

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: P243424

Luminaire Tested: S123RDRP-H340D830-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243424
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-H340D830-X4F0-XX-UDD-A-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

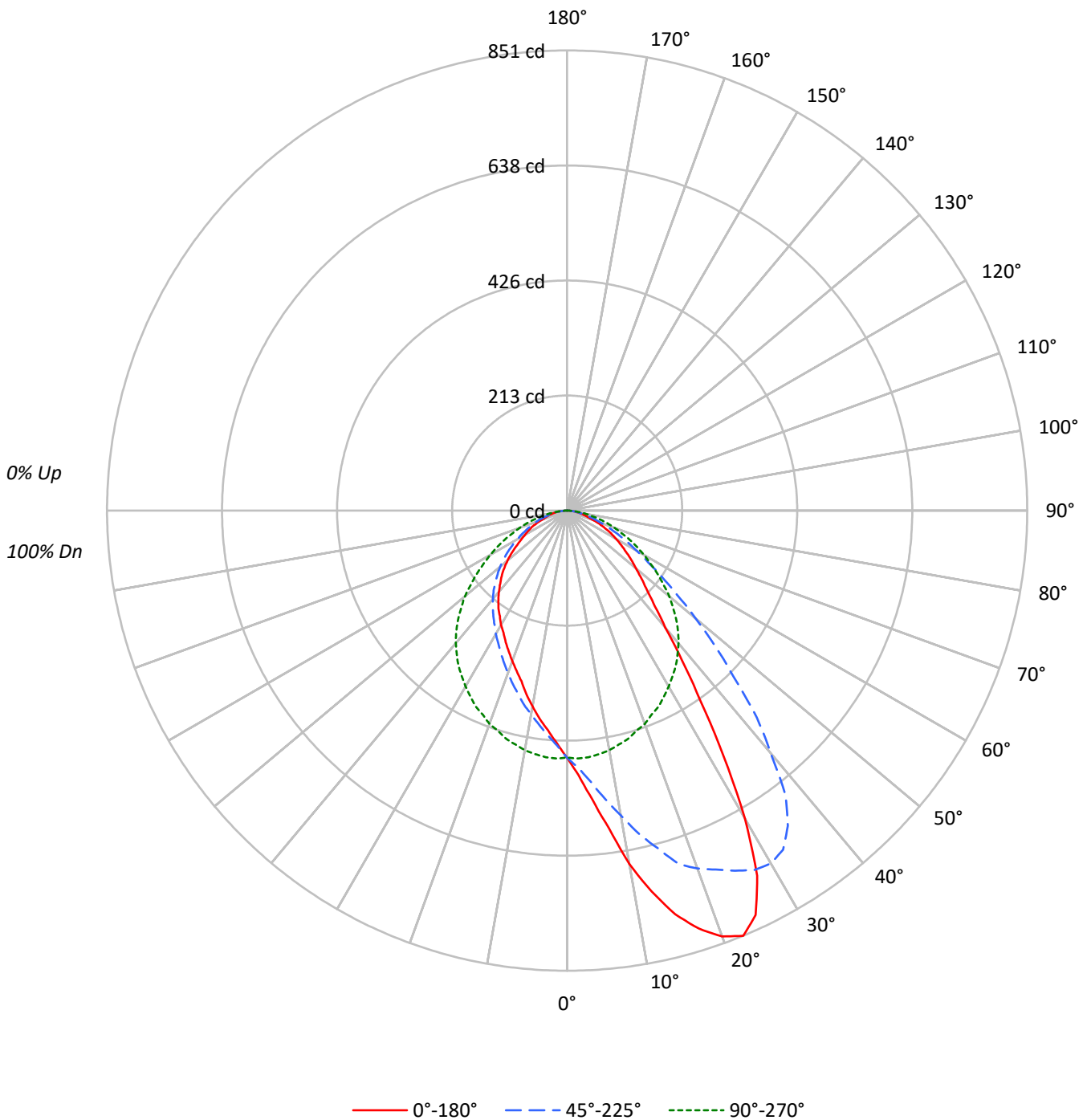
Lumens per Lamp: N/A
Luminaire Lumens: 1190.5 lumens
Efficiency: N/A
Efficacy: 106.3 lumens/watt
Spacing Criteria (0/90/45): 1.28 / 1.22 / 1.4
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

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: P243424

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

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	5538	5538	5538	5538	5538
5°	6529	6129	5569	5063	4959
10°	8173	7046	5536	4705	4526
15°	9699	8108	5481	4402	4100
20°	10811	9087	5415	4130	3817
25°	11034	9829	5348	3884	3594
30°	9194	10545	5257	3692	3418
35°	6352	10530	5185	3520	3275
40°	4464	9271	5067	3378	3103
45°	3584	7467	4887	3226	2935
50°	3125	5844	4654	3047	2715
55°	2802	4512	4307	2847	2418
60°	2536	3593	3978	2582	2192
65°	2217	2948	3665	2338	2048
70°	1790	2399	3299	2148	1733
75°	1550	1883	2876	1812	1700
80°	1431	1543	2450	1738	1710
85°	1266	1321	1975	1558	1488

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 55°
 Vertical Angle: 45°
 Luminance: 9358 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	44.8	3.8
10°-20°	141.1	11.9
20°-30°	226.1	19.0
30°-40°	245.5	20.6
40°-50°	210.3	17.7
50°-60°	159.4	13.4
60°-70°	101.9	8.6
70°-80°	48.7	4.1
80°-90°	12.8	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°	412.0	34.6
0°-40°	657.5	55.2
0°-60°	1027.2	86.3
0°-90°	1190.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1190.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	457	457	457	457	457	
5°	537	504	458	416	408	55
15°	773	646	437	351	327	219
25°	825	735	400	290	269	366
35°	429	712	350	238	221	276
45°	209	436	285	188	171	165
55°	133	214	204	135	114	120
65°	77	103	128	82	71	77
75°	33	40	61	39	36	36
85°	9	10	14	11	11	10
90°	0	0	0	0	0	



TEST NUMBER: P243424

CATALOG NUMBER: S123RDRP-H340D830-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	456.9	456.9	456.9	456.9	456.9	456.9	456.9	456.9	456.9	456.9	456.9
2.5°	489.7	490.2	489.3	489.1	488.9	485.7	484.7	483.1	477.6	476.2	475.3
5°	536.6	535.0	536.8	533.4	529.7	527.5	524.0	516.1	509.2	503.7	500.1
7.5°	592.2	592.8	591.1	587.9	580.4	577.2	567.6	558.1	549.0	537.6	529.1
10°	664.0	659.3	660.3	650.4	642.5	633.1	619.9	604.7	588.7	572.5	560.5
12.5°	721.3	724.6	722.2	717.5	702.3	693.1	681.0	658.9	633.7	612.0	593.6
15°	772.9	768.4	769.0	757.6	752.0	743.6	723.6	701.7	685.4	646.1	624.4
17.5°	810.8	810.4	809.8	800.2	793.5	775.7	755.4	732.9	712.4	685.2	657.9
20°	838.1	841.0	840.2	832.3	820.5	803.3	791.1	763.1	729.4	704.5	671.2
22.5°	851.1	851.3	851.7	847.9	840.0	829.0	811.6	789.1	759.1	718.5	681.4
25°	825.0	826.0	831.1	834.3	836.5	831.5	822.5	802.1	776.3	734.9	696.4
27.5°	761.1	764.3	770.0	788.9	796.6	807.3	811.0	802.9	783.8	749.3	705.5
30°	656.9	665.8	671.3	692.9	723.0	751.4	764.9	778.1	776.3	753.4	709.0
32.5°	537.8	543.5	559.5	582.6	606.4	648.1	694.6	726.6	744.5	743.4	712.0
35°	429.3	437.6	451.2	468.7	501.7	544.9	597.6	647.9	692.9	711.6	700.3
37.5°	348.4	349.2	362.0	386.9	407.4	445.5	493.0	555.2	614.1	663.1	673.9
40°	282.1	287.6	294.3	309.9	334.2	370.7	402.3	463.4	524.6	585.9	629.7
42.5°	240.3	240.3	247.8	257.6	273.8	295.7	333.4	388.8	443.9	519.2	568.6
45°	209.1	211.1	214.4	220.8	232.2	249.2	278.4	316.0	372.3	435.6	509.8
47.5°	186.6	186.4	189.4	193.1	202.0	214.8	232.0	262.6	304.2	372.5	438.0
50°	165.7	166.5	168.7	171.8	177.8	186.8	197.7	220.8	255.9	309.9	378.6
52.5°	149.5	149.3	151.1	153.1	157.6	162.8	172.4	189.6	213.9	256.9	313.9
55°	132.6	133.4	135.5	136.7	140.5	143.8	151.9	161.6	181.1	213.5	265.3
57.5°	118.0	119.0	120.1	121.3	123.9	127.2	134.0	139.9	154.1	177.4	218.8
60°	104.6	104.2	105.5	107.5	108.9	111.9	115.6	121.7	131.6	148.2	178.5
62.5°	91.1	91.3	91.5	92.7	95.3	97.9	101.2	105.7	111.7	123.9	145.4
65°	77.3	77.5	77.9	79.1	81.7	83.3	86.8	90.7	95.5	102.8	117.8
67.5°	65.1	65.9	65.9	66.9	67.9	69.4	72.0	75.0	78.9	84.2	93.9
70°	50.5	50.3	51.3	53.3	54.3	57.0	58.8	60.8	64.3	67.7	76.0
72.5°	40.6	40.6	40.6	41.4	41.6	42.2	43.4	47.5	50.3	53.7	58.2
75°	33.1	33.3	33.3	33.5	33.7	34.3	34.7	35.9	36.7	40.2	43.0
77.5°	26.4	26.6	26.6	26.8	27.0	27.2	28.0	28.0	28.6	29.4	30.6
80°	20.5	20.3	20.3	20.5	20.5	21.1	21.1	21.5	21.7	22.1	22.7
82.5°	14.6	14.4	14.6	14.4	14.6	14.8	15.2	15.0	15.4	15.8	16.0
85°	9.1	9.3	9.3	9.7	9.5	9.3	9.5	9.5	9.5	9.5	9.9
87.5°	3.9	4.3	4.3	4.1	4.3	4.3	3.9	4.3	4.3	4.3	4.5
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°	456.9	456.9	456.9	456.9	456.9	456.9	456.9	456.9	456.9	456.9	456.9
2.5°	474.7	473.9	470.9	468.1	464.0	462.2	459.9	458.9	455.7	451.4	449.4
5°	496.8	490.8	485.1	478.2	472.5	465.8	462.0	457.7	451.0	444.9	440.5
7.5°	520.2	511.6	500.9	489.5	479.2	469.5	461.2	454.3	445.7	437.2	430.5
10°	546.1	531.3	514.1	499.5	484.7	470.7	460.3	449.8	438.6	427.9	419.8
12.5°	573.9	553.0	532.3	510.4	488.3	472.1	456.5	443.1	430.5	419.2	409.6
15°	602.7	574.1	547.7	523.0	492.2	470.5	453.4	436.8	421.0	407.2	397.7
17.5°	623.2	590.5	557.1	522.2	495.8	468.9	447.6	426.7	412.1	397.9	385.1
20°	642.2	605.1	565.4	532.9	496.0	463.2	439.9	419.8	399.5	384.3	373.5
22.5°	650.2	616.7	576.7	531.5	494.6	461.0	431.1	408.4	390.2	373.7	359.4
25°	651.8	614.3	573.3	529.7	489.3	453.0	422.6	399.9	376.2	359.1	348.0
27.5°	658.7	607.4	567.2	523.8	482.7	444.9	412.9	387.7	365.6	347.2	333.0
30°	660.5	604.5	554.2	512.7	470.5	433.4	401.1	375.6	351.6	332.8	320.0
32.5°	661.3	600.5	540.6	495.2	454.9	420.0	390.4	362.8	339.9	320.2	307.0
35°	658.5	595.0	524.2	475.3	436.6	402.3	374.8	350.4	324.9	306.4	292.4
37.5°	647.7	586.3	514.9	452.0	415.1	382.7	359.4	335.4	311.9	291.8	277.4
40°	627.2	573.7	497.5	432.4	390.6	361.6	339.9	320.2	296.5	277.2	263.0
42.5°	594.4	556.5	481.6	410.3	366.4	338.9	320.8	303.8	282.5	264.2	248.6
45°	545.9	532.5	460.3	387.9	339.9	314.1	298.3	285.1	265.7	249.0	234.6
47.5°	493.4	496.4	438.8	365.0	315.8	291.2	277.4	265.7	251.1	233.2	220.0
50°	432.8	449.0	408.6	341.9	291.8	267.5	253.9	246.8	233.2	218.2	205.8
52.5°	377.4	403.0	378.0	316.6	268.1	244.2	231.6	224.5	215.4	203.0	190.4
55°	320.0	352.5	334.4	289.4	244.0	220.0	209.3	203.8	196.3	186.6	175.2
57.5°	272.4	307.2	295.7	260.8	220.6	198.9	189.4	183.1	178.5	169.7	160.4
60°	225.9	258.0	253.5	227.9	197.3	176.6	169.3	164.1	160.4	153.9	144.8
62.5°	182.3	213.5	216.2	196.1	174.6	155.9	149.1	145.6	142.6	137.5	129.2
65°	144.6	172.0	177.8	162.4	150.7	136.5	130.0	127.8	125.7	119.7	113.4
67.5°	113.2	134.7	142.2	133.6	125.3	117.0	111.9	108.9	107.3	103.8	99.4
70°	86.6	105.2	111.5	107.7	102.2	99.0	95.1	93.1	91.5	87.0	84.6
72.5°	64.9	77.5	85.4	84.2	83.1	80.9	78.5	77.9	75.6	72.6	70.4
75°	47.5	54.8	61.9	64.5	64.1	64.9	62.3	61.4	60.0	57.8	56.0
77.5°	34.1	38.5	43.4	46.6	48.1	48.3	48.3	47.7	46.8	45.2	43.8
80°	23.7	24.7	29.2	32.2	33.7	34.9	34.9	35.1	34.1	33.5	32.6
82.5°	16.4	17.0	18.0	20.3	22.3	23.7	23.9	23.7	23.3	23.1	21.7
85°	10.3	10.1	10.1	10.7	12.2	13.6	13.8	14.2	14.0	13.8	12.4
87.5°	4.3	4.3	4.5	4.3	4.9	5.1	5.5	6.5	6.3	5.3	4.9
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	456.9	456.9	456.9	456.9	456.9	456.9	456.9	456.9	456.9	456.9	456.9
2.5°	448.2	445.7	443.3	440.7	437.6	434.6	434.2	433.8	434.8	432.8	432.0
5°	437.2	432.2	428.5	423.8	420.4	416.1	413.7	413.1	412.9	411.7	410.1
7.5°	425.1	419.8	414.5	409.2	403.6	399.1	396.5	395.2	394.0	392.0	390.4
10°	413.9	407.2	401.5	394.2	388.3	382.3	380.0	378.0	376.8	374.0	371.9
12.5°	401.3	392.8	386.5	378.6	373.3	368.1	364.4	360.6	357.9	353.7	352.0
15°	390.2	381.3	370.7	366.0	358.5	350.8	346.6	346.6	340.9	337.5	335.4
17.5°	375.4	367.7	360.2	350.6	339.9	335.4	330.6	326.5	322.6	321.6	317.6
20°	362.4	353.3	345.6	335.2	325.5	320.2	314.7	310.1	307.2	304.4	302.2
22.5°	349.6	340.5	328.7	318.4	311.9	304.8	298.9	294.9	292.4	288.2	286.3
25°	336.2	325.3	314.7	304.6	296.5	290.4	284.3	282.1	277.6	275.4	272.6
27.5°	322.8	309.7	299.7	291.0	281.9	276.0	271.9	267.9	264.0	262.8	261.2
30°	307.8	295.7	286.1	277.6	268.9	263.8	258.8	255.3	251.9	249.4	247.6
32.5°	292.8	282.7	273.4	263.6	255.7	250.2	246.0	242.9	241.3	236.9	235.4
35°	279.0	268.7	258.8	249.6	243.2	237.9	234.2	231.2	227.9	225.1	223.5
37.5°	264.8	255.5	245.4	237.5	230.4	226.1	221.9	218.0	215.4	213.9	211.9
40°	250.9	241.1	233.4	224.7	218.4	213.5	209.1	206.2	203.0	201.6	199.1
42.5°	237.9	228.5	219.6	211.7	206.0	201.2	197.1	193.7	191.2	188.6	187.2
45°	222.9	214.6	206.6	198.7	193.3	188.2	183.7	180.7	177.2	175.0	174.2
47.5°	210.3	201.6	192.9	185.6	180.1	174.6	170.8	167.3	164.3	162.2	161.0
50°	195.3	187.2	180.1	172.8	167.5	161.6	157.0	153.7	150.3	148.8	146.8
52.5°	182.5	174.6	165.9	159.4	153.3	148.2	144.0	141.3	138.3	135.9	134.5
55°	166.5	158.8	151.9	145.0	138.9	134.7	131.4	126.7	124.1	121.7	118.0
57.5°	152.5	145.2	137.9	131.2	125.5	120.5	116.4	113.2	109.9	108.1	105.5
60°	137.7	130.0	123.3	118.2	111.9	106.5	103.8	100.0	97.3	94.5	93.7
62.5°	123.1	116.0	109.3	104.0	98.2	94.1	90.6	88.8	86.0	83.8	83.1
65°	107.9	102.0	95.7	89.8	86.2	81.5	79.5	76.5	75.0	74.0	73.8
67.5°	92.9	87.6	81.9	77.3	74.0	70.8	68.5	67.3	65.7	64.5	63.5
70°	79.3	74.2	69.2	65.5	62.9	60.6	59.0	56.8	55.2	53.7	51.5
72.5°	65.9	61.7	57.6	54.6	52.1	50.7	48.5	45.2	43.6	43.2	43.0
75°	53.5	48.9	46.0	44.4	42.0	38.7	37.3	36.9	36.7	36.3	36.3
77.5°	41.2	38.5	36.5	33.1	32.0	31.8	30.8	30.6	30.2	30.4	30.4
80°	30.0	28.4	26.0	25.1	24.7	24.9	24.5	24.7	24.3	24.5	24.1
82.5°	19.9	18.5	18.9	18.3	18.3	18.7	18.5	18.0	18.0	17.8	17.8
85°	11.8	11.6	12.0	12.0	11.8	11.2	11.6	11.4	10.9	11.0	11.0
87.5°	5.1	5.1	5.1	4.9	5.1	4.9	4.9	4.9	4.3	4.3	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



TEST NUMBER: P243424

CATALOG NUMBER: S123RDRP-H340D830-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	456.9	456.9	456.9	456.9
2.5°	432.4	432.0	431.5	430.9
5°	410.1	408.4	408.2	407.6
7.5°	389.2	388.4	387.1	388.6
10°	370.1	370.7	369.3	367.7
12.5°	350.2	349.0	346.8	348.0
15°	332.6	330.6	329.5	326.7
17.5°	314.3	312.7	312.7	310.9
20°	298.3	296.7	297.1	295.9
22.5°	284.9	283.7	281.9	282.1
25°	272.2	270.5	268.5	268.7
27.5°	258.2	256.7	256.3	254.9
30°	245.8	244.4	244.2	244.2
32.5°	233.8	233.2	232.2	231.6
35°	223.3	222.5	221.0	221.3
37.5°	210.3	209.5	209.3	209.1
40°	198.1	197.5	195.9	196.1
42.5°	185.8	184.9	183.9	183.5
45°	172.6	172.4	170.8	171.2
47.5°	160.0	159.6	158.8	157.8
50°	146.0	145.8	145.2	144.0
52.5°	132.4	131.8	130.6	129.4
55°	117.0	115.2	115.4	114.4
57.5°	104.4	103.6	102.0	101.4
60°	92.1	91.3	91.1	90.4
62.5°	81.9	81.1	80.5	80.5
65°	72.6	71.6	71.4	71.4
67.5°	62.3	61.4	61.2	60.8
70°	49.5	49.3	48.9	48.9
72.5°	42.6	42.4	42.6	41.8
75°	36.3	36.1	36.1	36.3
77.5°	30.2	30.2	30.0	30.0
80°	23.9	24.1	23.9	24.5
82.5°	18.0	17.6	17.8	17.4
85°	11.0	11.0	10.7	10.7
87.5°	4.3	4.3	4.3	4.3
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243424
 CATALOG NUMBER: S123RDRP-H340D830-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	14.33	15.84	14.70	16.15	16.46	17.03	18.54	17.40	18.85	19.16
	3H	15.52	16.87	15.90	17.20	17.56	18.46	19.81	18.84	20.13	20.50
	4H	15.87	17.13	16.27	17.48	17.86	18.96	20.22	19.36	20.57	20.95
	6H	16.15	17.31	16.56	17.68	18.07	19.31	20.47	19.72	20.84	21.23
	8H	16.24	17.35	16.66	17.73	18.14	19.41	20.52	19.84	20.91	21.31
	12H	16.30	17.36	16.73	17.74	18.17	19.47	20.53	19.90	20.91	21.34
4H	2H	15.28	16.54	15.68	16.89	17.27	17.31	18.57	17.71	18.92	19.30
	3H	16.55	17.60	16.96	18.00	18.40	19.03	20.07	19.44	20.47	20.88
	4H	16.96	17.90	17.39	18.31	18.75	19.65	20.58	20.08	21.00	21.44
	6H	17.31	18.12	17.76	18.56	19.02	20.10	20.92	20.56	21.36	21.82
	8H	17.42	18.18	17.88	18.63	19.09	20.24	21.00	20.70	21.45	21.91
	12H	17.51	18.19	17.99	18.67	19.14	20.33	21.01	20.82	21.49	21.96
8H	4H	17.32	18.08	17.79	18.53	18.99	19.70	20.47	20.17	20.91	21.38
	6H	17.74	18.37	18.24	18.86	19.34	20.23	20.86	20.73	21.35	21.83
	8H	17.90	18.47	18.42	18.98	19.47	20.42	20.99	20.94	21.50	21.99
	12H	18.05	18.55	18.56	19.04	19.61	20.57	21.07	21.09	21.57	22.13
12H	4H	17.35	18.03	17.83	18.51	18.98	19.69	20.37	20.18	20.85	21.32
	6H	17.79	18.35	18.30	18.86	19.35	20.22	20.79	20.74	21.30	21.79
	8H	18.00	18.50	18.51	18.99	19.55	20.45	20.95	20.96	21.44	22.01