

Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



Scaled data based on original data using  
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P646658

Luminaire Tested: S123RDR-S1000D830-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P646658  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2301-905-2)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/20/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S123RDR-S1000D830-X4F0-XX-UDD-G-W  
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC  
STANDARD LIGHT ENGINE  
Light Source: 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

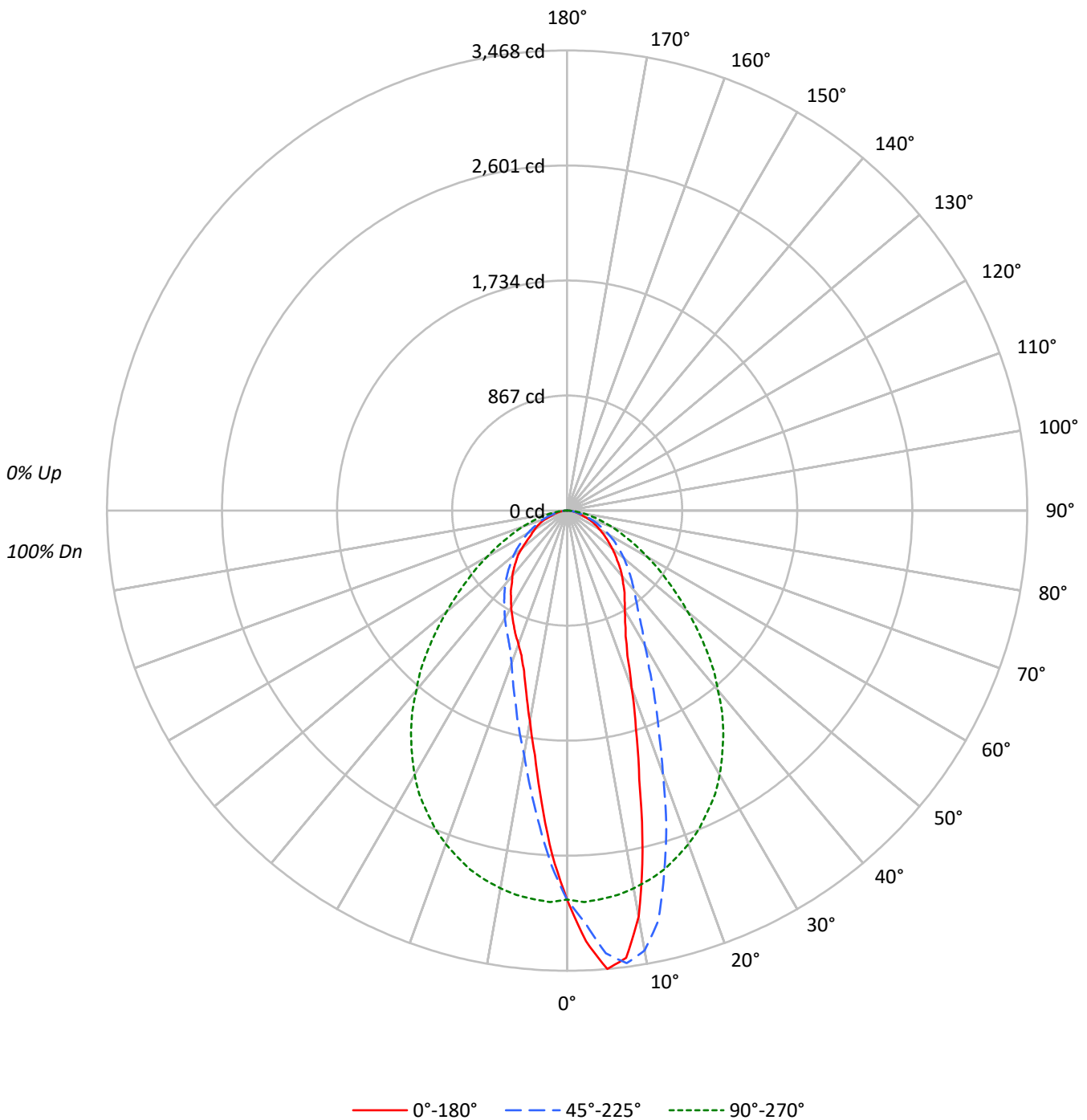
Lumens per Lamp: N/A  
Luminaire Lumens: 3883.9 lumens  
Efficiency: N/A  
Efficacy: 112.6 lumens/watt  
Spacing Criteria (0/90/45): 0.55 / 1.17 / 0.79  
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')  
CIE Type: Direct

Input Watts (W): 34.5  
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	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	111	107	103	100	108	104	101	98	100	97	95	96	94	92	93	91	89					87				
2	102	95	89	84	100	93	88	83	90	85	81	87	83	80	84	81	78					76				
3	94	85	78	73	92	84	77	72	81	75	71	78	74	70	76	72	69					67				
4	88	77	69	64	85	76	69	63	73	67	62	71	66	62	69	65	61					59				
5	82	70	62	56	80	69	62	56	67	61	56	65	60	55	63	58	54					53				
6	76	64	56	51	74	63	56	50	62	55	50	60	54	50	59	53	49					47				
7	71	59	51	46	70	58	51	46	57	50	45	56	50	45	54	49	45					43				
8	67	55	47	42	65	54	47	42	53	46	41	52	46	41	51	45	41					39				
9	63	51	43	38	62	50	43	38	49	43	38	48	42	38	47	42	38					36				
10	60	47	40	36	58	47	40	35	46	40	35	45	39	35	44	39	35					33				

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

	0°	45°	90°	135°	180°
0°	35323	35323	35323	35323	35323
5°	41943	40518	35545	28829	26677
10°	38001	41177	35368	22824	19751
15°	26163	35265	34995	18743	15624
20°	18201	27049	34292	15705	13733
25°	13870	20758	33270	14030	12657
30°	12074	16322	31992	13044	11723
35°	11085	13737	30181	12165	10873
40°	10115	12327	27811	11419	10096
45°	9135	11286	25253	10609	9319
50°	8291	10477	22237	9869	8358
55°	7500	9621	19341	9014	7172
60°	6721	8748	16799	8256	6779
65°	6204	7778	14461	7333	6409
70°	5038	6648	12619	6648	5207
75°	4423	5372	10689	5540	4590
80°	4004	4503	8757	4670	4337
85°	3650	3816	6650	4147	3982

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 80°

Vertical Angle: 45°

Luminance: 26647 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	267.2	6.9
10°-20°	618.2	15.9
20°-30°	709.2	18.3
30°-40°	698.6	18.0
40°-50°	615.8	15.9
50°-60°	473.9	12.2
60°-70°	311.6	8.0
70°-80°	151.3	3.9
80°-90°	38.2	1.0
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°	1594.6	41.1
0°-40°	2293.2	59.0
0°-60°	3382.8	87.1
0°-90°	3883.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3883.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	2932	2932	2932	2932	2932	
5°	3468	3350	2939	2384	2206	317
15°	2097	2827	2805	1502	1252	592
25°	1043	1561	2502	1055	952	493
35°	754	934	2052	827	739	470
45°	536	662	1482	623	547	416
55°	357	458	921	429	341	320
65°	218	273	507	257	225	213
75°	95	115	230	119	99	102
85°	26	28	48	30	29	30
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	10°	20°	22.5°	30°	40°	45°	50°	60°	67.5°	70°
0°	2931.6	2931.6	2931.6	2931.6	2931.6	2931.6	2931.6	2931.6	2931.6	2931.6	2931.6
2.5°	3248.9	3228.5	3222.5	3215.3	3203.3	3160.0	3110.7	3115.5	3109.5	3072.2	3051.8
5°	3467.7	3470.1	3464.1	3459.3	3438.8	3386.0	3349.9	3328.3	3282.6	3212.9	3191.2
7.5°	3400.4	3438.8	3446.1	3454.5	3465.3	3453.3	3440.1	3431.6	3394.4	3318.7	3283.8
10°	3105.9	3103.5	3146.8	3181.6	3275.4	3341.5	3365.5	3400.4	3431.6	3378.8	3340.3
12.5°	2625.1	2628.7	2770.6	2770.6	2892.0	3060.2	3168.4	3241.7	3376.3	3380.0	3357.1
15°	2097.4	2156.3	2282.5	2309.0	2465.2	2691.2	2827.0	2978.5	3239.3	3321.1	3316.2
17.5°	1722.4	1747.7	1869.1	1903.9	2042.2	2298.2	2485.7	2668.4	3033.8	3205.7	3236.9
20°	1419.5	1442.4	1530.1	1556.6	1696.0	1940.0	2109.5	2306.6	2785.0	3048.2	3103.5
22.5°	1185.1	1229.6	1288.5	1329.4	1408.7	1657.5	1803.0	1991.7	2496.5	2871.5	2936.4
25°	1043.3	1063.7	1114.2	1133.5	1229.6	1394.3	1561.4	1727.2	2240.5	2650.4	2764.5
27.5°	947.2	953.2	990.4	1007.3	1064.9	1217.6	1337.8	1491.7	1979.7	2423.2	2556.6
30°	867.8	878.6	907.5	911.1	961.6	1069.8	1173.1	1315.0	1751.3	2203.2	2340.2
32.5°	806.5	812.5	836.6	843.8	876.2	961.6	1045.7	1149.1	1539.7	1973.6	2131.1
35°	753.6	754.8	772.9	782.5	811.3	882.2	933.9	1020.5	1370.3	1783.7	1922.0
37.5°	693.5	702.0	715.2	723.6	748.8	806.5	853.4	920.7	1214.0	1603.4	1732.0
40°	643.1	650.3	665.9	669.5	692.3	745.2	783.7	843.8	1079.4	1430.3	1561.4
42.5°	592.6	597.4	613.0	620.2	645.5	687.5	722.4	769.3	972.4	1276.5	1405.1
45°	536.1	548.1	564.9	568.5	592.6	635.8	662.3	705.6	876.2	1143.1	1257.3
47.5°	489.2	495.2	509.6	515.6	543.3	581.8	609.4	646.7	793.3	1021.7	1133.5
50°	442.3	444.7	458.0	466.4	488.0	532.5	558.9	592.6	717.6	923.1	1001.2
52.5°	397.9	403.9	417.1	423.1	437.5	483.2	507.2	542.1	645.5	822.2	900.3
55°	357.0	360.6	370.2	377.4	394.2	433.9	458.0	488.0	583.0	729.6	798.1
57.5°	318.5	323.3	330.5	336.6	352.2	387.0	411.1	441.1	524.1	645.5	698.3
60°	278.9	284.9	293.3	295.7	310.1	341.4	363.0	389.4	464.0	567.3	614.2
62.5°	250.0	251.2	258.4	262.0	270.4	295.7	318.5	343.8	409.9	491.6	530.1
65°	217.6	221.2	224.8	227.2	234.4	256.0	272.8	292.1	357.0	427.9	454.3
67.5°	183.9	187.5	193.5	195.9	201.9	216.4	230.8	250.0	304.1	364.2	388.2
70°	143.0	143.0	152.7	157.5	167.1	177.9	188.7	205.5	252.4	304.1	322.1
72.5°	116.6	117.8	119.0	119.0	127.4	145.4	151.4	162.3	199.5	248.8	264.4
75°	95.0	96.2	97.4	98.6	99.8	105.8	115.4	125.0	152.7	188.7	203.1
77.5°	75.7	76.9	78.1	78.1	80.5	82.9	85.3	90.1	109.4	135.8	147.8
80°	57.7	58.9	60.1	60.1	61.3	63.7	64.9	67.3	73.3	91.4	97.4
82.5°	42.1	42.1	42.1	43.3	44.5	44.5	46.9	46.9	50.5	55.3	58.9
85°	26.4	26.4	27.6	27.6	27.6	28.8	27.6	28.8	30.0	31.3	33.7
87.5°	12.0	10.8	12.0	12.0	12.0	13.2	13.2	13.2	13.2	14.4	14.4
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):**

	80°	90°	100°	110°	112.5°	120°	130°	135°	140°	150°	157.5°
0°	2931.6	2931.6	2931.6	2931.6	2931.6	2931.6	2931.6	2931.6	2931.6	2931.6	2931.6
2.5°	2995.3	2953.3	2882.3	2837.9	2821.0	2769.3	2720.1	2679.2	2658.8	2656.4	2619.1
5°	3054.2	2938.8	2792.2	2669.6	2640.7	2550.6	2434.0	2383.5	2317.4	2291.0	2259.7
7.5°	3102.3	2922.0	2705.6	2520.5	2466.5	2330.6	2181.6	2115.5	2065.0	1985.7	1938.8
10°	3136.0	2890.7	2599.9	2360.7	2283.8	2125.1	1944.8	1865.5	1818.6	1727.2	1690.0
12.5°	3149.2	2851.1	2494.1	2194.8	2127.5	1938.8	1762.1	1680.4	1610.6	1527.7	1491.7
15°	3144.4	2805.4	2385.9	2042.2	1958.0	1766.9	1579.4	1502.5	1437.6	1354.6	1307.7
17.5°	3111.9	2740.5	2268.1	1894.3	1813.8	1616.7	1426.7	1355.8	1298.1	1217.6	1181.5
20°	3057.8	2674.4	2164.8	1759.7	1668.3	1479.6	1300.5	1224.8	1174.3	1131.1	1104.6
22.5°	2983.3	2596.3	2038.5	1626.3	1546.9	1357.0	1185.1	1123.8	1093.8	1058.9	1039.7
25°	2870.3	2502.5	1924.4	1514.5	1435.2	1246.4	1096.2	1055.3	1025.3	1002.4	982.0
27.5°	2748.9	2412.4	1810.2	1401.5	1327.0	1146.7	1026.5	995.2	968.8	939.9	921.9
30°	2608.3	2299.4	1702.0	1301.7	1229.6	1066.2	966.4	937.5	915.9	884.7	866.6
32.5°	2442.4	2175.6	1601.0	1205.6	1138.3	996.4	911.1	879.8	861.8	831.8	813.7
35°	2270.5	2051.8	1490.4	1116.6	1055.3	935.1	857.0	827.0	807.7	777.7	759.6
37.5°	2102.3	1919.6	1391.9	1038.5	983.2	873.8	800.5	775.3	757.2	726.0	704.4
40°	1924.4	1768.1	1295.7	965.2	913.5	819.7	748.8	726.0	702.0	674.3	652.7
42.5°	1738.1	1634.7	1206.8	900.3	852.2	766.9	697.1	673.1	652.7	620.2	610.6
45°	1563.8	1482.0	1113.0	831.8	793.3	714.0	646.7	622.6	599.8	572.1	562.5
47.5°	1408.7	1333.0	1027.7	771.7	733.2	662.3	596.2	570.9	554.1	532.5	518.1
50°	1248.9	1186.3	933.9	712.8	676.7	607.0	543.3	526.5	507.2	480.8	470.0
52.5°	1099.8	1051.7	857.0	656.3	622.6	560.1	495.2	478.4	460.4	437.5	421.9
55°	968.8	920.7	769.3	592.6	567.3	508.4	450.7	429.1	414.7	388.2	369.0
57.5°	834.2	811.3	685.1	539.7	515.6	456.8	405.1	388.2	370.2	341.4	322.1
60°	723.6	697.1	607.0	482.0	459.2	409.9	359.4	342.6	325.7	298.1	289.7
62.5°	619.0	599.8	531.3	427.9	408.7	360.6	316.1	300.5	283.7	265.6	259.6
65°	524.1	507.2	455.5	372.6	357.0	314.9	274.1	257.2	246.4	238.0	232.0
67.5°	435.1	425.5	385.8	320.9	308.9	271.6	235.6	222.4	216.4	206.7	201.9
70°	354.6	358.2	322.1	274.1	260.8	230.8	199.5	188.7	181.5	173.1	163.5
72.5°	289.7	288.5	266.8	223.6	214.0	189.9	165.9	158.7	150.2	133.4	122.6
75°	224.8	229.6	209.1	185.1	175.5	151.4	128.6	119.0	110.6	104.6	101.0
77.5°	171.9	174.3	164.7	141.8	133.4	113.0	95.0	90.1	86.5	82.9	81.7
80°	122.6	126.2	116.6	102.2	95.0	78.1	68.5	67.3	66.1	63.7	62.5
82.5°	79.3	84.1	79.3	63.7	60.1	51.7	49.3	49.3	48.1	46.9	45.7
85°	43.3	48.1	45.7	37.3	34.9	32.5	31.3	30.0	30.0	30.0	30.0
87.5°	16.8	22.8	19.2	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6
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):**

	160°	170°	180°
0°	2931.6	2931.6	2931.6
2.5°	2610.7	2598.7	2593.9
5°	2251.3	2214.0	2205.6
7.5°	1924.4	1908.7	1857.1
10°	1684.0	1635.9	1614.3
12.5°	1467.6	1423.1	1415.9
15°	1294.5	1263.3	1252.5
17.5°	1180.3	1158.7	1145.5
20°	1096.2	1080.6	1071.0
22.5°	1032.5	1020.5	1013.3
25°	976.0	958.0	952.0
27.5°	918.3	902.7	896.7
30°	864.2	851.0	842.6
32.5°	807.7	792.1	787.3
35°	753.6	744.0	739.2
37.5°	700.8	688.7	681.5
40°	651.5	645.5	641.9
42.5°	607.0	596.2	595.0
45°	560.1	549.3	546.9
47.5°	515.6	506.0	504.8
50°	468.8	455.5	445.9
52.5°	412.3	400.3	391.8
55°	361.8	348.6	341.4
57.5°	319.7	313.7	310.1
60°	287.3	283.7	281.3
62.5°	258.4	254.8	254.8
65°	232.0	228.4	224.8
67.5°	199.5	192.3	191.1
70°	159.9	149.0	147.8
72.5°	121.4	120.2	117.8
75°	101.0	98.6	98.6
77.5°	81.7	79.3	79.3
80°	62.5	61.3	62.5
82.5°	45.7	45.7	44.5
85°	30.0	28.8	28.8
87.5°	14.4	14.4	14.4
90°	0.0	0.0	0.0

(END OF REPORT)