

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: P646667

Luminaire Tested: S123RDR-S1165D830-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P646667  
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-S1165D830-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**

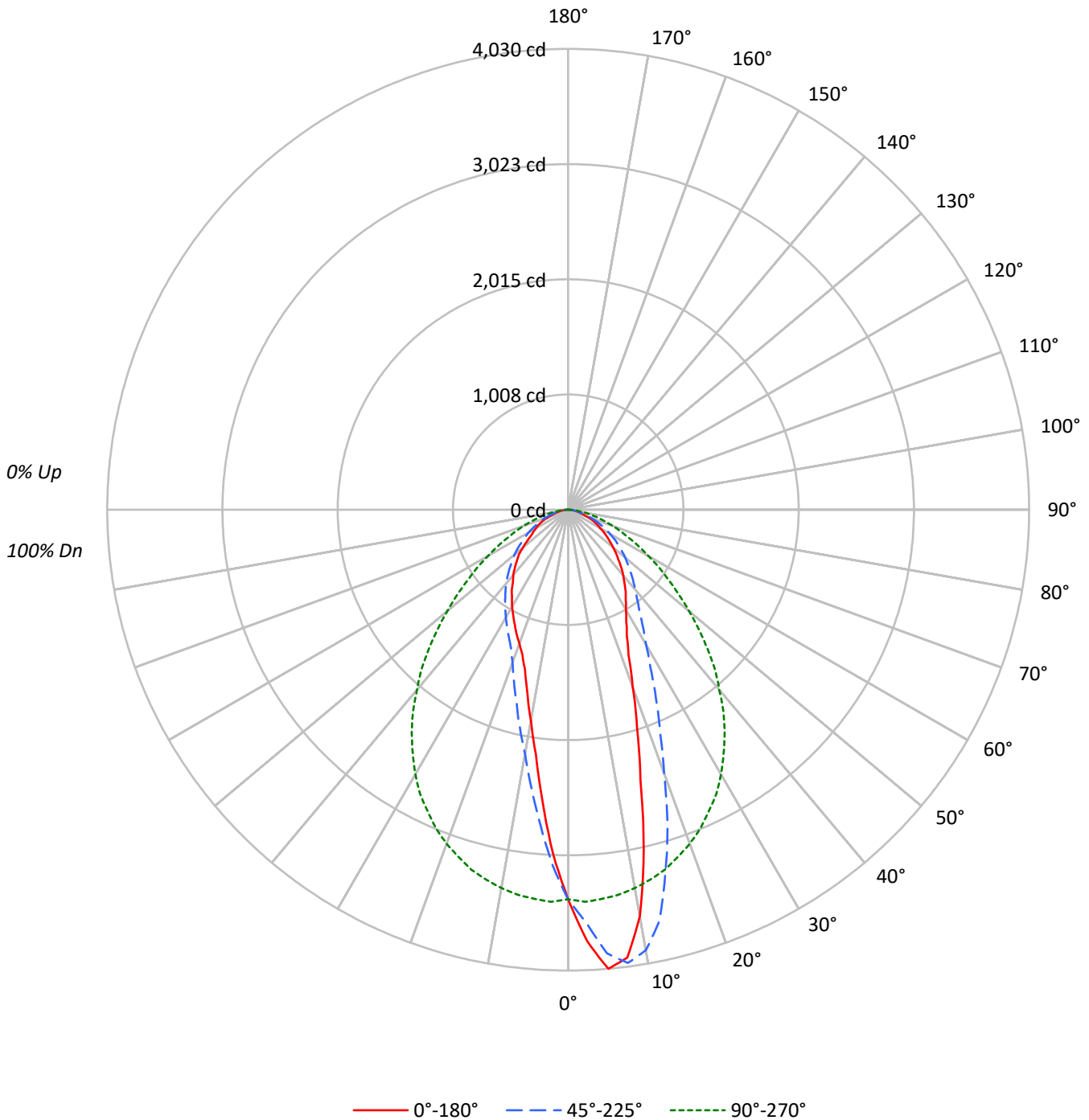
Lumens per Lamp: N/A  
Luminaire Lumens: 4513.9 lumens  
Efficiency: N/A  
Efficacy: 112.6 lumens/watt  
Spacing Criteria (0/90/45): 0.55 / 1.17 / 0.79  
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')  
CIE Type: Direct

Input Watts (W): 40.1  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): 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	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°	41053	41053	41053	41053	41053
5°	48745	47089	41311	33505	31005
10°	44164	47856	41105	26526	22954
15°	30407	40985	40671	21782	18157
20°	21155	31436	39855	18253	15960
25°	16120	24125	38667	16306	14709
30°	14033	18969	37180	15160	13624
35°	12884	15966	35074	14137	12637
40°	11756	14326	32322	13271	11734
45°	10616	13116	29350	12330	10831
50°	9637	12177	25846	11470	9716
55°	8716	11180	22478	10476	8334
60°	7810	10167	19524	9594	7878
65°	7208	9041	16807	8522	7447
70°	5855	7726	14666	7726	6052
75°	5140	6243	12421	6438	5330
80°	4656	5232	10179	5426	5038
85°	4244	4438	7728	4825	4631

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 80°  
 Vertical Angle: 45°  
 Luminance: 30969 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	310.5	6.9
10°-20°	718.4	15.9
20°-30°	824.3	18.3
30°-40°	811.9	18.0
40°-50°	715.6	15.9
50°-60°	550.7	12.2
60°-70°	362.2	8.0
70°-80°	175.9	3.9
80°-90°	44.4	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°	1853.2	41.1
0°-40°	2665.1	59.0
0°-60°	3931.5	87.1
0°-90°	4513.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4513.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	3407	3407	3407	3407	3407	
5°	4030	3893	3416	2770	2563	368
15°	2438	3286	3260	1746	1456	688
25°	1212	1815	2908	1226	1106	573
35°	876	1085	2384	961	859	546
45°	623	770	1722	724	636	484
55°	415	532	1070	499	397	372
65°	253	317	590	299	261	248
75°	110	134	267	138	114	119
85°	31	32	56	35	34	35
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°	3407.1	3407.1	3407.1	3407.1	3407.1	3407.1	3407.1	3407.1	3407.1	3407.1	3407.1
2.5°	3775.9	3752.1	3745.1	3736.8	3722.8	3672.5	3615.2	3620.8	3613.8	3570.5	3546.8
5°	4030.1	4032.9	4025.9	4020.3	3996.6	3935.1	3893.2	3868.1	3815.0	3734.0	3708.8
7.5°	3951.9	3996.6	4005.0	4014.8	4027.3	4013.4	3998.0	3988.2	3944.9	3856.9	3816.4
10°	3609.6	3606.9	3657.1	3697.7	3806.6	3883.4	3911.4	3951.9	3988.2	3926.7	3882.0
12.5°	3050.9	3055.1	3219.9	3219.9	3361.0	3556.6	3682.3	3767.5	3924.0	3928.1	3901.6
15°	2437.6	2506.1	2652.8	2683.5	2865.1	3127.7	3285.6	3461.6	3764.7	3859.7	3854.1
17.5°	2001.8	2031.1	2172.2	2212.7	2373.4	2670.9	2888.8	3101.2	3525.8	3725.6	3761.9
20°	1649.8	1676.3	1778.3	1809.0	1971.1	2254.6	2451.6	2680.7	3236.7	3542.6	3606.9
22.5°	1377.4	1429.1	1497.5	1545.0	1637.2	1926.4	2095.4	2314.7	2901.4	3337.2	3412.7
25°	1212.5	1236.3	1294.9	1317.3	1429.1	1620.4	1814.6	2007.4	2603.9	3080.2	3212.9
27.5°	1100.8	1107.8	1151.1	1170.6	1237.7	1415.1	1554.8	1733.6	2300.7	2816.2	2971.3
30°	1008.6	1021.1	1054.7	1058.9	1117.5	1243.3	1363.4	1528.2	2035.3	2560.6	2719.8
32.5°	937.3	944.3	972.3	980.6	1018.4	1117.5	1215.3	1335.5	1789.5	2293.7	2476.7
35°	875.9	877.3	898.2	909.4	942.9	1025.3	1085.4	1186.0	1592.5	2073.0	2233.7
37.5°	806.0	815.8	831.2	840.9	870.3	937.3	991.8	1070.0	1410.9	1863.5	2013.0
40°	747.4	755.7	773.9	778.1	804.6	866.1	910.8	980.6	1254.4	1662.3	1814.6
42.5°	688.7	694.3	712.4	720.8	750.1	799.0	839.5	894.0	1130.1	1483.5	1633.0
45°	623.0	637.0	656.6	660.7	688.7	739.0	769.7	820.0	1018.4	1328.5	1461.2
47.5°	568.5	575.5	592.3	599.3	631.4	676.1	708.2	751.5	922.0	1187.4	1317.3
50°	514.1	516.9	532.2	542.0	567.2	618.8	649.6	688.7	834.0	1072.8	1163.6
52.5°	462.4	469.4	484.7	491.7	508.5	561.6	589.5	630.0	750.1	955.5	1046.3
55°	414.9	419.1	430.3	438.6	458.2	504.3	532.2	567.2	677.5	847.9	927.6
57.5°	370.2	375.8	384.2	391.1	409.3	449.8	477.7	512.7	609.1	750.1	811.6
60°	324.1	331.1	340.8	343.6	360.4	396.7	421.9	452.6	539.2	659.3	713.8
62.5°	290.6	292.0	300.3	304.5	314.3	343.6	370.2	399.5	476.4	571.3	616.0
65°	252.8	257.0	261.2	264.0	272.4	297.5	317.1	339.5	414.9	497.3	528.0
67.5°	213.7	217.9	224.9	227.7	234.7	251.4	268.2	290.6	353.4	423.3	451.2
70°	166.2	166.2	177.4	183.0	194.2	206.7	219.3	238.9	293.4	353.4	374.4
72.5°	135.5	136.9	138.3	138.3	148.1	169.0	176.0	188.6	231.9	289.2	307.3
75°	110.4	111.8	113.2	114.5	115.9	122.9	134.1	145.3	177.4	219.3	236.1
77.5°	88.0	89.4	90.8	90.8	93.6	96.4	99.2	104.8	127.1	157.9	171.8
80°	67.1	68.4	69.8	69.8	71.2	74.0	75.4	78.2	85.2	106.2	113.2
82.5°	48.9	48.9	48.9	50.3	51.7	51.7	54.5	54.5	58.7	64.3	68.4
85°	30.7	30.7	32.1	32.1	32.1	33.5	32.1	33.5	34.9	36.3	39.1
87.5°	14.0	12.6	14.0	14.0	14.0	15.4	15.4	15.4	15.4	16.8	16.8
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°	3407.1	3407.1	3407.1	3407.1	3407.1	3407.1	3407.1	3407.1	3407.1	3407.1	3407.1
2.5°	3481.1	3432.2	3349.8	3298.1	3278.6	3218.5	3161.2	3113.7	3090.0	3087.2	3043.9
5°	3549.6	3415.5	3245.0	3102.6	3069.0	2964.3	2828.8	2770.1	2693.3	2662.5	2626.2
7.5°	3605.5	3395.9	3144.5	2929.3	2866.5	2708.6	2535.4	2458.6	2399.9	2307.7	2253.2
10°	3644.6	3359.6	3021.5	2743.6	2654.2	2469.8	2260.2	2168.0	2113.5	2007.4	1964.1
12.5°	3659.9	3313.5	2898.6	2550.8	2472.6	2253.2	2047.9	1952.9	1871.9	1775.5	1733.6
15°	3654.3	3260.4	2772.9	2373.4	2275.6	2053.5	1835.6	1746.2	1670.7	1574.3	1519.9
17.5°	3616.6	3185.0	2636.0	2201.5	2108.0	1878.9	1658.1	1575.7	1508.7	1415.1	1373.2
20°	3553.8	3108.2	2515.9	2045.1	1938.9	1719.6	1511.5	1423.5	1364.8	1314.5	1283.8
22.5°	3467.2	3017.4	2369.2	1890.0	1797.8	1577.1	1377.4	1306.1	1271.2	1230.7	1208.3
25°	3335.8	2908.4	2236.5	1760.1	1667.9	1448.6	1274.0	1226.5	1191.6	1165.0	1141.3
27.5°	3194.8	2803.6	2103.8	1628.8	1542.2	1332.7	1193.0	1156.7	1125.9	1092.4	1071.4
30°	3031.3	2672.3	1978.0	1512.9	1429.1	1239.1	1123.1	1089.6	1064.5	1028.1	1007.2
32.5°	2838.5	2528.4	1860.7	1401.1	1322.9	1158.0	1058.9	1022.5	1001.6	966.7	945.7
35°	2638.8	2384.5	1732.2	1297.7	1226.5	1086.8	996.0	961.1	938.7	903.8	882.9
37.5°	2443.2	2230.9	1617.6	1206.9	1142.7	1015.6	930.3	901.0	880.1	843.7	818.6
40°	2236.5	2054.9	1505.9	1121.7	1061.7	952.7	870.3	843.7	815.8	783.7	758.5
42.5°	2019.9	1899.8	1402.5	1046.3	990.4	891.2	810.2	782.3	758.5	720.8	709.6
45°	1817.4	1722.4	1293.5	966.7	922.0	829.8	751.5	723.6	697.1	664.9	653.8
47.5°	1637.2	1549.2	1194.4	896.8	852.1	769.7	692.9	663.5	644.0	618.8	602.1
50°	1451.4	1378.8	1085.4	828.4	786.5	705.4	631.4	611.9	589.5	558.8	546.2
52.5°	1278.2	1222.3	996.0	762.7	723.6	651.0	575.5	556.0	535.0	508.5	490.3
55°	1125.9	1070.0	894.0	688.7	659.3	590.9	523.8	498.7	481.9	451.2	428.9
57.5°	969.5	942.9	796.2	627.2	599.3	530.8	470.8	451.2	430.3	396.7	374.4
60°	840.9	810.2	705.4	560.2	533.6	476.4	417.7	398.1	378.6	346.4	336.7
62.5°	719.4	697.1	617.4	497.3	475.0	419.1	367.4	349.2	329.7	308.7	301.7
65°	609.1	589.5	529.4	433.0	414.9	366.0	318.5	298.9	286.4	276.6	269.6
67.5°	505.7	494.5	448.4	373.0	359.0	315.7	273.8	258.4	251.4	240.3	234.7
70°	412.1	416.3	374.4	318.5	303.1	268.2	231.9	219.3	210.9	201.2	190.0
72.5°	336.7	335.3	310.1	259.8	248.7	220.7	192.8	184.4	174.6	155.1	142.5
75°	261.2	266.8	243.1	215.1	204.0	176.0	149.5	138.3	128.5	121.5	117.3
77.5°	199.8	202.6	191.4	164.8	155.1	131.3	110.4	104.8	100.6	96.4	95.0
80°	142.5	146.7	135.5	118.7	110.4	90.8	79.6	78.2	76.8	74.0	72.6
82.5°	92.2	97.8	92.2	74.0	69.8	60.1	57.3	57.3	55.9	54.5	53.1
85°	50.3	55.9	53.1	43.3	40.5	37.7	36.3	34.9	34.9	34.9	34.9
87.5°	19.6	26.5	22.4	18.2	18.2	18.2	18.2	18.2	18.2	18.2	18.2
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°	3407.1	3407.1	3407.1
2.5°	3034.1	3020.1	3014.6
5°	2616.4	2573.1	2563.4
7.5°	2236.5	2218.3	2158.2
10°	1957.1	1901.2	1876.1
12.5°	1705.6	1654.0	1645.6
15°	1504.5	1468.2	1455.6
17.5°	1371.8	1346.6	1331.3
20°	1274.0	1255.8	1244.7
22.5°	1200.0	1186.0	1177.6
25°	1134.3	1113.3	1106.4
27.5°	1067.2	1049.1	1042.1
30°	1004.4	989.0	979.2
32.5°	938.7	920.6	915.0
35°	875.9	864.7	859.1
37.5°	814.4	800.4	792.1
40°	757.1	750.1	746.0
42.5°	705.4	692.9	691.5
45°	651.0	638.4	635.6
47.5°	599.3	588.1	586.7
50°	544.8	529.4	518.3
52.5°	479.1	465.2	455.4
55°	420.5	405.1	396.7
57.5°	371.6	364.6	360.4
60°	333.9	329.7	326.9
62.5°	300.3	296.1	296.1
65°	269.6	265.4	261.2
67.5°	231.9	223.5	222.1
70°	185.8	173.2	171.8
72.5°	141.1	139.7	136.9
75°	117.3	114.5	114.5
77.5°	95.0	92.2	92.2
80°	72.6	71.2	72.6
82.5°	53.1	53.1	51.7
85°	34.9	33.5	33.5
87.5°	16.8	16.8	16.8
90°	0.0	0.0	0.0

(END OF REPORT)