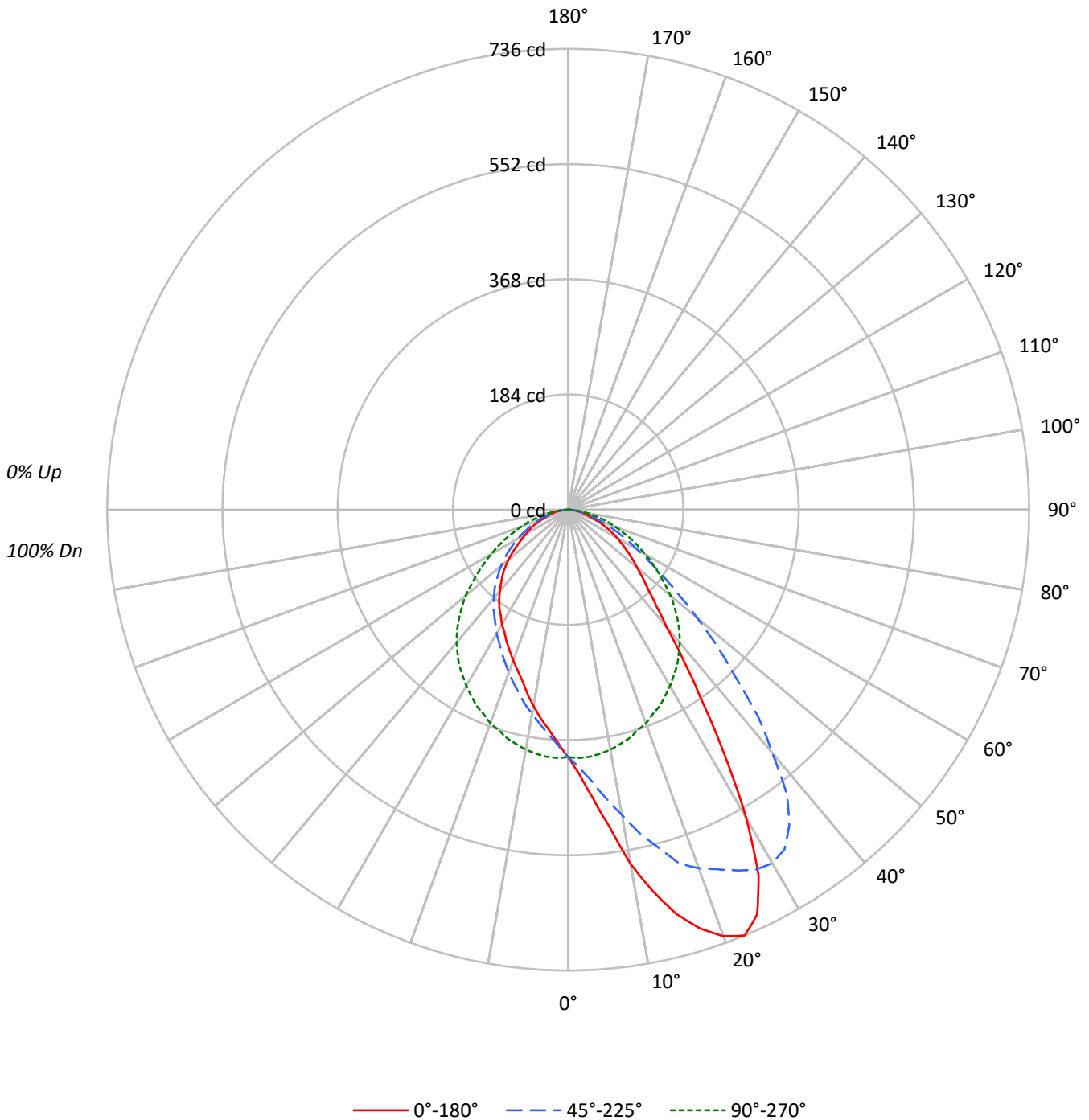
Lumens per Lamp: N/A
Luminaire Lumens: 1029.8 lumens
Efficiency: N/A
Efficacy: 91.9 lumens/watt
Spacing Criteria (0/90/45): 1.28 / 1.22 / 1.4
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

Input Watts (W): 11.2
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



TEST NUMBER: P243439

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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	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					100			
1	110	106	102	99	107	104	100	97	99	97	94	96	93	91	92	90	89					87				
2	101	94	88	83	99	92	86	82	89	84	80	85	81	78	82	79	76					74				
3	93	84	76	70	91	82	75	70	79	73	68	76	71	67	74	70	66					64				
4	86	75	67	61	84	74	66	60	71	65	59	69	63	59	67	62	58					56				
5	79	68	59	53	77	66	59	53	64	57	52	62	56	52	61	55	51					49				
6	74	61	53	47	72	60	52	47	59	52	46	57	51	46	55	50	46					44				
7	69	56	48	42	67	55	47	42	54	47	41	52	46	41	51	45	41					39				
8	64	51	43	38	62	51	43	37	49	42	37	48	42	37	47	41	37					35				
9	60	47	39	34	59	47	39	34	45	39	34	44	38	34	43	38	33					32				
10	56	44	36	31	55	43	36	31	42	35	31	41	35	31	40	35	31					29				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	4790	4790	4790	4790	4790
5°	5648	5301	4817	4379	4290
10°	7070	6095	4789	4070	3915
15°	8390	7014	4741	3807	3546
20°	9351	7861	4684	3573	3302
25°	9545	8502	4626	3360	3108
30°	7954	9121	4547	3194	2957
35°	5494	9108	4485	3045	2834
40°	3861	8019	4383	2921	2684
45°	3101	6459	4227	2791	2539
50°	2702	5056	4026	2636	2350
55°	2424	3901	3726	2464	2092
60°	2192	3108	3442	2235	1896
65°	1919	2550	3172	2022	1773
70°	1549	2073	2853	1857	1499
75°	1344	1630	2487	1564	1471
80°	1236	1333	2122	1501	1480
85°	1085	1140	1711	1349	1279

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 55°
 Vertical Angle: 45°
 Luminance: 8094 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	38.8	3.8
10°-20°	122.1	11.9
20°-30°	195.6	19.0
30°-40°	212.3	20.6
40°-50°	181.9	17.7
50°-60°	137.9	13.4
60°-70°	88.1	8.6
70°-80°	42.1	4.1
80°-90°	11.1	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°	356.4	34.6
0°-40°	568.7	55.2
0°-60°	888.5	86.3
0°-90°	1029.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1029.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	395	395	395	395	395	
5°	464	436	396	360	353	48
15°	669	559	378	303	283	190
25°	714	636	346	251	232	317
35°	371	616	303	206	192	239
45°	181	377	247	163	148	143
55°	115	185	176	117	99	103
65°	67	89	111	70	62	66
75°	29	35	53	33	31	31
85°	8	8	12	10	9	9
90°	0	0	0	0	0	



TEST NUMBER: P243439

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	395.2	395.2	395.2	395.2	395.2	395.2	395.2	395.2	395.2	395.2	395.2
2.5°	423.5	424.1	423.2	423.0	422.9	420.1	419.3	417.9	413.1	411.9	411.1
5°	464.2	462.8	464.3	461.4	458.2	456.3	453.2	446.4	440.4	435.7	432.6
7.5°	512.3	512.8	511.3	508.5	502.0	499.3	491.0	482.8	474.9	465.0	457.7
10°	574.4	570.3	571.2	562.6	555.8	547.6	536.2	523.0	509.2	495.2	484.8
12.5°	623.9	626.8	624.7	620.6	607.5	599.5	589.1	570.0	548.1	529.4	513.5
15°	668.6	664.7	665.2	655.3	650.5	643.2	625.9	607.0	592.8	558.9	540.1
17.5°	701.4	701.0	700.5	692.2	686.3	671.0	653.4	634.0	616.2	592.7	569.1
20°	724.9	727.5	726.8	720.0	709.7	694.9	684.3	660.1	630.9	609.4	580.5
22.5°	736.2	736.3	736.7	733.4	726.6	717.1	702.0	682.6	656.7	621.5	589.4
25°	713.7	714.5	718.9	721.7	723.6	719.3	711.4	693.9	671.5	635.7	602.4
27.5°	658.4	661.1	666.0	682.4	689.1	698.3	701.5	694.5	678.0	648.1	610.2
30°	568.3	575.9	580.7	599.3	625.4	650.0	661.6	673.0	671.5	651.7	613.3
32.5°	465.2	470.1	484.0	503.9	524.6	560.6	600.9	628.5	644.0	643.0	615.9
35°	371.3	378.5	390.3	405.5	434.0	471.3	516.9	560.4	599.3	615.5	605.8
37.5°	301.4	302.0	313.1	334.6	352.4	385.3	426.5	480.2	531.2	573.5	582.9
40°	244.0	248.8	254.6	268.1	289.1	320.6	348.0	400.9	453.8	506.8	544.7
42.5°	207.9	207.9	214.3	222.9	236.9	255.8	288.4	336.3	384.0	449.1	491.8
45°	180.9	182.6	185.5	191.0	200.9	215.5	240.8	273.4	322.0	376.8	441.0
47.5°	161.4	161.3	163.8	167.1	174.7	185.8	200.7	227.1	263.1	322.2	378.8
50°	143.3	144.0	145.9	148.6	153.8	161.6	171.0	191.0	221.3	268.1	327.5
52.5°	129.4	129.2	130.7	132.4	136.3	140.8	149.1	164.0	185.0	222.2	271.5
55°	114.7	115.4	117.2	118.3	121.5	124.4	131.4	139.8	156.7	184.6	229.5
57.5°	102.0	102.9	103.9	104.9	107.2	110.1	115.9	121.0	133.3	153.4	189.2
60°	90.4	90.1	91.3	93.0	94.2	96.8	100.0	105.3	113.8	128.2	154.4
62.5°	78.8	79.0	79.2	80.2	82.4	84.6	87.5	91.5	96.6	107.2	125.8
65°	66.9	67.1	67.4	68.4	70.6	72.0	75.1	78.5	82.6	88.9	101.9
67.5°	56.3	57.0	57.0	57.8	58.7	60.1	62.3	64.8	68.3	72.9	81.2
70°	43.7	43.5	44.4	46.1	46.9	49.3	50.9	52.6	55.6	58.5	65.7
72.5°	35.2	35.2	35.2	35.8	36.0	36.5	37.5	41.1	43.5	46.4	50.3
75°	28.7	28.8	28.8	29.0	29.2	29.7	30.0	31.1	31.7	34.8	37.2
77.5°	22.9	23.0	23.0	23.2	23.4	23.5	24.2	24.2	24.7	25.4	26.5
80°	17.7	17.6	17.6	17.7	17.7	18.3	18.3	18.6	18.8	19.1	19.6
82.5°	12.6	12.5	12.6	12.5	12.6	12.8	13.1	13.0	13.3	13.7	13.8
85°	7.8	8.0	8.0	8.4	8.2	8.0	8.2	8.2	8.2	8.2	8.5
87.5°	3.4	3.8	3.8	3.6	3.8	3.8	3.4	3.8	3.8	3.8	3.9
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°	395.2	395.2	395.2	395.2	395.2	395.2	395.2	395.2	395.2	395.2	395.2
2.5°	410.6	409.9	407.3	404.9	401.4	399.8	397.8	396.9	394.2	390.4	388.7
5°	429.7	424.6	419.6	413.7	408.7	402.9	399.7	395.9	390.1	384.8	381.1
7.5°	450.0	442.5	433.3	423.4	414.5	406.1	399.0	393.0	385.5	378.2	372.4
10°	472.4	459.6	444.7	432.1	419.3	407.2	398.1	389.1	379.4	370.1	363.1
12.5°	496.4	478.3	460.4	441.5	422.4	408.4	394.9	383.3	372.4	362.6	354.3
15°	521.3	496.6	473.7	452.4	425.8	407.0	392.2	377.8	364.2	352.2	344.0
17.5°	539.1	510.8	481.9	451.7	428.8	405.6	387.2	369.1	356.5	344.2	333.1
20°	555.5	523.4	489.1	460.9	429.0	400.7	380.5	363.1	345.6	332.4	323.0
22.5°	562.5	533.4	498.8	459.7	427.8	398.8	372.9	353.2	337.5	323.2	310.9
25°	563.8	531.4	495.9	458.2	423.2	391.8	365.5	345.9	325.4	310.6	301.0
27.5°	569.8	525.4	490.6	453.1	417.6	384.8	357.2	335.3	316.2	300.3	288.1
30°	571.3	522.9	479.4	443.5	407.0	374.9	346.9	324.9	304.1	287.9	276.8
32.5°	572.0	519.5	467.6	428.3	393.5	363.3	337.7	313.8	294.0	277.0	265.5
35°	569.6	514.7	453.4	411.1	377.6	348.0	324.2	303.1	281.1	265.0	252.9
37.5°	560.2	507.2	445.4	391.0	359.0	331.1	310.9	290.1	269.8	252.4	239.9
40°	542.5	496.2	430.4	374.1	337.9	312.8	294.0	277.0	256.5	239.8	227.5
42.5°	514.2	481.4	416.6	354.9	316.9	293.2	277.5	262.8	244.4	228.5	215.0
45°	472.2	460.6	398.1	335.5	294.0	271.7	258.0	246.6	229.9	215.4	202.9
47.5°	426.8	429.4	379.5	315.7	273.2	251.9	239.9	229.9	217.2	201.7	190.3
50°	374.4	388.4	353.4	295.7	252.4	231.4	219.6	213.5	201.7	188.7	178.0
52.5°	326.5	348.6	327.0	273.9	231.9	211.3	200.3	194.2	186.3	175.6	164.7
55°	276.8	304.9	289.2	250.3	211.1	190.3	181.1	176.3	169.8	161.4	151.5
57.5°	235.7	265.7	255.8	225.6	190.8	172.0	163.8	158.4	154.4	146.8	138.7
60°	195.4	223.2	219.3	197.1	170.6	152.7	146.4	142.0	138.7	133.1	125.3
62.5°	157.7	184.6	187.0	169.6	151.0	134.8	129.0	125.9	123.4	118.9	111.8
65°	125.1	148.8	153.8	140.4	130.4	118.1	112.5	110.6	108.7	103.6	98.1
67.5°	98.0	116.6	123.0	115.5	108.4	101.2	96.8	94.2	92.8	89.8	86.0
70°	74.9	91.0	96.4	93.2	88.4	85.7	82.3	80.5	79.2	75.3	73.2
72.5°	56.1	67.1	73.9	72.9	71.8	70.0	67.9	67.4	65.4	62.8	60.9
75°	41.1	47.4	53.6	55.8	55.5	56.1	53.9	53.1	51.9	50.0	48.5
77.5°	29.5	33.3	37.5	40.3	41.6	41.8	41.8	41.3	40.4	39.1	37.9
80°	20.5	21.3	25.3	27.8	29.2	30.2	30.2	30.4	29.5	29.0	28.2
82.5°	14.2	14.7	15.5	17.6	19.3	20.5	20.6	20.5	20.1	20.0	18.8
85°	8.9	8.7	8.7	9.2	10.6	11.8	11.9	12.3	12.1	11.9	10.8
87.5°	3.8	3.8	3.9	3.8	4.3	4.4	4.8	5.6	5.5	4.6	4.3
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°	395.2	395.2	395.2	395.2	395.2	395.2	395.2	395.2	395.2	395.2	395.2
2.5°	387.7	385.5	383.4	381.2	378.5	375.9	375.6	375.3	376.1	374.4	373.7
5°	378.2	373.9	370.6	366.6	363.7	359.9	357.9	357.3	357.2	356.1	354.8
7.5°	367.7	363.1	358.5	353.9	349.1	345.2	343.0	341.8	340.8	339.1	337.7
10°	358.0	352.2	347.3	341.0	335.8	330.7	328.7	327.0	325.9	323.5	321.7
12.5°	347.1	339.8	334.3	327.5	322.9	318.4	315.2	311.9	309.6	306.0	304.4
15°	337.5	329.9	320.6	316.6	310.1	303.4	299.8	299.8	294.9	292.0	290.1
17.5°	324.7	318.1	311.6	303.2	294.0	290.1	286.0	282.4	279.0	278.2	274.7
20°	313.5	305.6	299.0	289.9	281.6	277.0	272.2	268.3	265.7	263.3	261.4
22.5°	302.4	294.5	284.3	275.4	269.8	263.7	258.5	255.1	252.9	249.3	247.6
25°	290.8	281.4	272.2	263.5	256.5	251.2	245.9	244.0	240.1	238.2	235.8
27.5°	279.2	267.9	259.2	251.7	243.9	238.7	235.2	231.7	228.3	227.3	225.9
30°	266.2	255.8	247.4	240.1	232.6	228.2	223.9	220.8	217.9	215.7	214.2
32.5°	253.2	244.5	236.5	228.0	221.2	216.4	212.8	210.1	208.7	204.9	203.6
35°	241.3	232.4	223.9	215.9	210.4	205.8	202.6	200.0	197.1	194.7	193.3
37.5°	229.0	221.0	212.3	205.5	199.3	195.6	192.0	188.6	186.3	185.0	183.3
40°	217.1	208.5	201.9	194.4	188.9	184.6	180.9	178.3	175.6	174.4	172.2
42.5°	205.8	197.6	189.9	183.1	178.2	174.1	170.5	167.6	165.4	163.1	161.9
45°	192.8	185.7	178.7	171.8	167.2	162.8	158.9	156.3	153.2	151.4	150.7
47.5°	181.9	174.4	166.9	160.6	155.8	151.0	147.8	144.7	142.2	140.3	139.2
50°	168.9	161.9	155.8	149.5	144.9	139.8	135.8	132.9	130.0	128.7	127.0
52.5°	157.8	151.0	143.5	137.9	132.6	128.2	124.6	122.2	119.6	117.6	116.4
55°	144.0	137.4	131.4	125.4	120.1	116.6	113.7	109.6	107.3	105.3	102.0
57.5°	131.9	125.6	119.3	113.5	108.5	104.3	100.7	98.0	95.1	93.5	91.3
60°	119.1	112.5	106.7	102.2	96.8	92.2	89.8	86.5	84.1	81.7	81.1
62.5°	106.5	100.3	94.5	89.9	85.0	81.4	78.3	76.8	74.4	72.5	71.8
65°	93.3	88.2	82.8	77.6	74.6	70.5	68.8	66.2	64.8	64.0	63.8
67.5°	80.4	75.8	70.8	66.9	64.0	61.3	59.2	58.2	56.8	55.8	54.9
70°	68.6	64.2	59.9	56.7	54.4	52.4	51.0	49.1	47.8	46.4	44.5
72.5°	57.0	53.4	49.8	47.3	45.1	43.9	42.0	39.1	37.7	37.4	37.2
75°	46.2	42.3	39.8	38.4	36.3	33.4	32.3	31.9	31.7	31.4	31.4
77.5°	35.7	33.3	31.6	28.7	27.6	27.5	26.6	26.5	26.1	26.3	26.3
80°	25.9	24.6	22.5	21.7	21.3	21.5	21.2	21.3	21.0	21.2	20.8
82.5°	17.2	16.0	16.4	15.9	15.9	16.2	16.0	15.5	15.5	15.4	15.4
85°	10.2	10.1	10.4	10.4	10.2	9.7	10.1	9.9	9.4	9.6	9.6
87.5°	4.4	4.4	4.4	4.3	4.4	4.3	4.3	4.3	3.8	3.8	3.8
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: P243439

CATALOG NUMBER: S123RDRP-H340D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	395.2	395.2	395.2	395.2
2.5°	374.1	373.7	373.2	372.7
5°	354.8	353.2	353.1	352.6
7.5°	336.7	336.0	334.8	336.2
10°	320.1	320.6	319.5	318.1
12.5°	302.9	301.9	300.0	301.0
15°	287.7	286.0	285.0	282.6
17.5°	271.8	270.5	270.5	268.9
20°	258.0	256.7	257.0	256.0
22.5°	246.4	245.4	243.9	244.0
25°	235.5	234.0	232.3	232.4
27.5°	223.4	222.0	221.7	220.5
30°	212.6	211.4	211.3	211.3
32.5°	202.2	201.7	200.9	200.3
35°	193.2	192.5	191.1	191.5
37.5°	181.9	181.2	181.1	180.9
40°	171.3	170.8	169.5	169.6
42.5°	160.8	159.9	159.0	158.7
45°	149.3	149.1	147.8	148.1
47.5°	138.4	138.1	137.4	136.5
50°	126.3	126.1	125.6	124.6
52.5°	114.5	114.0	113.0	111.9
55°	101.2	99.7	99.8	99.0
57.5°	90.3	89.6	88.2	87.7
60°	79.7	79.0	78.8	78.2
62.5°	70.8	70.1	69.6	69.6
65°	62.8	61.9	61.8	61.8
67.5°	53.9	53.1	52.9	52.6
70°	42.8	42.7	42.3	42.3
72.5°	36.9	36.7	36.9	36.2
75°	31.4	31.2	31.2	31.4
77.5°	26.1	26.1	25.9	25.9
80°	20.6	20.8	20.6	21.2
82.5°	15.5	15.2	15.4	15.0
85°	9.6	9.6	9.2	9.2
87.5°	3.8	3.8	3.8	3.8
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243439
 CATALOG NUMBER: S123RDRP-H340D930-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	13.83	15.33	14.20	15.65	15.96	16.53	18.03	16.90	18.35	18.66
	3H	15.02	16.36	15.40	16.69	17.05	17.96	19.30	18.33	19.63	19.99
	4H	15.37	16.63	15.77	16.98	17.36	18.46	19.72	18.86	20.07	20.45
	6H	15.64	16.81	16.06	17.18	17.57	18.81	19.97	19.22	20.34	20.73
	8H	15.74	16.84	16.16	17.23	17.63	18.91	20.01	19.33	20.40	20.80
	12H	15.80	16.86	16.23	17.24	17.67	18.97	20.02	19.40	20.41	20.84
4H	2H	14.78	16.04	15.18	16.39	16.77	16.81	18.07	17.21	18.42	18.80
	3H	16.05	17.09	16.46	17.49	17.90	18.53	19.57	18.94	19.97	20.37
	4H	16.46	17.40	16.89	17.81	18.25	19.14	20.08	19.58	20.50	20.94
	6H	16.80	17.62	17.26	18.06	18.52	19.60	20.41	20.06	20.86	21.32
	8H	16.92	17.68	17.38	18.12	18.59	19.74	20.50	20.20	20.94	21.41
	12H	17.01	17.69	17.49	18.17	18.64	19.83	20.51	20.31	20.99	21.46
8H	4H	16.82	17.58	17.28	18.02	18.49	19.20	19.96	19.67	20.41	20.87
	6H	17.24	17.87	17.73	18.36	18.83	19.73	20.36	20.23	20.85	21.33
	8H	17.40	17.96	17.92	18.47	18.96	19.92	20.48	20.43	20.99	21.48
	12H	17.55	18.05	18.06	18.54	19.10	20.07	20.57	20.58	21.06	21.63
12H	4H	16.85	17.53	17.33	18.01	18.48	19.19	19.87	19.67	20.35	20.82
	6H	17.28	17.85	17.80	18.36	18.85	19.72	20.29	20.24	20.80	21.28
	8H	17.49	17.99	18.00	18.48	19.05	19.95	20.45	20.46	20.94	21.51