

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: P646618

Luminaire Tested: S123DR-S1000D930-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2019
Report Number: P646618
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-S1000D930-X4F0-XX-UDD-G-W
Description: DEFINE 3 DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 3000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3600.0 lumens
Efficiency: N/A
Efficacy: 104.3 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

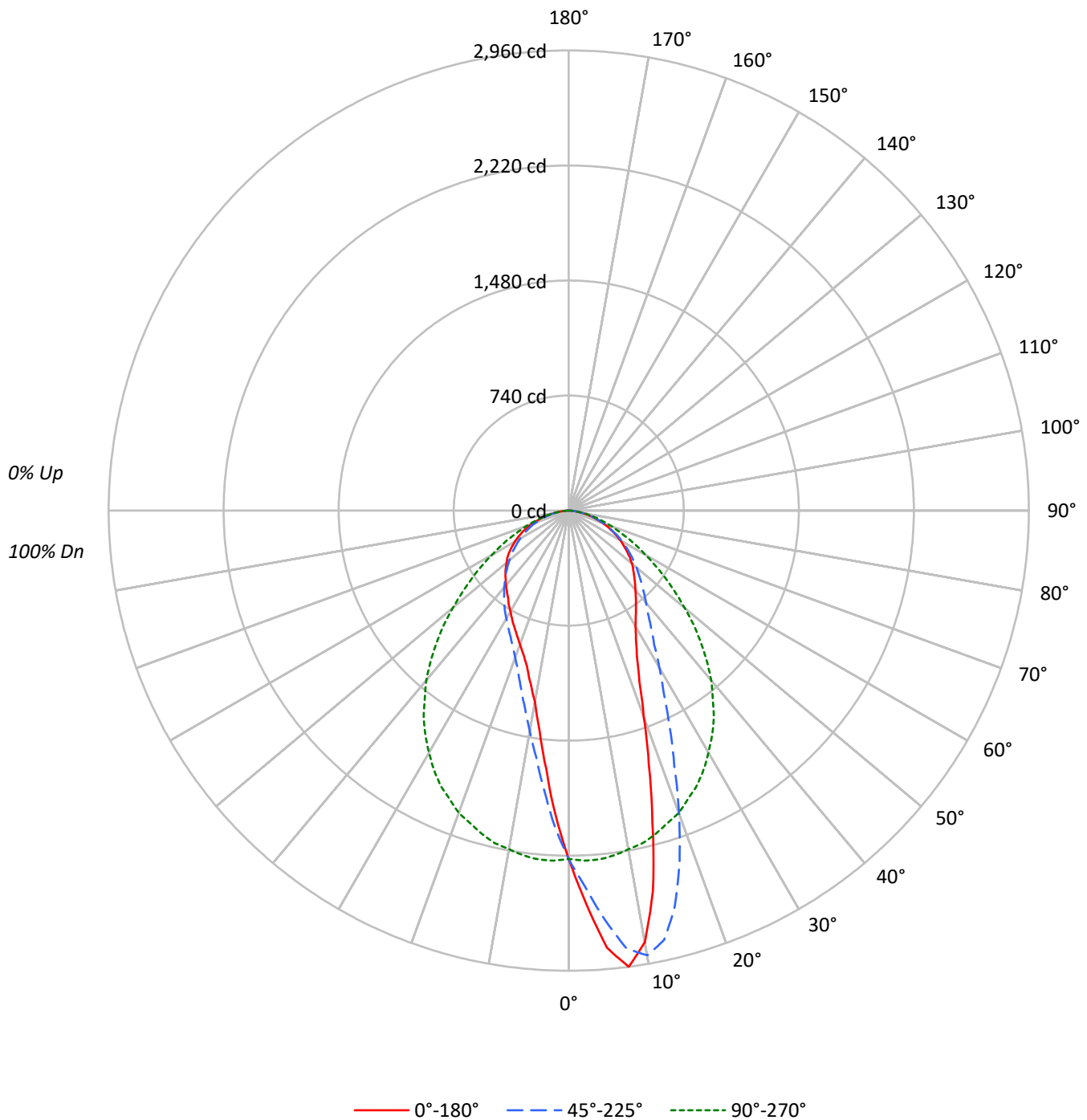
Input Watts (W): 34.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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	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	100							
1	110	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88	86							
2	101	94	88	82	99	92	86	82	88	84	80	85	81	78	82	79	76	74							
3	93	84	76	70	91	82	75	70	79	73	69	77	72	67	74	70	66	64							
4	86	75	67	61	84	74	67	61	72	65	60	69	64	59	67	62	58	56							
5	80	68	60	54	78	67	59	54	65	58	53	63	57	52	61	56	52	50							
6	74	62	54	48	73	61	53	48	60	53	47	58	52	47	56	51	47	45							
7	70	57	49	43	68	56	49	43	55	48	43	53	47	43	52	47	42	40							
8	65	53	45	39	64	52	44	39	51	44	39	49	43	39	48	43	39	37							
9	61	49	41	36	60	48	41	36	47	40	36	46	40	36	45	40	35	34							
10	58	45	38	33	57	45	38	33	44	37	33	43	37	33	42	37	33	31							

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	26997	26997	26997	26997	26997
5°	34142	31929	27238	21844	20171
10°	34473	35542	27058	17644	15290
15°	25965	32891	26873	14786	12931
20°	18091	26596	26530	12892	11745
25°	13795	20402	25945	11818	11016
30°	11935	16216	25012	11168	10429
35°	11072	13581	23934	10644	10017
40°	10483	12151	22420	10156	9878
45°	10134	11286	20498	9726	9815
50°	9959	10660	18222	9356	9764
55°	9588	10069	15989	9020	9806
60°	9247	9521	13779	8695	9647
65°	8684	8924	11886	8331	9457
70°	8022	8279	10111	7874	8899
75°	7262	7505	8664	7211	8133
80°	5988	6418	6856	6280	6856
85°	4742	5171	5032	5461	5461

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°

Vertical Angle: 45°

Luminance: 23405 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	211.8	5.9
10°-20°	527.1	14.6
20°-30°	623.9	17.3
30°-40°	627.0	17.4
40°-50°	575.0	16.0
50°-60°	474.6	13.2
60°-70°	335.8	9.3
70°-80°	179.4	5.0
80°-90°	45.5	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°	1362.7	37.9
0°-40°	1989.7	55.3
0°-60°	3039.3	84.4
0°-90°	3600.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3600.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	2241	2241	2241	2241	2241	
5°	2823	2640	2252	1806	1668	269
15°	2082	2637	2154	1185	1037	575
25°	1038	1535	1952	889	829	490
35°	753	923	1627	724	681	473
45°	595	662	1203	571	576	461
55°	456	479	761	429	467	408
65°	305	313	417	292	332	303
75°	156	161	186	155	175	164
85°	34	37	36	40	40	41
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°	2240.6	2240.6	2240.6	2240.6	2240.6	2240.6	2240.6	2240.6	2240.6	2240.6	2240.6
2.5°	2525.4	2520.3	2494.3	2477.6	2481.8	2444.4	2421.5	2402.8	2390.3	2360.1	2344.5
5°	2822.8	2837.4	2820.7	2812.4	2769.8	2702.2	2639.8	2626.3	2568.1	2496.3	2471.4
7.5°	2960.0	2968.4	2958.0	2958.0	2944.5	2884.1	2840.5	2806.2	2706.4	2613.8	2571.2
10°	2817.6	2836.3	2876.9	2895.6	2922.6	2914.3	2904.9	2891.4	2823.8	2716.8	2667.9
12.5°	2504.7	2527.5	2608.6	2620.1	2712.6	2802.0	2831.1	2864.4	2870.6	2780.2	2727.2
15°	2081.5	2144.9	2218.7	2254.1	2371.6	2559.8	2636.7	2727.2	2834.2	2796.8	2755.2
17.5°	1714.5	1738.4	1817.4	1892.3	2009.8	2227.1	2369.5	2504.7	2734.4	2771.9	2745.9
20°	1410.9	1432.7	1536.7	1531.5	1687.4	1931.8	2074.2	2230.2	2569.1	2690.8	2685.6
22.5°	1185.3	1219.6	1277.8	1310.0	1422.3	1639.6	1774.8	1969.2	2380.9	2573.3	2594.1
25°	1037.6	1062.6	1097.9	1126.0	1213.3	1392.2	1534.6	1694.7	2143.9	2419.4	2471.4
27.5°	936.8	947.2	982.5	999.2	1057.4	1211.3	1321.5	1468.1	1924.5	2246.8	2319.6
30°	857.8	865.0	896.2	901.4	947.2	1058.4	1165.5	1285.1	1710.3	2069.0	2152.2
32.5°	802.7	807.9	831.8	833.8	868.2	949.3	1024.1	1136.4	1507.6	1878.8	1981.7
35°	752.7	755.9	773.5	778.7	800.6	861.9	923.3	1009.6	1346.4	1707.2	1820.5
37.5°	709.1	713.2	723.6	729.9	747.5	796.4	838.0	909.7	1191.5	1528.4	1654.2
40°	666.5	673.7	681.0	681.0	700.8	738.2	772.5	831.8	1058.4	1372.4	1483.7
42.5°	630.1	637.3	640.5	641.5	651.9	686.2	715.3	755.9	957.6	1234.1	1343.3
45°	594.7	597.8	601.0	603.0	610.3	640.5	662.3	700.8	861.9	1106.2	1212.3
47.5°	562.5	562.5	564.6	567.7	572.9	594.7	613.4	641.5	779.8	991.9	1079.2
50°	531.3	531.3	528.2	530.3	533.4	550.0	568.7	591.6	702.8	886.9	964.8
52.5°	493.9	493.9	494.9	491.8	494.9	509.5	524.0	546.9	637.3	790.2	856.7
55°	456.4	460.6	457.5	455.4	459.6	468.9	479.3	499.1	576.0	713.2	766.3
57.5°	419.0	421.1	420.0	423.2	421.1	429.4	438.8	452.3	520.9	626.9	676.8
60°	383.7	383.7	381.6	383.7	383.7	387.8	395.1	408.6	464.7	553.1	594.7
62.5°	344.1	345.2	346.2	345.2	344.1	349.3	355.6	364.9	415.9	481.4	512.6
65°	304.6	305.7	308.8	307.8	306.7	311.9	313.0	323.3	361.8	418.0	440.8
67.5°	269.3	267.2	268.2	270.3	271.4	272.4	274.5	284.9	311.9	357.7	376.4
70°	227.7	229.8	228.7	231.9	229.8	232.9	235.0	242.3	268.2	298.4	310.9
72.5°	190.3	191.3	191.3	194.4	193.4	196.5	198.6	201.7	220.4	247.5	252.6
75°	156.0	156.0	158.0	159.1	159.1	159.1	161.2	163.2	178.8	195.5	200.7
77.5°	118.5	123.7	122.7	123.7	124.8	127.9	125.8	130.0	139.3	148.7	151.8
80°	86.3	86.3	87.3	88.4	90.5	92.5	92.5	96.7	100.9	106.1	109.2
82.5°	55.1	56.1	59.3	60.3	61.3	64.5	64.5	64.5	69.7	71.7	71.7
85°	34.3	32.2	34.3	35.4	36.4	37.4	37.4	39.5	40.5	41.6	41.6
87.5°	16.6	16.6	16.6	16.6	17.7	17.7	17.7	17.7	18.7	18.7	18.7
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°	2240.6	2240.6	2240.6	2240.6	2240.6	2240.6	2240.6	2240.6	2240.6	2240.6	2240.6
2.5°	2292.6	2254.1	2196.9	2150.1	2152.2	2109.6	2078.4	2037.8	2025.3	2012.9	1996.2
5°	2340.4	2252.0	2133.5	2038.9	2009.8	1939.1	1849.6	1806.0	1780.0	1734.2	1716.6
7.5°	2399.6	2237.4	2056.5	1908.9	1876.7	1759.2	1653.1	1601.1	1552.3	1520.1	1480.5
10°	2438.1	2211.5	1978.6	1783.1	1751.9	1617.8	1479.5	1442.1	1380.7	1341.2	1303.8
12.5°	2467.2	2191.7	1898.5	1670.8	1619.9	1489.9	1350.6	1299.6	1254.9	1197.7	1170.7
15°	2493.2	2154.3	1816.4	1553.3	1500.3	1359.9	1231.0	1185.3	1144.7	1094.8	1070.9
17.5°	2483.9	2108.5	1725.9	1449.4	1396.3	1258.0	1134.3	1082.3	1055.3	1011.6	995.0
20°	2472.4	2069.0	1640.7	1350.6	1292.4	1163.4	1042.8	1005.4	978.4	950.3	935.7
22.5°	2436.0	2006.6	1554.4	1260.1	1205.0	1076.1	973.2	942.0	921.2	901.4	888.9
25°	2374.7	1951.5	1470.1	1169.7	1126.0	1005.4	918.1	888.9	875.4	855.7	844.2
27.5°	2298.8	1878.8	1385.9	1095.9	1045.9	938.9	864.0	845.3	830.7	815.1	803.7
30°	2203.1	1797.7	1303.8	1024.1	978.4	883.8	819.3	802.7	789.1	773.5	760.0
32.5°	2081.5	1715.5	1226.9	957.6	919.1	837.0	777.7	764.2	752.7	734.0	726.8
35°	1945.3	1627.1	1151.0	894.1	857.8	786.0	737.2	723.6	712.2	696.6	690.4
37.5°	1807.0	1522.1	1076.1	840.1	807.9	743.4	696.6	683.1	672.7	659.2	656.1
40°	1660.4	1425.4	1002.3	785.0	756.9	701.8	656.1	645.7	635.3	626.9	624.9
42.5°	1512.8	1314.2	937.8	739.2	709.1	658.1	616.5	605.1	598.9	594.7	595.8
45°	1373.5	1202.9	871.3	686.2	665.4	618.6	580.2	570.8	565.6	562.5	566.6
47.5°	1222.7	1089.6	808.9	641.5	620.7	579.1	542.7	534.4	532.3	531.3	538.6
50°	1089.6	972.1	741.3	595.8	578.1	535.4	506.3	499.1	497.0	500.1	510.5
52.5°	963.8	863.0	680.0	553.1	535.4	497.0	469.9	464.7	463.7	471.0	481.4
55°	839.0	761.1	613.4	506.3	488.7	455.4	434.6	429.4	428.4	442.9	452.3
57.5°	733.0	662.3	551.0	461.6	448.1	416.9	398.2	394.0	397.2	410.7	420.0
60°	629.0	571.8	493.9	413.8	403.4	376.4	361.8	360.8	363.9	379.5	388.9
62.5°	535.4	491.8	432.5	370.1	362.9	338.9	325.4	327.5	330.6	346.2	354.5
65°	455.4	416.9	372.2	326.5	317.1	300.5	291.1	292.2	298.4	311.9	320.2
67.5°	377.4	346.2	321.3	284.9	277.6	263.0	255.8	259.9	263.0	276.6	284.9
70°	311.9	287.0	268.2	241.2	236.0	223.5	218.3	223.5	226.7	238.1	248.5
72.5°	250.6	235.0	220.4	200.7	195.5	187.1	186.1	188.2	193.4	204.8	209.0
75°	194.4	186.1	173.6	161.2	158.0	153.9	152.8	154.9	160.1	166.4	170.5
77.5°	147.6	140.4	131.0	125.8	121.6	119.6	120.6	123.7	125.8	132.0	135.2
80°	107.1	98.8	96.7	89.4	88.4	87.3	89.4	90.5	93.6	97.7	99.8
82.5°	70.7	64.5	62.4	61.3	60.3	59.3	62.4	63.4	65.5	68.6	69.7
85°	38.5	36.4	36.4	35.4	36.4	38.5	38.5	39.5	39.5	40.5	39.5
87.5°	17.7	15.6	16.6	16.6	16.6	17.7	17.7	18.7	18.7	18.7	17.7
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°	2240.6	2240.6	2240.6
2.5°	1995.2	1987.9	1958.8
5°	1701.0	1676.0	1667.7
7.5°	1476.4	1474.3	1430.6
10°	1286.1	1289.2	1249.7
12.5°	1166.6	1140.6	1137.4
15°	1064.7	1040.7	1036.6
17.5°	988.8	974.2	970.0
20°	931.6	923.3	916.0
22.5°	885.8	875.4	869.2
25°	840.1	830.7	828.6
27.5°	800.6	789.1	789.1
30°	760.0	752.7	749.6
32.5°	723.6	717.4	717.4
35°	688.3	685.2	681.0
37.5°	656.1	656.1	654.0
40°	624.9	628.0	628.0
42.5°	597.8	601.0	601.0
45°	568.7	573.9	576.0
47.5°	539.6	547.9	550.0
50°	513.6	519.9	520.9
52.5°	485.5	492.8	498.0
55°	456.4	463.7	466.8
57.5°	425.2	432.5	433.6
60°	390.9	398.2	400.3
62.5°	359.7	363.9	366.0
65°	321.3	327.5	331.7
67.5°	285.9	291.1	291.1
70°	247.5	249.5	252.6
72.5°	211.1	212.1	212.1
75°	171.6	173.6	174.7
77.5°	135.2	136.2	136.2
80°	99.8	98.8	98.8
82.5°	69.7	66.5	66.5
85°	39.5	38.5	39.5
87.5°	17.7	17.7	17.7
90°	0.0	0.0	0.0

(END OF REPORT)