

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: P646629

Luminaire Tested: S123DR-S1165D940-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2019
Report Number: P646629
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-S1165D940-X4F0-XX-UDD-G-W
Description: DEFINE 3 DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4576.0 lumens
Efficiency: N/A
Efficacy: 114.1 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

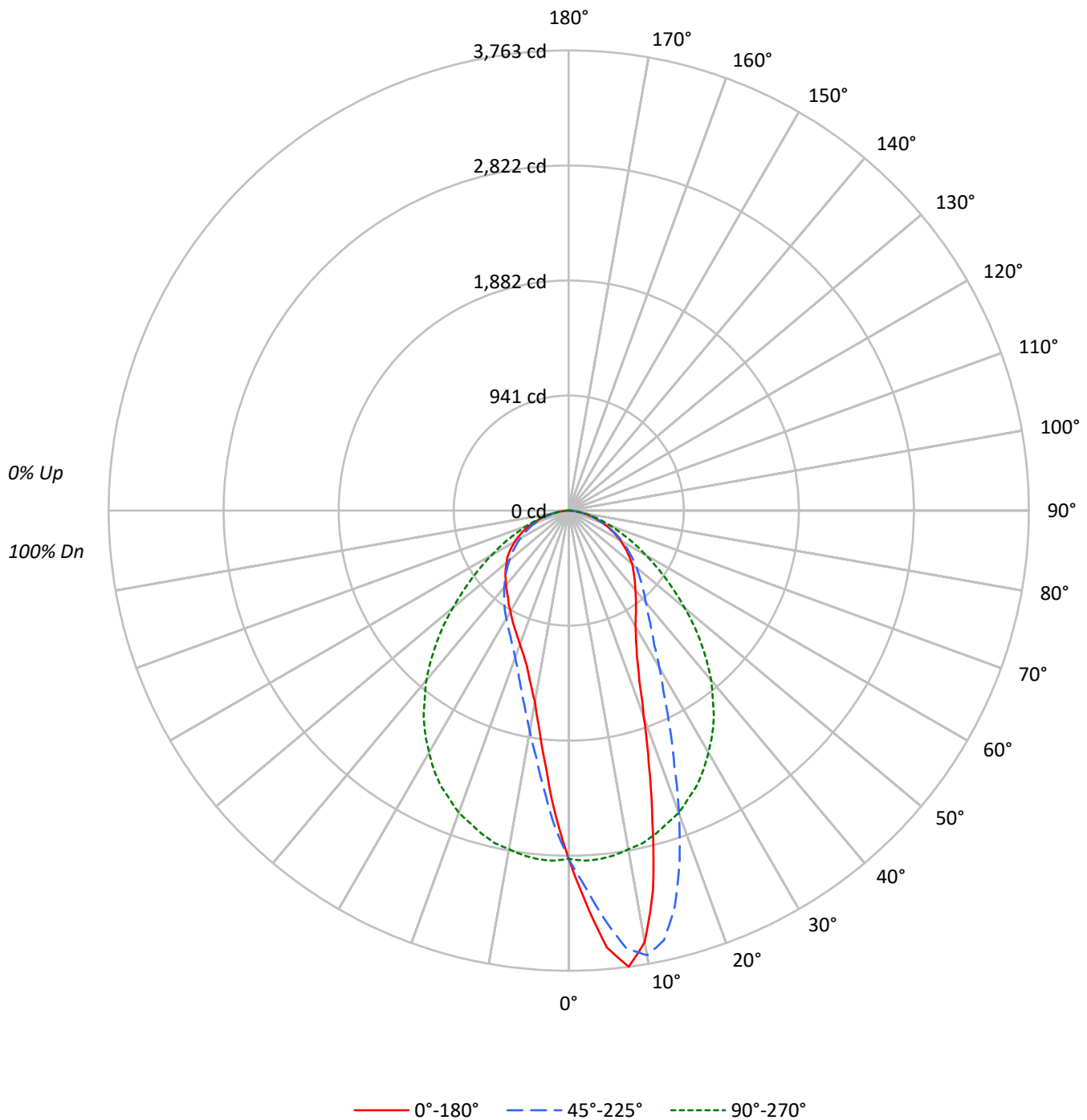
Input Watts (W): 40.1
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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
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°	34316	34316	34316	34316	34316
5°	43399	40585	34624	27766	25639
10°	43820	45178	34393	22427	19435
15°	33004	41807	34158	18794	16436
20°	22996	33808	33723	16387	14929
25°	17535	25934	32979	15023	14003
30°	15170	20612	31792	14196	13258
35°	14074	17263	30423	13530	12732
40°	13324	15444	28500	12909	12555
45°	12881	14344	26056	12364	12477
50°	12659	13551	23163	11892	12411
55°	12188	12800	20322	11466	12466
60°	11753	12102	17517	11052	12261
65°	11039	11342	15111	10589	12020
70°	10195	10523	12852	10009	11312
75°	9227	9534	11015	9167	10335
80°	7612	8160	8715	7980	8715
85°	6028	6581	6401	6940	6940

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°

Vertical Angle: 45°

Luminance: 29749 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	269.3	5.9
10°-20°	669.9	14.6
20°-30°	793.0	17.3
30°-40°	797.0	17.4
40°-50°	730.9	16.0
50°-60°	603.3	13.2
60°-70°	426.9	9.3
70°-80°	228.0	5.0
80°-90°	57.8	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°	1732.2	37.9
0°-40°	2529.2	55.3
0°-60°	3863.3	84.4
0°-90°	4576.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4576.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	2848	2848	2848	2848	2848	
5°	3588	3356	2863	2296	2120	342
15°	2646	3352	2738	1507	1318	731
25°	1319	1951	2481	1130	1053	622
35°	957	1174	2068	920	866	601
45°	756	842	1529	726	732	585
55°	580	609	967	546	593	519
65°	387	398	530	371	422	385
75°	198	205	237	197	222	208
85°	44	48	46	50	50	52
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°	2848.0	2848.0	2848.0	2848.0	2848.0	2848.0	2848.0	2848.0	2848.0	2848.0	2848.0
2.5°	3210.1	3203.5	3170.5	3149.3	3154.6	3107.0	3078.0	3054.2	3038.3	3000.0	2980.2
5°	3588.1	3606.6	3585.5	3574.9	3520.7	3434.8	3355.5	3338.3	3264.3	3173.1	3141.4
7.5°	3762.6	3773.1	3759.9	3759.9	3742.7	3666.1	3610.6	3567.0	3440.1	3322.5	3268.3
10°	3581.5	3605.3	3656.8	3680.6	3715.0	3704.4	3692.5	3675.3	3589.4	3453.3	3391.2
12.5°	3183.7	3212.8	3315.9	3330.4	3448.0	3561.7	3598.7	3641.0	3648.9	3533.9	3466.5
15°	2645.8	2726.4	2820.3	2865.2	3014.5	3253.7	3351.5	3466.5	3602.6	3555.1	3502.2
17.5°	2179.3	2209.7	2310.1	2405.3	2554.6	2830.8	3011.9	3183.7	3475.8	3523.3	3490.3
20°	1793.4	1821.1	1953.3	1946.7	2144.9	2455.5	2636.6	2834.8	3265.6	3420.3	3413.7
22.5°	1506.6	1550.2	1624.2	1665.2	1807.9	2084.1	2255.9	2503.1	3026.4	3270.9	3297.4
25°	1318.9	1350.7	1395.6	1431.3	1542.3	1769.6	1950.7	2154.2	2725.1	3075.3	3141.4
27.5°	1190.7	1204.0	1248.9	1270.0	1344.1	1539.6	1679.7	1866.1	2446.3	2855.9	2948.5
30°	1090.3	1099.6	1139.2	1145.8	1204.0	1345.4	1481.5	1633.5	2174.0	2630.0	2735.7
32.5°	1020.3	1026.9	1057.3	1059.9	1103.5	1206.6	1301.8	1444.5	1916.3	2388.1	2518.9
35°	956.8	960.8	983.3	989.9	1017.6	1095.6	1173.6	1283.3	1711.5	2170.0	2314.1
37.5°	901.3	906.6	919.8	927.8	950.2	1012.3	1065.2	1156.4	1514.5	1942.7	2102.6
40°	847.1	856.4	865.6	865.6	890.7	938.3	981.9	1057.3	1345.4	1744.5	1885.9
42.5°	800.9	810.1	814.1	815.4	828.6	872.2	909.3	960.8	1217.2	1568.7	1707.5
45°	755.9	759.9	763.9	766.5	775.8	814.1	841.8	890.7	1095.6	1406.2	1541.0
47.5°	715.0	715.0	717.6	721.6	728.2	755.9	779.7	815.4	991.2	1260.8	1371.8
50°	675.3	675.3	671.4	674.0	678.0	699.1	722.9	752.0	893.4	1127.3	1226.4
52.5°	627.8	627.8	629.1	625.1	629.1	647.6	666.1	695.2	810.1	1004.4	1089.0
55°	580.2	585.5	581.5	578.9	584.1	596.0	609.3	634.4	732.2	906.6	974.0
57.5°	532.6	535.2	533.9	537.9	535.2	545.8	557.7	574.9	662.1	796.9	860.4
60°	487.7	487.7	485.0	487.7	487.7	493.0	502.2	519.4	590.7	703.1	755.9
62.5°	437.4	438.8	440.1	438.8	437.4	444.1	452.0	463.9	528.6	611.9	651.5
65°	387.2	388.5	392.5	391.2	389.9	396.5	397.8	411.0	459.9	531.3	560.4
67.5°	342.3	339.6	341.0	343.6	344.9	346.3	348.9	362.1	396.5	454.6	478.4
70°	289.4	292.1	290.7	294.7	292.1	296.0	298.7	307.9	341.0	379.3	395.2
72.5°	241.9	243.2	243.2	247.1	245.8	249.8	252.4	256.4	280.2	314.5	321.1
75°	198.2	198.2	200.9	202.2	202.2	202.2	204.8	207.5	227.3	248.5	255.1
77.5°	150.7	157.3	155.9	157.3	158.6	162.6	159.9	165.2	177.1	189.0	193.0
80°	109.7	109.7	111.0	112.3	115.0	117.6	117.6	122.9	128.2	134.8	138.8
82.5°	70.0	71.4	75.3	76.7	78.0	81.9	81.9	81.9	88.5	91.2	91.2
85°	43.6	41.0	43.6	44.9	46.3	47.6	47.6	50.2	51.5	52.9	52.9
87.5°	21.1	21.1	21.1	21.1	22.5	22.5	22.5	22.5	23.8	23.8	23.8
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°	2848.0	2848.0	2848.0	2848.0	2848.0	2848.0	2848.0	2848.0	2848.0	2848.0	2848.0
2.5°	2914.1	2865.2	2792.5	2733.0	2735.7	2681.5	2641.8	2590.3	2574.4	2558.6	2537.4
5°	2974.9	2862.6	2711.9	2591.6	2554.6	2464.8	2351.1	2295.6	2262.6	2204.4	2181.9
7.5°	3050.2	2844.1	2614.1	2426.4	2385.5	2236.1	2101.3	2035.2	1973.1	1932.2	1881.9
10°	3099.1	2811.0	2515.0	2266.5	2226.9	2056.4	1880.6	1833.0	1755.1	1704.8	1657.3
12.5°	3136.1	2785.9	2413.2	2123.8	2059.0	1893.8	1716.7	1652.0	1595.2	1522.5	1488.1
15°	3169.2	2738.3	2308.8	1974.4	1907.0	1728.6	1564.8	1506.6	1455.1	1391.6	1361.2
17.5°	3157.3	2680.2	2193.8	1842.3	1774.9	1599.1	1441.8	1375.8	1341.4	1285.9	1264.8
20°	3142.7	2630.0	2085.5	1716.7	1642.7	1478.9	1325.6	1278.0	1243.6	1207.9	1189.4
22.5°	3096.5	2550.7	1975.8	1601.8	1531.7	1367.8	1237.0	1197.4	1170.9	1145.8	1130.0
25°	3018.5	2480.6	1868.7	1486.8	1431.3	1278.0	1167.0	1130.0	1112.8	1087.7	1073.1
27.5°	2922.0	2388.1	1761.7	1393.0	1329.5	1193.4	1098.2	1074.4	1055.9	1036.1	1021.6
30°	2800.4	2285.0	1657.3	1301.8	1243.6	1123.3	1041.4	1020.3	1003.1	983.3	966.1
32.5°	2645.8	2180.6	1559.5	1217.2	1168.3	1063.9	988.5	971.4	956.8	933.0	923.8
35°	2472.7	2068.3	1463.0	1136.6	1090.3	999.1	937.0	919.8	905.3	885.5	877.5
37.5°	2296.9	1934.8	1367.8	1067.8	1026.9	944.9	885.5	868.3	855.1	837.9	833.9
40°	2110.6	1811.9	1274.0	997.8	962.1	892.1	833.9	820.7	807.5	796.9	794.3
42.5°	1922.9	1670.5	1192.1	939.6	901.3	836.6	783.7	769.2	761.2	755.9	757.3
45°	1745.8	1529.1	1107.5	872.2	845.8	786.3	737.4	725.6	718.9	715.0	720.3
47.5°	1554.2	1385.0	1028.2	815.4	789.0	736.1	689.9	679.3	676.7	675.3	684.6
50°	1385.0	1235.7	942.3	757.3	734.8	680.6	643.6	634.4	631.7	635.7	648.9
52.5°	1225.1	1096.9	864.3	703.1	680.6	631.7	597.4	590.7	589.4	598.7	611.9
55°	1066.5	967.4	779.7	643.6	621.1	578.9	552.4	545.8	544.5	563.0	574.9
57.5°	931.7	841.8	700.4	586.8	569.6	530.0	506.2	500.9	504.8	522.0	533.9
60°	799.6	726.9	627.8	526.0	512.8	478.4	459.9	458.6	462.6	482.4	494.3
62.5°	680.6	625.1	549.8	470.5	461.2	430.8	413.7	416.3	420.3	440.1	450.7
65°	578.9	530.0	473.1	415.0	403.1	381.9	370.0	371.4	379.3	396.5	407.0
67.5°	479.7	440.1	408.4	362.1	352.9	334.4	325.1	330.4	334.4	351.5	362.1
70°	396.5	364.8	341.0	306.6	300.0	284.1	277.5	284.1	288.1	302.6	315.9
72.5°	318.5	298.7	280.2	255.1	248.5	237.9	236.6	239.2	245.8	260.4	265.6
75°	247.1	236.6	220.7	204.8	200.9	195.6	194.3	196.9	203.5	211.5	216.7
77.5°	187.7	178.4	166.5	159.9	154.6	152.0	153.3	157.3	159.9	167.8	171.8
80°	136.1	125.6	122.9	113.7	112.3	111.0	113.7	115.0	118.9	124.2	126.9
82.5°	89.9	81.9	79.3	78.0	76.7	75.3	79.3	80.6	83.3	87.2	88.5
85°	48.9	46.3	46.3	44.9	46.3	48.9	48.9	50.2	50.2	51.5	50.2
87.5°	22.5	19.8	21.1	21.1	21.1	22.5	22.5	23.8	23.8	23.8	22.5
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°	2848.0	2848.0	2848.0
2.5°	2536.1	2526.9	2489.9
5°	2162.1	2130.4	2119.8
7.5°	1876.7	1874.0	1818.5
10°	1634.8	1638.8	1588.5
12.5°	1482.8	1449.8	1445.8
15°	1353.3	1322.9	1317.6
17.5°	1256.8	1238.3	1233.0
20°	1184.1	1173.6	1164.3
22.5°	1126.0	1112.8	1104.8
25°	1067.8	1055.9	1053.3
27.5°	1017.6	1003.1	1003.1
30°	966.1	956.8	952.9
32.5°	919.8	911.9	911.9
35°	874.9	870.9	865.6
37.5°	833.9	833.9	831.3
40°	794.3	798.2	798.2
42.5°	759.9	763.9	763.9
45°	722.9	729.5	732.2
47.5°	685.9	696.5	699.1
50°	652.9	660.8	662.1
52.5°	617.2	626.4	633.0
55°	580.2	589.4	593.4
57.5°	540.5	549.8	551.1
60°	496.9	506.2	508.8
62.5°	457.3	462.6	465.2
65°	408.4	416.3	421.6
67.5°	363.4	370.0	370.0
70°	314.5	317.2	321.1
72.5°	268.3	269.6	269.6
75°	218.1	220.7	222.0
77.5°	171.8	173.1	173.1
80°	126.9	125.6	125.6
82.5°	88.5	84.6	84.6
85°	50.2	48.9	50.2
87.5°	22.5	22.5	22.5
90°	0.0	0.0	0.0

(END OF REPORT)