

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: P646613

Luminaire Tested: S123DR-S1000D830-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2019
Report Number: P646613
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2301-905-1)
Test Lab: INNOVATION CENTER
Issue Date: 3/20/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123DR-S1000D830-X4F0-XX-UDD-G-W
Description: DEFINE 3 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: 4161.8 lumens
Efficiency: N/A
Efficacy: 120.6 lumens/watt
Spacing Criteria (0/90/45): 0.65 / 1.19 / 0.89
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

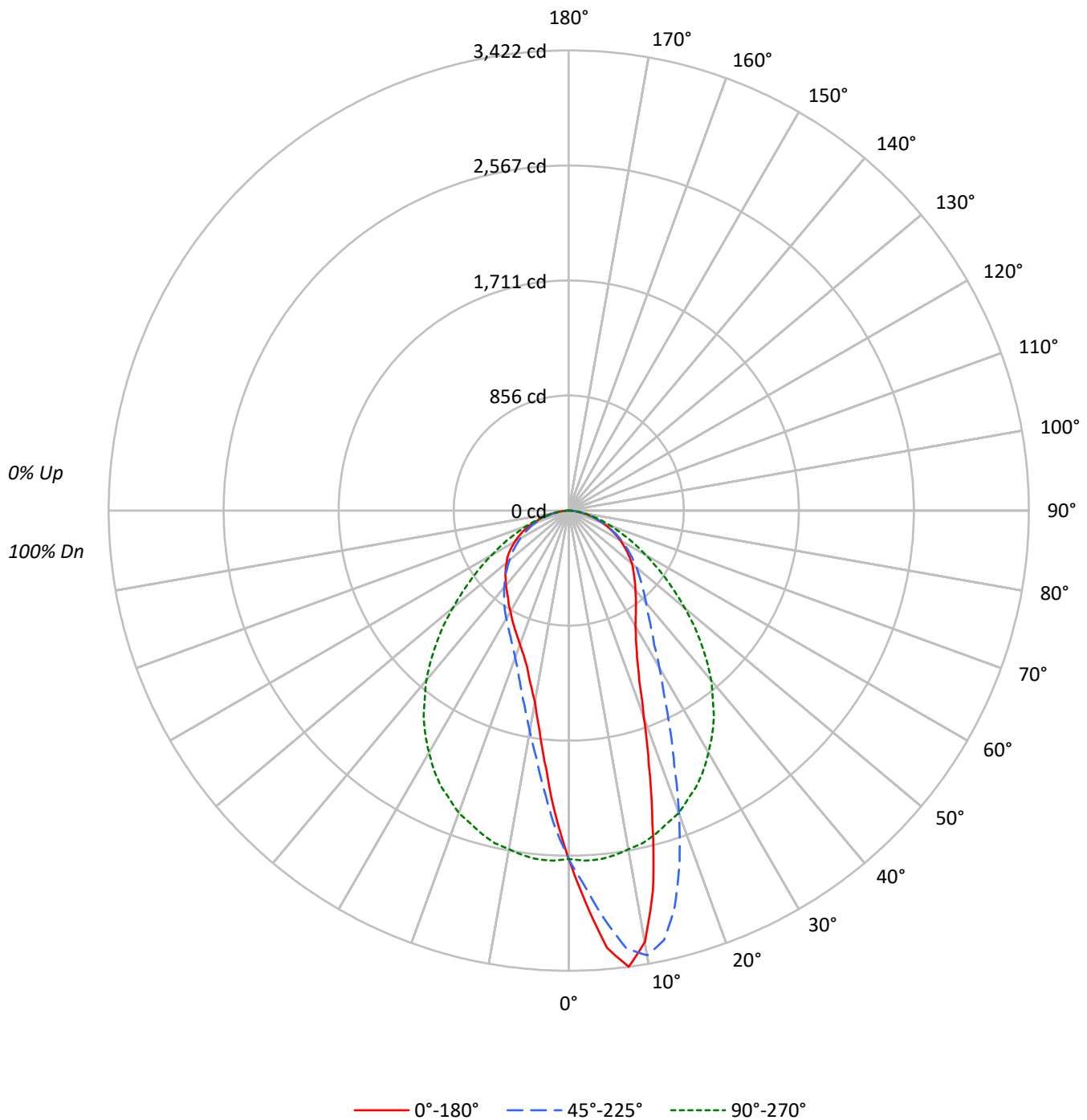
Input Watts (W): 34.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102
1	110	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88
2	101	94	88	82	99	92	86	82	88	84	80	85	81	78	82	79	76
3	93	84	76	70	91	82	75	70	79	73	69	77	72	67	74	70	66
4	86	75	67	61	84	74	67	61	72	65	60	69	64	59	67	62	58
5	80	68	60	54	78	67	59	54	65	58	53	63	57	52	61	56	52
6	74	62	54	48	73	61	53	48	60	53	47	58	52	47	56	51	47
7	70	57	49	43	68	56	49	43	55	48	43	53	47	43	52	47	42
8	65	53	45	39	64	52	44	39	51	44	39	49	43	39	48	43	39
9	61	49	41	36	60	48	41	36	47	40	36	46	40	36	45	40	35
10	58	45	38	33	57	45	38	33	44	37	33	43	37	33	42	37	33

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	31211	31211	31211	31211	31211
5°	39471	36912	31490	25252	23320
10°	39854	41089	31280	20397	17677
15°	30018	38024	31067	17093	14949
20°	20915	30747	30670	14904	13578
25°	15948	23586	29994	13663	12736
30°	13796	18747	28914	12910	12057
35°	12800	15701	27670	12306	11581
40°	12119	14048	25920	11740	11419
45°	11715	13048	23698	11245	11347
50°	11513	12325	21066	10814	11288
55°	11085	11640	18482	10428	11338
60°	10688	11008	15931	10051	11153
65°	10041	10315	13742	9631	10931
70°	9272	9568	11686	9103	10291
75°	8394	8673	10019	8338	9399
80°	6925	7425	7924	7258	7924
85°	5488	5986	5820	6318	6318

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°

Vertical Angle: 45°

Luminance: 27056 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	244.9	5.9
10°-20°	609.3	14.6
20°-30°	721.2	17.3
30°-40°	724.8	17.4
40°-50°	664.7	16.0
50°-60°	548.7	13.2
60°-70°	388.2	9.3
70°-80°	207.3	5.0
80°-90°	52.6	1.3
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°	1575.4	37.9
0°-40°	2300.3	55.3
0°-60°	3513.6	84.4
0°-90°	4161.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4161.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	2590	2590	2590	2590	2590	
5°	3263	3052	2604	2088	1928	311
15°	2406	3048	2490	1370	1198	665
25°	1200	1774	2256	1028	958	566
35°	870	1067	1881	837	787	547
45°	688	766	1391	660	666	532
55°	528	554	880	496	540	472
65°	352	362	482	338	383	350
75°	180	186	215	179	202	189
85°	40	43	42	46	46	47
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°	2590.3	2590.3	2590.3	2590.3	2590.3	2590.3	2590.3	2590.3	2590.3	2590.3	2590.3
2.5°	2919.6	2913.6	2883.5	2864.3	2869.1	2825.8	2799.4	2777.8	2763.3	2728.5	2710.5
5°	3263.4	3280.2	3261.0	3251.3	3202.1	3123.9	3051.8	3036.2	2968.9	2885.9	2857.1
7.5°	3422.0	3431.6	3419.6	3419.6	3404.0	3334.3	3283.8	3244.1	3128.7	3021.8	2972.5
10°	3257.4	3279.0	3325.9	3347.5	3378.8	3369.1	3358.3	3342.7	3264.6	3140.8	3084.3
12.5°	2895.6	2922.0	3015.8	3029.0	3136.0	3239.3	3273.0	3311.4	3318.7	3214.1	3152.8
15°	2406.4	2479.7	2565.0	2605.9	2741.7	2959.3	3048.2	3152.8	3276.6	3233.3	3185.2
17.5°	1982.1	2009.7	2101.1	2187.6	2323.4	2574.6	2739.3	2895.6	3161.2	3204.5	3174.4
20°	1631.1	1656.3	1776.5	1770.5	1950.8	2233.3	2397.9	2578.2	2970.1	3110.7	3104.7
22.5°	1370.3	1409.9	1477.2	1514.5	1644.3	1895.5	2051.8	2276.5	2752.5	2974.9	2998.9
25°	1199.6	1228.4	1269.3	1301.7	1402.7	1609.4	1774.1	1959.2	2478.5	2797.0	2857.1
27.5°	1083.0	1095.0	1135.9	1155.1	1222.4	1400.3	1527.7	1697.2	2224.9	2597.5	2681.6
30°	991.6	1000.0	1036.1	1042.1	1095.0	1223.6	1347.4	1485.6	1977.2	2391.9	2488.1
32.5°	927.9	933.9	961.6	964.0	1003.6	1097.4	1183.9	1313.8	1742.9	2172.0	2291.0
35°	870.2	873.8	894.3	900.3	925.5	996.4	1067.4	1167.1	1556.6	1973.6	2104.7
37.5°	819.7	824.6	836.6	843.8	864.2	920.7	968.8	1051.7	1377.5	1766.9	1912.3
40°	770.5	778.9	787.3	787.3	810.1	853.4	893.1	961.6	1223.6	1586.6	1715.2
42.5°	728.4	736.8	740.4	741.6	753.6	793.3	827.0	873.8	1107.0	1426.7	1553.0
45°	687.5	691.1	694.7	697.1	705.6	740.4	765.7	810.1	996.4	1278.9	1401.5
47.5°	650.3	650.3	652.7	656.3	662.3	687.5	709.2	741.6	901.5	1146.7	1247.6
50°	614.2	614.2	610.6	613.0	616.6	635.8	657.5	683.9	812.5	1025.3	1115.4
52.5°	570.9	570.9	572.1	568.5	572.1	589.0	605.8	632.2	736.8	913.5	990.4
55°	527.7	532.5	528.9	526.5	531.3	542.1	554.1	576.9	665.9	824.6	885.9
57.5°	484.4	486.8	485.6	489.2	486.8	496.4	507.2	522.9	602.2	724.8	782.5
60°	443.5	443.5	441.1	443.5	443.5	448.3	456.8	472.4	537.3	639.5	687.5
62.5°	397.9	399.1	400.3	399.1	397.9	403.9	411.1	421.9	480.8	556.5	592.6
65°	352.2	353.4	357.0	355.8	354.6	360.6	361.8	373.8	418.3	483.2	509.6
67.5°	311.3	308.9	310.1	312.5	313.7	314.9	317.3	329.3	360.6	413.5	435.1
70°	263.2	265.6	264.4	268.0	265.6	269.2	271.6	280.1	310.1	345.0	359.4
72.5°	220.0	221.2	221.2	224.8	223.6	227.2	229.6	233.2	254.8	286.1	292.1
75°	180.3	180.3	182.7	183.9	183.9	183.9	186.3	188.7	206.7	226.0	232.0
77.5°	137.0	143.0	141.8	143.0	144.2	147.8	145.4	150.2	161.1	171.9	175.5
80°	99.8	99.8	101.0	102.2	104.6	107.0	107.0	111.8	116.6	122.6	126.2
82.5°	63.7	64.9	68.5	69.7	70.9	74.5	74.5	74.5	80.5	82.9	82.9
85°	39.7	37.3	39.7	40.9	42.1	43.3	43.3	45.7	46.9	48.1	48.1
87.5°	19.2	19.2	19.2	19.2	20.4	20.4	20.4	20.4	21.6	21.6	21.6
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):

	80°	90°	100°	110°	112.5°	120°	130°	135°	140°	150°	157.5°
0°	2590.3	2590.3	2590.3	2590.3	2590.3	2590.3	2590.3	2590.3	2590.3	2590.3	2590.3
2.5°	2650.4	2605.9	2539.8	2485.7	2488.1	2438.8	2402.7	2355.9	2341.4	2327.0	2307.8
5°	2705.6	2603.5	2466.5	2357.1	2323.4	2241.7	2138.3	2087.8	2057.8	2004.9	1984.5
7.5°	2774.2	2586.6	2377.5	2206.8	2169.6	2033.7	1911.1	1851.0	1794.5	1757.3	1711.6
10°	2818.6	2556.6	2287.4	2061.4	2025.3	1870.3	1710.4	1667.1	1596.2	1550.5	1507.3
12.5°	2852.3	2533.8	2194.8	1931.6	1872.7	1722.4	1561.4	1502.5	1450.8	1384.7	1353.4
15°	2882.3	2490.5	2099.9	1795.8	1734.4	1572.2	1423.1	1370.3	1323.4	1265.7	1238.0
17.5°	2871.5	2437.6	1995.3	1675.6	1614.3	1454.4	1311.4	1251.3	1220.0	1169.5	1150.3
20°	2858.3	2391.9	1896.7	1561.4	1494.1	1345.0	1205.6	1162.3	1131.1	1098.6	1081.8
22.5°	2816.2	2319.8	1797.0	1456.8	1393.1	1244.0	1125.0	1089.0	1064.9	1042.1	1027.7
25°	2745.3	2256.1	1699.6	1352.2	1301.7	1162.3	1061.3	1027.7	1012.1	989.2	976.0
27.5°	2657.6	2172.0	1602.2	1266.9	1209.2	1085.4	998.8	977.2	960.4	942.3	929.1
30°	2547.0	2078.2	1507.3	1183.9	1131.1	1021.7	947.2	927.9	912.3	894.3	878.6
32.5°	2406.4	1983.3	1418.3	1107.0	1062.5	967.6	899.1	883.5	870.2	848.6	840.2
35°	2248.9	1881.1	1330.6	1033.7	991.6	908.7	852.2	836.6	823.4	805.3	798.1
37.5°	2089.0	1759.7	1244.0	971.2	933.9	859.4	805.3	789.7	777.7	762.1	758.4
40°	1919.6	1647.9	1158.7	907.5	875.0	811.3	758.4	746.4	734.4	724.8	722.4
42.5°	1748.9	1519.3	1084.2	854.6	819.7	760.9	712.8	699.5	692.3	687.5	688.7
45°	1587.8	1390.7	1007.3	793.3	769.3	715.2	670.7	659.9	653.9	650.3	655.1
47.5°	1413.5	1259.7	935.1	741.6	717.6	669.5	627.4	617.8	615.4	614.2	622.6
50°	1259.7	1123.8	857.0	688.7	668.3	619.0	585.4	576.9	574.5	578.1	590.2
52.5°	1114.2	997.6	786.1	639.5	619.0	574.5	543.3	537.3	536.1	544.5	556.5
55°	970.0	879.8	709.2	585.4	564.9	526.5	502.4	496.4	495.2	512.0	522.9
57.5°	847.4	765.7	637.0	533.7	518.1	482.0	460.4	455.5	459.2	474.8	485.6
60°	727.2	661.1	570.9	478.4	466.4	435.1	418.3	417.1	420.7	438.7	449.5
62.5°	619.0	568.5	500.0	427.9	419.5	391.8	376.2	378.6	382.2	400.3	409.9
65°	526.5	482.0	430.3	377.4	366.6	347.4	336.6	337.8	345.0	360.6	370.2
67.5°	436.3	400.3	371.4	329.3	320.9	304.1	295.7	300.5	304.1	319.7	329.3
70°	360.6	331.7	310.1	278.9	272.8	258.4	252.4	258.4	262.0	275.3	287.3
72.5°	289.7	271.6	254.8	232.0	226.0	216.4	215.2	217.6	223.6	236.8	241.6
75°	224.8	215.2	200.7	186.3	182.7	177.9	176.7	179.1	185.1	192.3	197.1
77.5°	170.7	162.3	151.4	145.4	140.6	138.2	139.4	143.0	145.4	152.7	156.3
80°	123.8	114.2	111.8	103.4	102.2	101.0	103.4	104.6	108.2	113.0	115.4
82.5°	81.7	74.5	72.1	70.9	69.7	68.5	72.1	73.3	75.7	79.3	80.5
85°	44.5	42.1	42.1	40.9	42.1	44.5	44.5	45.7	45.7	46.9	45.7
87.5°	20.4	18.0	19.2	19.2	19.2	20.4	20.4	21.6	21.6	21.6	20.4
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):

	160°	170°	180°
0°	2590.3	2590.3	2590.3
2.5°	2306.6	2298.2	2264.5
5°	1966.4	1937.6	1928.0
7.5°	1706.8	1704.4	1653.9
10°	1486.8	1490.4	1444.8
12.5°	1348.6	1318.6	1315.0
15°	1230.8	1203.2	1198.4
17.5°	1143.1	1126.3	1121.4
20°	1077.0	1067.4	1058.9
22.5°	1024.1	1012.1	1004.9
25°	971.2	960.4	958.0
27.5°	925.5	912.3	912.3
30°	878.6	870.2	866.6
32.5°	836.6	829.4	829.4
35°	795.7	792.1	787.3
37.5°	758.4	758.4	756.0
40°	722.4	726.0	726.0
42.5°	691.1	694.7	694.7
45°	657.5	663.5	665.9
47.5°	623.8	633.4	635.8
50°	593.8	601.0	602.2
52.5°	561.3	569.7	575.7
55°	527.7	536.1	539.7
57.5°	491.6	500.0	501.2
60°	451.9	460.4	462.8
62.5°	415.9	420.7	423.1
65°	371.4	378.6	383.4
67.5°	330.5	336.6	336.6
70°	286.1	288.5	292.1
72.5°	244.0	245.2	245.2
75°	198.3	200.7	201.9
77.5°	156.3	157.5	157.5
80°	115.4	114.2	114.2
82.5°	80.5	76.9	76.9
85°	45.7	44.5	45.7
87.5°	20.4	20.4	20.4
90°	0.0	0.0	0.0

(END OF REPORT)