

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: P646623

Luminaire Tested: S123DR-S1165D835-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2019
Report Number: P646623
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-S1165D835-X4F0-XX-UDD-G-W
Description: DEFINE 3 DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 3500K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5131.7 lumens
Efficiency: N/A
Efficacy: 128.0 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

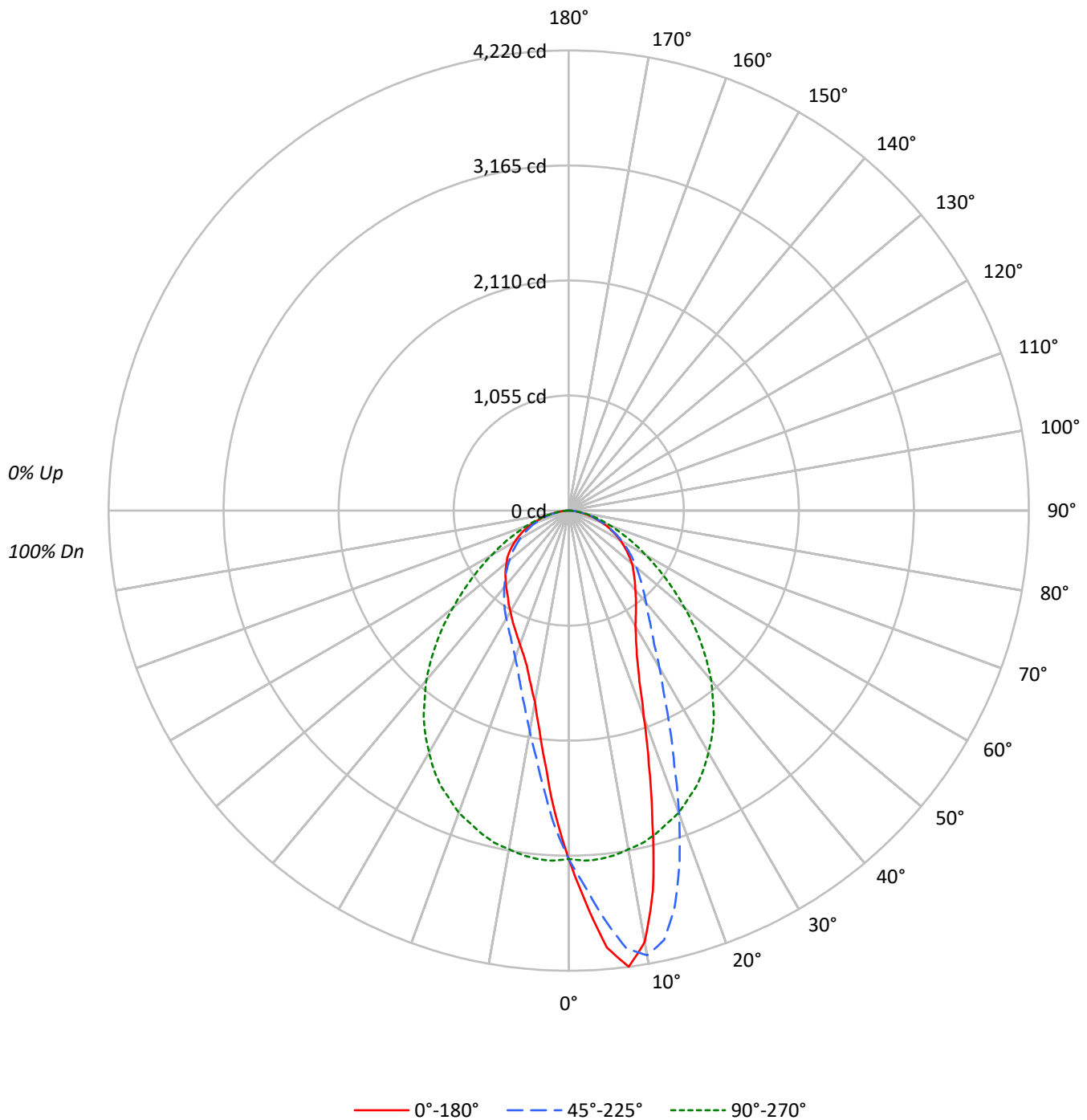
Input Watts (W): 40.1
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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	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°	38484	38484	38484	38484	38484
5°	48669	45514	38828	31138	28754
10°	49141	50664	38570	25150	21797
15°	37012	46886	38307	21076	18432
20°	25789	37912	37817	18377	16742
25°	19664	29082	36985	16847	15704
30°	17012	23115	35653	15919	14868
35°	15783	19359	34118	15173	14280
40°	14943	17321	31960	14477	14081
45°	14445	16088	29220	13866	13992
50°	14196	15197	25975	13335	13918
55°	13667	14352	22791	12858	13980
60°	13179	13572	19643	12394	13751
65°	12379	12719	16944	11875	13480
70°	11435	11798	14412	11224	12686
75°	10349	10694	12351	10279	11592
80°	8535	9152	9770	8944	9770
85°	6760	7382	7175	7783	7783

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°

Vertical Angle: 45°

Luminance: 33361 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	302.0	5.9
10°-20°	751.3	14.6
20°-30°	889.3	17.3
30°-40°	893.7	17.4
40°-50°	819.6	16.0
50°-60°	676.5	13.2
60°-70°	478.7	9.3
70°-80°	255.7	5.0
80°-90°	64.9	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°	1942.6	37.9
0°-40°	2836.3	55.3
0°-60°	4332.4	84.4
0°-90°	5131.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5131.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	3194	3194	3194	3194	3194	
5°	4024	3763	3210	2574	2377	383
15°	2967	3759	3071	1690	1478	820
25°	1479	2188	2782	1267	1181	698
35°	1073	1316	2320	1032	971	674
45°	848	944	1715	814	821	656
55°	651	683	1085	612	666	582
65°	434	446	594	416	473	432
75°	222	230	265	221	249	234
85°	49	53	52	56	56	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°	3193.9	3193.9	3193.9	3193.9	3193.9	3193.9	3193.9	3193.9	3193.9	3193.9	3193.9
2.5°	3600.0	3592.6	3555.5	3531.8	3537.7	3484.4	3451.8	3425.1	3407.3	3364.3	3342.1
5°	4023.8	4044.6	4020.9	4009.0	3948.3	3851.9	3763.0	3743.7	3660.7	3558.5	3522.9
7.5°	4219.5	4231.3	4216.5	4216.5	4197.2	4111.3	4049.0	4000.1	3857.9	3725.9	3665.2
10°	4016.4	4043.1	4100.9	4127.6	4166.1	4154.3	4140.9	4121.7	4025.3	3872.7	3803.0
12.5°	3570.3	3602.9	3718.5	3734.8	3866.7	3994.2	4035.7	4083.1	4092.0	3963.1	3887.5
15°	2967.1	3057.5	3162.8	3213.1	3380.6	3648.9	3758.6	3887.5	4040.1	3986.8	3927.5
17.5°	2443.9	2478.0	2590.7	2697.4	2864.9	3174.6	3377.7	3570.3	3897.9	3951.2	3914.2
20°	2011.2	2042.3	2190.5	2183.1	2405.4	2753.7	2956.7	3179.1	3662.2	3835.6	3828.2
22.5°	1689.6	1738.5	1821.5	1867.4	2027.5	2337.2	2529.9	2807.1	3394.0	3668.1	3697.8
25°	1479.1	1514.7	1565.1	1605.1	1729.6	1984.5	2187.5	2415.8	3056.0	3448.8	3522.9
27.5°	1335.4	1350.2	1400.6	1424.3	1507.3	1726.6	1883.7	2092.7	2743.3	3202.8	3306.5
30°	1222.7	1233.1	1277.6	1285.0	1350.2	1508.8	1661.4	1831.8	2438.0	2949.3	3067.9
32.5°	1144.2	1151.6	1185.7	1188.6	1237.5	1353.1	1459.8	1619.9	2149.0	2678.1	2824.8
35°	1073.0	1077.5	1102.7	1110.1	1141.2	1228.6	1316.1	1439.1	1919.3	2433.6	2595.1
37.5°	1010.8	1016.7	1031.5	1040.4	1065.6	1135.3	1194.6	1296.8	1698.5	2178.7	2358.0
40°	950.0	960.4	970.8	970.8	998.9	1052.3	1101.2	1185.7	1508.8	1956.3	2114.9
42.5°	898.1	908.5	913.0	914.4	929.3	978.2	1019.7	1077.5	1365.0	1759.2	1914.8
45°	847.7	852.2	856.6	859.6	870.0	913.0	944.1	998.9	1228.6	1576.9	1728.1
47.5°	801.8	801.8	804.8	809.2	816.6	847.7	874.4	914.4	1111.6	1413.9	1538.4
50°	757.3	757.3	752.9	755.9	760.3	784.0	810.7	843.3	1001.9	1264.2	1375.4
52.5°	704.0	704.0	705.5	701.0	705.5	726.2	747.0	779.6	908.5	1126.4	1221.2
55°	650.6	656.6	652.1	649.2	655.1	668.4	683.2	711.4	821.1	1016.7	1092.3
57.5°	597.3	600.2	598.8	603.2	600.2	612.1	625.4	644.7	742.5	893.7	964.8
60°	546.9	546.9	543.9	546.9	546.9	552.8	563.2	582.5	662.5	788.5	847.7
62.5°	490.6	492.1	493.5	492.1	490.6	498.0	506.9	520.2	592.8	686.2	730.7
65°	434.2	435.7	440.2	438.7	437.2	444.6	446.1	460.9	515.8	595.8	628.4
67.5°	383.9	380.9	382.4	385.3	386.8	388.3	391.3	406.1	444.6	509.8	536.5
70°	324.6	327.5	326.1	330.5	327.5	332.0	334.9	345.3	382.4	425.4	443.1
72.5°	271.2	272.7	272.7	277.1	275.7	280.1	283.1	287.5	314.2	352.7	360.1
75°	222.3	222.3	225.3	226.8	226.8	226.8	229.7	232.7	254.9	278.6	286.0
77.5°	169.0	176.4	174.9	176.4	177.8	182.3	179.3	185.3	198.6	211.9	216.4
80°	123.0	123.0	124.5	126.0	128.9	131.9	131.9	137.8	143.8	151.2	155.6
82.5°	78.6	80.0	84.5	86.0	87.4	91.9	91.9	91.9	99.3	102.3	102.3
85°	48.9	45.9	48.9	50.4	51.9	53.4	53.4	56.3	57.8	59.3	59.3
87.5°	23.7	23.7	23.7	23.7	25.2	25.2	25.2	25.2	26.7	26.7	26.7
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°	3193.9	3193.9	3193.9	3193.9	3193.9	3193.9	3193.9	3193.9	3193.9	3193.9	3193.9
2.5°	3268.0	3213.1	3131.6	3064.9	3067.9	3007.1	2962.7	2904.9	2887.1	2869.3	2845.6
5°	3336.2	3210.2	3041.2	2906.4	2864.9	2764.1	2636.6	2574.4	2537.3	2472.1	2446.9
7.5°	3420.6	3189.4	2931.6	2721.1	2675.2	2507.7	2356.5	2282.4	2212.7	2166.8	2110.5
10°	3475.5	3152.4	2820.4	2541.8	2497.3	2306.1	2109.0	2055.6	1968.2	1911.9	1858.5
12.5°	3517.0	3124.2	2706.3	2381.7	2309.1	2123.8	1925.2	1852.6	1788.9	1707.4	1668.8
15°	3554.0	3070.9	2589.2	2214.2	2138.6	1938.6	1754.8	1689.6	1631.8	1560.6	1526.5
17.5°	3540.7	3005.7	2460.3	2066.0	1990.4	1793.3	1616.9	1542.8	1504.3	1442.1	1418.3
20°	3524.4	2949.3	2338.7	1925.2	1842.2	1658.4	1486.5	1433.2	1394.6	1354.6	1333.9
22.5°	3472.5	2860.4	2215.7	1796.3	1717.7	1534.0	1387.2	1342.8	1313.1	1285.0	1267.2
25°	3385.1	2781.9	2095.7	1667.3	1605.1	1433.2	1308.7	1267.2	1247.9	1219.8	1203.4
27.5°	3276.9	2678.1	1975.6	1562.1	1491.0	1338.3	1231.6	1204.9	1184.2	1161.9	1145.6
30°	3140.5	2562.5	1858.5	1459.8	1394.6	1259.8	1167.9	1144.2	1124.9	1102.7	1083.4
32.5°	2967.1	2445.4	1748.9	1365.0	1310.2	1193.1	1108.6	1089.3	1073.0	1046.3	1036.0
35°	2773.0	2319.5	1640.7	1274.6	1222.7	1120.5	1050.8	1031.5	1015.2	993.0	984.1
37.5°	2575.9	2169.8	1534.0	1197.5	1151.6	1059.7	993.0	973.7	958.9	939.6	935.2
40°	2366.9	2031.9	1428.7	1119.0	1079.0	1000.4	935.2	920.4	905.6	893.7	890.7
42.5°	2156.4	1873.3	1336.8	1053.8	1010.8	938.2	878.9	862.6	853.7	847.7	849.2
45°	1957.8	1714.8	1242.0	978.2	948.5	881.8	827.0	813.7	806.3	801.8	807.7
47.5°	1742.9	1553.2	1153.1	914.4	884.8	825.5	773.6	761.8	758.8	757.3	767.7
50°	1553.2	1385.7	1056.7	849.2	824.0	763.3	721.8	711.4	708.4	712.9	727.7
52.5°	1373.9	1230.1	969.3	788.5	763.3	708.4	669.9	662.5	661.0	671.4	686.2
55°	1196.0	1084.9	874.4	721.8	696.6	649.2	619.5	612.1	610.6	631.4	644.7
57.5°	1044.9	944.1	785.5	658.0	638.8	594.3	567.6	561.7	566.2	585.4	598.8
60°	896.7	815.1	704.0	589.9	575.0	536.5	515.8	514.3	518.7	541.0	554.3
62.5°	763.3	701.0	616.5	527.6	517.2	483.2	463.9	466.9	471.3	493.5	505.4
65°	649.2	594.3	530.6	465.4	452.0	428.3	415.0	416.5	425.4	444.6	456.5
67.5°	538.0	493.5	458.0	406.1	395.7	375.0	364.6	370.5	375.0	394.2	406.1
70°	444.6	409.1	382.4	343.8	336.4	318.6	311.2	318.6	323.1	339.4	354.2
72.5°	357.2	334.9	314.2	286.0	278.6	266.8	265.3	268.3	275.7	292.0	297.9
75°	277.1	265.3	247.5	229.7	225.3	219.3	217.9	220.8	228.2	237.1	243.1
77.5°	210.5	200.1	186.7	179.3	173.4	170.4	171.9	176.4	179.3	188.2	192.7
80°	152.7	140.8	137.8	127.5	126.0	124.5	127.5	128.9	133.4	139.3	142.3
82.5°	100.8	91.9	88.9	87.4	86.0	84.5	88.9	90.4	93.4	97.8	99.3
85°	54.8	51.9	51.9	50.4	51.9	54.8	54.8	56.3	56.3	57.8	56.3
87.5°	25.2	22.2	23.7	23.7	23.7	25.2	25.2	26.7	26.7	26.7	25.2
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°	3193.9	3193.9	3193.9
2.5°	2844.1	2833.7	2792.2
5°	2424.7	2389.1	2377.3
7.5°	2104.6	2101.6	2039.3
10°	1833.3	1837.8	1781.5
12.5°	1662.9	1625.8	1621.4
15°	1517.6	1483.6	1477.6
17.5°	1409.5	1388.7	1382.8
20°	1327.9	1316.1	1305.7
22.5°	1262.7	1247.9	1239.0
25°	1197.5	1184.2	1181.2
27.5°	1141.2	1124.9	1124.9
30°	1083.4	1073.0	1068.6
32.5°	1031.5	1022.6	1022.6
35°	981.1	976.7	970.8
37.5°	935.2	935.2	932.2
40°	890.7	895.2	895.2
42.5°	852.2	856.6	856.6
45°	810.7	818.1	821.1
47.5°	769.2	781.1	784.0
50°	732.1	741.0	742.5
52.5°	692.1	702.5	709.9
55°	650.6	661.0	665.5
57.5°	606.2	616.5	618.0
60°	557.3	567.6	570.6
62.5°	512.8	518.7	521.7
65°	458.0	466.9	472.8
67.5°	407.6	415.0	415.0
70°	352.7	355.7	360.1
72.5°	300.9	302.3	302.3
75°	244.5	247.5	249.0
77.5°	192.7	194.2	194.2
80°	142.3	140.8	140.8
82.5°	99.3	94.9	94.9
85°	56.3	54.8	56.3
87.5°	25.2	25.2	25.2
90°	0.0	0.0	0.0

(END OF REPORT)