

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: P646624

Luminaire Tested: S123DR-S1165D840-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2019
Report Number: P646624
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-S1165D840-X4F0-XX-UDD-G-W
Description: DEFINE 3 DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

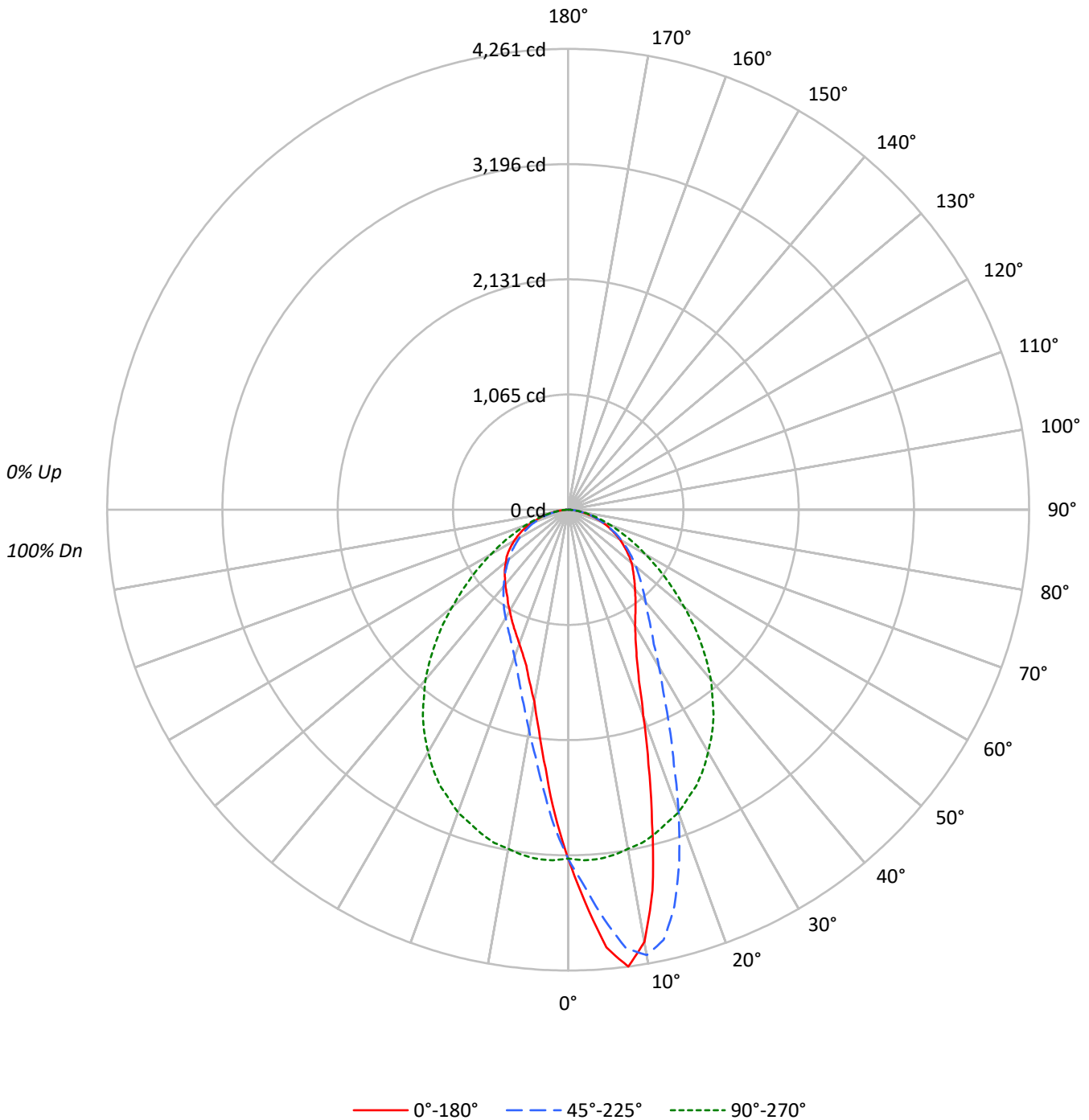
Lumens per Lamp: N/A
Luminaire Lumens: 5182.3 lumens
Efficiency: N/A
Efficacy: 129.2 lumens/watt
Spacing Criteria (0/90/45): 0.65 / 1.19 / 0.89
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

Input Watts (W): 40.1
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	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°	38863	38863	38863	38863	38863
5°	49149	45963	39211	31445	29037
10°	49627	51165	38950	25399	22011
15°	37378	47347	38685	21284	18614
20°	26042	38287	38190	18558	16908
25°	19858	29370	37349	17013	15859
30°	17180	23344	36005	16077	15014
35°	15939	19550	34454	15323	14420
40°	15090	17491	32276	14620	14219
45°	14588	16246	29508	14002	14130
50°	14336	15347	26232	13467	14055
55°	13804	14495	23015	12984	14117
60°	13310	13705	19838	12517	13885
65°	12502	12844	17112	11992	13611
70°	11548	11918	14553	11337	12813
75°	10451	10801	12472	10382	11704
80°	8618	9243	9867	9034	9867
85°	6829	7452	7244	7866	7866

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°
 Vertical Angle: 45°
 Luminance: 33690 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	304.9	5.9
10°-20°	758.7	14.6
20°-30°	898.1	17.3
30°-40°	902.5	17.4
40°-50°	827.7	16.0
50°-60°	683.2	13.2
60°-70°	483.4	9.3
70°-80°	258.2	5.0
80°-90°	65.5	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°	1961.7	37.9
0°-40°	2864.3	55.3
0°-60°	4375.2	84.4
0°-90°	5182.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5182.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	3225	3225	3225	3225	3225	
5°	4064	3800	3242	2600	2401	387
15°	2996	3796	3101	1706	1492	828
25°	1494	2209	2809	1280	1193	705
35°	1084	1329	2342	1042	980	681
45°	856	953	1732	822	829	663
55°	657	690	1096	618	672	588
65°	438	450	600	421	477	436
75°	224	232	268	223	251	236
85°	49	54	52	57	57	58
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°	3225.4	3225.4	3225.4	3225.4	3225.4	3225.4	3225.4	3225.4	3225.4	3225.4	3225.4
2.5°	3635.5	3628.0	3590.6	3566.6	3572.6	3518.7	3485.8	3458.9	3440.9	3397.5	3375.1
5°	4063.5	4084.5	4060.5	4048.6	3987.2	3889.9	3800.1	3780.7	3696.9	3593.6	3557.7
7.5°	4261.1	4273.1	4258.1	4258.1	4238.7	4151.8	4089.0	4039.6	3895.9	3762.7	3701.3
10°	4056.1	4083.0	4141.4	4168.3	4207.2	4195.3	4181.8	4162.3	4065.0	3910.9	3840.5
12.5°	3605.6	3638.5	3755.2	3771.7	3904.9	4033.6	4075.5	4123.4	4132.4	4002.2	3925.8
15°	2996.4	3087.7	3194.0	3244.8	3414.0	3684.9	3795.6	3925.8	4080.0	4026.1	3966.3
17.5°	2468.1	2502.5	2616.2	2724.0	2893.1	3205.9	3411.0	3605.6	3936.3	3990.2	3952.8
20°	2031.0	2062.5	2212.1	2204.6	2429.1	2780.9	2985.9	3210.4	3698.3	3873.5	3866.0
22.5°	1706.2	1755.6	1839.4	1885.8	2047.5	2360.3	2554.9	2834.8	3427.4	3704.3	3734.3
25°	1493.7	1529.6	1580.5	1620.9	1746.6	2004.1	2209.1	2439.6	3086.2	3482.8	3557.7
27.5°	1348.5	1363.5	1414.4	1438.3	1522.1	1743.7	1902.3	2113.3	2770.4	3234.4	3339.1
30°	1234.8	1245.3	1290.2	1297.6	1363.5	1523.6	1677.8	1849.9	2462.1	2978.4	3098.2
32.5°	1155.5	1162.9	1197.4	1200.4	1249.7	1366.5	1474.3	1635.9	2170.2	2704.5	2852.7
35°	1083.6	1088.1	1113.5	1121.0	1152.5	1240.8	1329.1	1453.3	1938.2	2457.6	2620.7
37.5°	1020.7	1026.7	1041.7	1050.7	1076.1	1146.5	1206.3	1309.6	1715.2	2200.1	2381.3
40°	959.4	969.9	980.3	980.3	1008.8	1062.7	1112.0	1197.4	1523.6	1975.6	2135.8
42.5°	907.0	917.5	922.0	923.5	938.4	987.8	1029.7	1088.1	1378.5	1776.6	1933.7
45°	856.1	860.6	865.1	868.1	878.6	922.0	953.4	1008.8	1240.8	1592.5	1745.2
47.5°	809.7	809.7	812.7	817.2	824.7	856.1	883.1	923.5	1122.5	1427.9	1553.6
50°	764.8	764.8	760.3	763.3	767.8	791.8	818.7	851.6	1011.8	1276.7	1388.9
52.5°	710.9	710.9	712.4	707.9	712.4	733.4	754.3	787.3	917.5	1137.5	1233.3
55°	657.1	663.0	658.5	655.6	661.5	675.0	690.0	718.4	829.2	1026.7	1103.1
57.5°	603.2	606.2	604.7	609.2	606.2	618.1	631.6	651.1	749.8	902.5	974.4
60°	552.3	552.3	549.3	552.3	552.3	558.3	568.7	588.2	669.0	796.2	856.1
62.5°	495.4	496.9	498.4	496.9	495.4	502.9	511.9	525.3	598.7	693.0	737.9
65°	438.5	440.0	444.5	443.0	441.5	449.0	450.5	465.5	520.9	601.7	634.6
67.5°	387.6	384.7	386.1	389.1	390.6	392.1	395.1	410.1	449.0	514.9	541.8
70°	327.8	330.8	329.3	333.8	330.8	335.3	338.3	348.7	386.1	429.6	447.5
72.5°	273.9	275.4	275.4	279.9	278.4	282.9	285.9	290.4	317.3	356.2	363.7
75°	224.5	224.5	227.5	229.0	229.0	229.0	232.0	235.0	257.4	281.4	288.9
77.5°	170.6	178.1	176.6	178.1	179.6	184.1	181.1	187.1	200.6	214.0	218.5
80°	124.2	124.2	125.7	127.2	130.2	133.2	133.2	139.2	145.2	152.7	157.2
82.5°	79.3	80.8	85.3	86.8	88.3	92.8	92.8	92.8	100.3	103.3	103.3
85°	49.4	46.4	49.4	50.9	52.4	53.9	53.9	56.9	58.4	59.9	59.9
87.5°	23.9	23.9	23.9	23.9	25.4	25.4	25.4	25.4	26.9	26.9	26.9
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):

	80°	90°	100°	110°	112.5°	120°	130°	135°	140°	150°	157.5°
0°	3225.4	3225.4	3225.4	3225.4	3225.4	3225.4	3225.4	3225.4	3225.4	3225.4	3225.4
2.5°	3300.2	3244.8	3162.5	3095.2	3098.2	3036.8	2991.9	2933.5	2915.6	2897.6	2873.7
5°	3369.1	3241.9	3071.2	2935.0	2893.1	2791.3	2662.6	2599.8	2562.4	2496.5	2471.1
7.5°	3454.4	3220.9	2960.5	2747.9	2701.5	2532.4	2379.8	2304.9	2234.6	2188.2	2131.3
10°	3509.8	3183.5	2848.2	2566.8	2521.9	2328.9	2129.8	2075.9	1987.6	1930.7	1876.9
12.5°	3551.7	3155.0	2733.0	2405.2	2331.9	2144.8	1944.2	1870.9	1806.5	1724.2	1685.3
15°	3589.1	3101.2	2614.7	2236.1	2159.7	1957.7	1772.1	1706.2	1647.9	1576.0	1541.6
17.5°	3575.6	3035.3	2484.5	2086.4	2010.1	1811.0	1632.9	1558.1	1519.2	1456.3	1432.3
20°	3559.2	2978.4	2361.8	1944.2	1860.4	1674.8	1501.2	1447.3	1408.4	1368.0	1347.0
22.5°	3506.8	2888.6	2237.6	1814.0	1734.7	1549.1	1400.9	1356.0	1326.1	1297.6	1279.7
25°	3418.5	2809.3	2116.3	1683.8	1620.9	1447.3	1321.6	1279.7	1260.2	1231.8	1215.3
27.5°	3309.2	2704.5	1995.1	1577.5	1505.7	1351.5	1243.8	1216.8	1195.9	1173.4	1156.9
30°	3171.5	2587.8	1876.9	1474.3	1408.4	1272.2	1179.4	1155.5	1136.0	1113.5	1094.1
32.5°	2996.4	2469.6	1766.1	1378.5	1323.1	1204.8	1119.5	1100.1	1083.6	1056.7	1046.2
35°	2800.3	2342.3	1656.8	1287.2	1234.8	1131.5	1061.2	1041.7	1025.2	1002.8	993.8
37.5°	2601.3	2191.2	1549.1	1209.3	1162.9	1070.1	1002.8	983.3	968.4	948.9	944.4
40°	2390.2	2052.0	1442.8	1130.0	1089.6	1010.3	944.4	929.5	914.5	902.5	899.5
42.5°	2177.7	1891.8	1350.0	1064.2	1020.7	947.4	887.5	871.1	862.1	856.1	857.6
45°	1977.1	1731.7	1254.2	987.8	957.9	890.5	835.2	821.7	814.2	809.7	815.7
47.5°	1760.1	1568.5	1164.4	923.5	893.5	833.7	781.3	769.3	766.3	764.8	775.3
50°	1568.5	1399.4	1067.1	857.6	832.2	770.8	728.9	718.4	715.4	719.9	734.9
52.5°	1387.4	1242.3	978.8	796.2	770.8	715.4	676.5	669.0	667.5	678.0	693.0
55°	1207.8	1095.6	883.1	728.9	703.4	655.6	625.6	618.1	616.6	637.6	651.1
57.5°	1055.2	953.4	793.3	664.5	645.1	600.2	573.2	567.2	571.7	591.2	604.7
60°	905.5	823.2	710.9	595.7	580.7	541.8	520.9	519.4	523.8	546.3	559.8
62.5°	770.8	707.9	622.6	532.8	522.3	487.9	468.5	471.5	476.0	498.4	510.4
65°	655.6	600.2	535.8	470.0	456.5	432.5	419.1	420.6	429.6	449.0	461.0
67.5°	543.3	498.4	462.5	410.1	399.6	378.7	368.2	374.2	378.7	398.1	410.1
70°	449.0	413.1	386.1	347.2	339.8	321.8	314.3	321.8	326.3	342.7	357.7
72.5°	360.7	338.3	317.3	288.9	281.4	269.4	267.9	270.9	278.4	294.9	300.8
75°	279.9	267.9	249.9	232.0	227.5	221.5	220.0	223.0	230.5	239.5	245.5
77.5°	212.5	202.1	188.6	181.1	175.1	172.1	173.6	178.1	181.1	190.1	194.6
80°	154.2	142.2	139.2	128.7	127.2	125.7	128.7	130.2	134.7	140.7	143.7
82.5°	101.8	92.8	89.8	88.3	86.8	85.3	89.8	91.3	94.3	98.8	100.3
85°	55.4	52.4	52.4	50.9	52.4	55.4	55.4	56.9	56.9	58.4	56.9
87.5°	25.4	22.5	23.9	23.9	23.9	25.4	25.4	26.9	26.9	26.9	25.4
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°	3225.4	3225.4	3225.4
2.5°	2872.2	2861.7	2819.8
5°	2448.6	2412.7	2400.7
7.5°	2125.3	2122.3	2059.5
10°	1851.4	1855.9	1799.0
12.5°	1679.3	1641.9	1637.4
15°	1532.6	1498.2	1492.2
17.5°	1423.4	1402.4	1396.4
20°	1341.0	1329.1	1318.6
22.5°	1275.2	1260.2	1251.2
25°	1209.3	1195.9	1192.9
27.5°	1152.5	1136.0	1136.0
30°	1094.1	1083.6	1079.1
32.5°	1041.7	1032.7	1032.7
35°	990.8	986.3	980.3
37.5°	944.4	944.4	941.4
40°	899.5	904.0	904.0
42.5°	860.6	865.1	865.1
45°	818.7	826.2	829.2
47.5°	776.8	788.8	791.8
50°	739.4	748.4	749.8
52.5°	699.0	709.4	716.9
55°	657.1	667.5	672.0
57.5°	612.2	622.6	624.1
60°	562.8	573.2	576.2
62.5°	517.9	523.8	526.8
65°	462.5	471.5	477.4
67.5°	411.6	419.1	419.1
70°	356.2	359.2	363.7
72.5°	303.8	305.3	305.3
75°	247.0	249.9	251.4
77.5°	194.6	196.1	196.1
80°	143.7	142.2	142.2
82.5°	100.3	95.8	95.8
85°	56.9	55.4	56.9
87.5°	25.4	25.4	25.4
90°	0.0	0.0	0.0

(END OF REPORT)