

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: P646628

Luminaire Tested: S123DR-S1165D935-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2019
Report Number: P646628
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-S1165D935-X4F0-XX-UDD-G-W
Description: DEFINE 3 DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 3500K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4418.4 lumens
Efficiency: N/A
Efficacy: 110.2 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

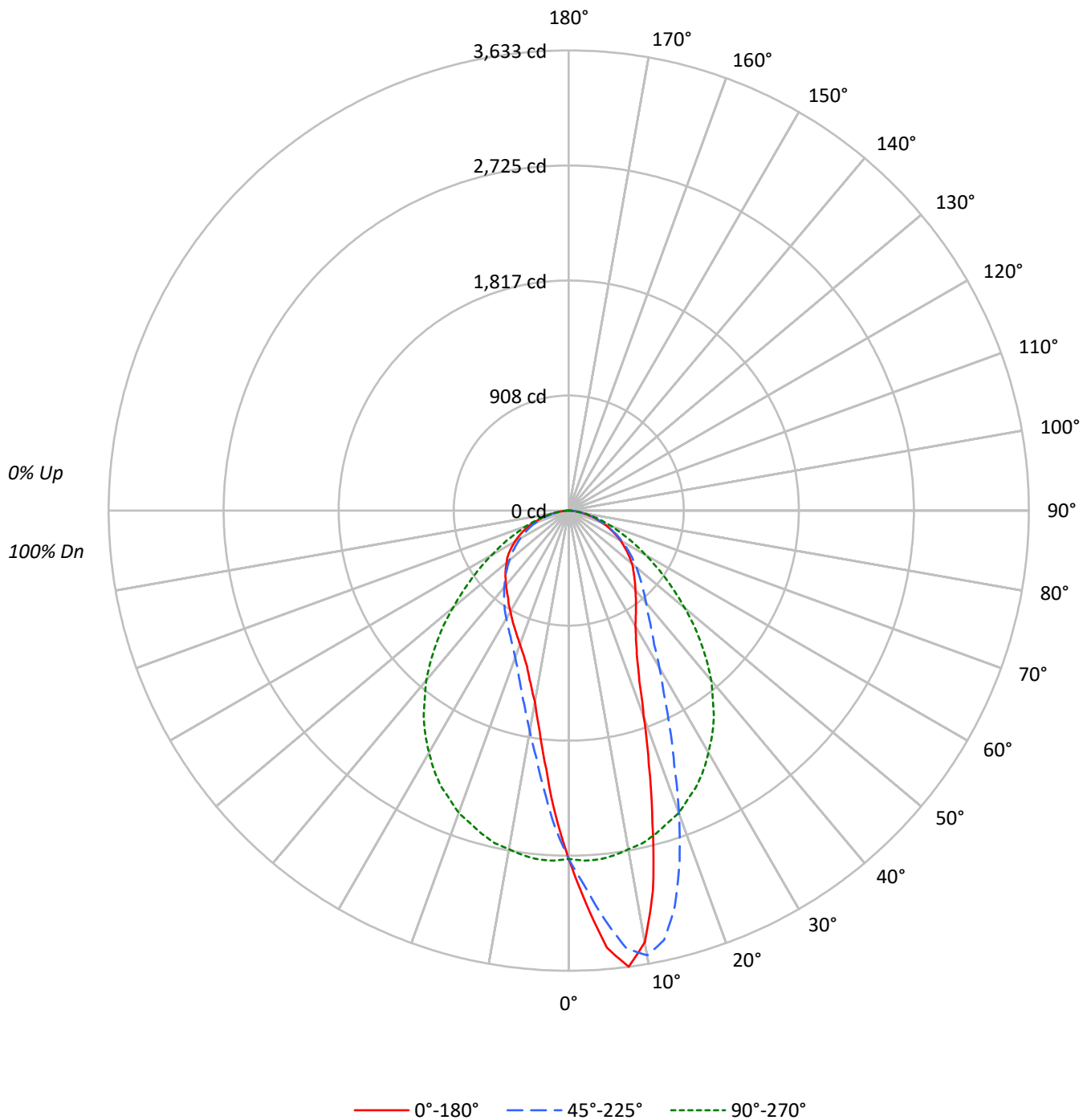
Input Watts (W): 40.1
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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
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°	33134	33134	33134	33134	33134
5°	41904	39187	33431	26809	24756
10°	42310	43622	33208	21655	18766
15°	31868	40368	32982	18146	15870
20°	22203	32643	32561	15823	14415
25°	16931	25041	31844	14505	13521
30°	14648	19903	30697	13706	12800
35°	13590	16667	29375	13063	12294
40°	12866	14913	27518	12464	12122
45°	12438	13852	25158	11938	12046
50°	12224	13084	22365	11481	11984
55°	11768	12358	19623	11071	12037
60°	11348	11685	16912	10671	11840
65°	10660	10951	14589	10224	11607
70°	9847	10160	12408	9667	10925
75°	8911	9208	10633	8850	9981
80°	7348	7883	8410	7702	8410
85°	5820	6346	6180	6705	6705

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°

Vertical Angle: 45°

Luminance: 28725 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	260.0	5.9
10°-20°	646.9	14.6
20°-30°	765.7	17.3
30°-40°	769.5	17.4
40°-50°	705.7	16.0
50°-60°	582.5	13.2
60°-70°	412.2	9.3
70°-80°	220.1	5.0
80°-90°	55.9	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°	1672.5	37.9
0°-40°	2442.0	55.3
0°-60°	3730.2	84.4
0°-90°	4418.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4418.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	2750	2750	2750	2750	2750	
5°	3464	3240	2764	2216	2047	330
15°	2555	3236	2644	1455	1272	706
25°	1274	1884	2395	1091	1017	601
35°	924	1133	1997	888	836	581
45°	730	813	1476	701	707	565
55°	560	588	934	527	573	501
65°	374	384	512	359	407	372
75°	191	198	228	190	214	201
85°	42	46	45	48	48	50
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°	2749.9	2749.9	2749.9	2749.9	2749.9	2749.9	2749.9	2749.9	2749.9	2749.9	2749.9
2.5°	3099.6	3093.2	3061.3	3040.9	3046.0	3000.0	2972.0	2949.0	2933.7	2896.7	2877.5
5°	3464.5	3482.4	3462.0	3451.8	3399.4	3316.5	3239.9	3223.3	3151.9	3063.8	3033.2
7.5°	3633.0	3643.2	3630.4	3630.4	3613.8	3539.8	3486.2	3444.1	3321.6	3208.0	3155.7
10°	3458.1	3481.1	3530.9	3553.8	3587.0	3576.8	3565.3	3548.7	3465.8	3334.4	3274.4
12.5°	3074.0	3102.1	3201.7	3215.7	3329.3	3439.0	3474.7	3515.6	3523.2	3412.2	3347.1
15°	2554.7	2632.5	2723.1	2766.5	2910.7	3141.7	3236.1	3347.1	3478.6	3432.6	3381.6
17.5°	2104.2	2133.6	2230.6	2322.4	2466.6	2733.3	2908.2	3074.0	3356.1	3402.0	3370.1
20°	1731.6	1758.4	1886.0	1879.6	2071.1	2370.9	2545.8	2737.2	3153.2	3302.5	3296.1
22.5°	1454.7	1496.8	1568.3	1607.8	1745.7	2012.4	2178.2	2416.9	2922.2	3158.3	3183.8
25°	1273.5	1304.1	1347.5	1382.0	1489.2	1708.7	1883.5	2080.0	2631.2	2969.4	3033.2
27.5°	1149.7	1162.5	1205.9	1226.3	1297.8	1486.6	1621.9	1801.8	2362.0	2757.6	2846.9
30°	1052.8	1061.7	1100.0	1106.3	1162.5	1299.0	1430.5	1577.2	2099.1	2539.4	2641.5
32.5°	985.1	991.5	1020.9	1023.4	1065.5	1165.0	1256.9	1394.7	1850.3	2305.9	2432.2
35°	923.9	927.7	949.4	955.8	982.6	1057.9	1133.1	1239.1	1652.5	2095.3	2234.4
37.5°	870.3	875.4	888.1	895.8	917.5	977.5	1028.5	1116.6	1462.4	1875.8	2030.2
40°	818.0	826.9	835.8	835.8	860.1	906.0	948.1	1020.9	1299.0	1684.4	1820.9
42.5°	773.3	782.2	786.1	787.3	800.1	842.2	877.9	927.7	1175.3	1514.7	1648.7
45°	729.9	733.7	737.6	740.1	749.1	786.1	812.9	860.1	1057.9	1357.7	1487.9
47.5°	690.4	690.4	692.9	696.7	703.1	729.9	752.9	787.3	957.1	1217.4	1324.6
50°	652.1	652.1	648.2	650.8	654.6	675.0	698.0	726.1	862.6	1088.5	1184.2
52.5°	606.1	606.1	607.4	603.6	607.4	625.3	643.1	671.2	782.2	969.8	1051.5
55°	560.2	565.3	561.5	558.9	564.0	575.5	588.3	612.5	706.9	875.4	940.5
57.5°	514.3	516.8	515.5	519.4	516.8	527.0	538.5	555.1	639.3	769.5	830.7
60°	470.9	470.9	468.3	470.9	470.9	476.0	484.9	501.5	570.4	678.9	729.9
62.5°	422.4	423.7	424.9	423.7	422.4	428.8	436.4	447.9	510.4	590.8	629.1
65°	373.9	375.2	379.0	377.7	376.4	382.8	384.1	396.9	444.1	513.0	541.1
67.5°	330.5	327.9	329.2	331.8	333.1	334.3	336.9	349.6	382.8	439.0	461.9
70°	279.5	282.0	280.7	284.6	282.0	285.8	288.4	297.3	329.2	366.2	381.5
72.5°	233.5	234.8	234.8	238.6	237.3	241.2	243.7	247.6	270.5	303.7	310.1
75°	191.4	191.4	194.0	195.2	195.2	195.2	197.8	200.3	219.5	239.9	246.3
77.5°	145.5	151.9	150.6	151.9	153.1	157.0	154.4	159.5	171.0	182.5	186.3
80°	105.9	105.9	107.2	108.5	111.0	113.6	113.6	118.7	123.8	130.2	134.0
82.5°	67.6	68.9	72.7	74.0	75.3	79.1	79.1	79.1	85.5	88.0	88.0
85°	42.1	39.6	42.1	43.4	44.7	45.9	45.9	48.5	49.8	51.0	51.0
87.5°	20.4	20.4	20.4	20.4	21.7	21.7	21.7	21.7	23.0	23.0	23.0
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°	2749.9	2749.9	2749.9	2749.9	2749.9	2749.9	2749.9	2749.9	2749.9	2749.9	2749.9
2.5°	2813.7	2766.5	2696.3	2638.9	2641.5	2589.1	2550.9	2501.1	2485.8	2470.5	2450.0
5°	2872.4	2764.0	2618.5	2502.4	2466.6	2379.9	2270.1	2216.5	2184.6	2128.5	2106.8
7.5°	2945.2	2746.1	2524.1	2342.9	2303.3	2159.1	2028.9	1965.1	1905.2	1865.6	1817.1
10°	2992.4	2714.2	2428.4	2188.5	2150.2	1985.6	1815.8	1769.9	1694.6	1646.1	1600.2
12.5°	3028.1	2689.9	2330.1	2050.6	1988.1	1828.6	1657.6	1595.1	1540.2	1470.0	1436.9
15°	3060.0	2644.0	2229.3	1906.4	1841.4	1669.1	1510.9	1454.7	1404.9	1343.7	1314.3
17.5°	3048.5	2587.9	2118.3	1778.8	1713.8	1544.0	1392.2	1328.4	1295.2	1241.6	1221.2
20°	3034.5	2539.4	2013.6	1657.6	1586.2	1427.9	1279.9	1234.0	1200.8	1166.3	1148.5
22.5°	2989.8	2462.8	1907.7	1546.6	1479.0	1320.7	1194.4	1156.1	1130.6	1106.3	1091.0
25°	2914.5	2395.2	1804.4	1435.6	1382.0	1234.0	1126.8	1091.0	1074.4	1050.2	1036.2
27.5°	2821.4	2305.9	1701.0	1345.0	1283.7	1152.3	1060.4	1037.4	1019.6	1000.4	986.4
30°	2704.0	2206.3	1600.2	1256.9	1200.8	1084.7	1005.5	985.1	968.5	949.4	932.8
32.5°	2554.7	2105.5	1505.8	1175.3	1128.0	1027.2	954.5	937.9	923.9	900.9	892.0
35°	2387.5	1997.0	1412.6	1097.4	1052.8	964.7	904.7	888.1	874.1	855.0	847.3
37.5°	2217.8	1868.2	1320.7	1031.1	991.5	912.4	855.0	838.4	825.6	809.0	805.2
40°	2037.9	1749.5	1230.1	963.4	929.0	861.3	805.2	792.4	779.7	769.5	766.9
42.5°	1856.7	1612.9	1151.0	907.3	870.3	807.8	756.7	742.7	735.0	729.9	731.2
45°	1685.7	1476.4	1069.3	842.2	816.7	759.3	712.0	700.6	694.2	690.4	695.5
47.5°	1500.7	1337.3	992.8	787.3	761.8	710.8	666.1	655.9	653.3	652.1	661.0
50°	1337.3	1193.1	909.8	731.2	709.5	657.2	621.4	612.5	610.0	613.8	626.5
52.5°	1182.9	1059.1	834.5	678.9	657.2	610.0	576.8	570.4	569.1	578.1	590.8
55°	1029.8	934.1	752.9	621.4	599.8	558.9	533.4	527.0	525.7	543.6	555.1
57.5°	899.6	812.9	676.3	566.6	550.0	511.7	488.7	483.6	487.5	504.0	515.5
60°	772.0	701.8	606.1	507.9	495.1	461.9	444.1	442.8	446.6	465.8	477.2
62.5°	657.2	603.6	530.8	454.3	445.3	416.0	399.4	402.0	405.8	424.9	435.1
65°	558.9	511.7	456.8	400.7	389.2	368.8	357.3	358.6	366.2	382.8	393.0
67.5°	463.2	424.9	394.3	349.6	340.7	322.8	313.9	319.0	322.8	339.4	349.6
70°	382.8	352.2	329.2	296.0	289.7	274.4	268.0	274.4	278.2	292.2	305.0
72.5°	307.5	288.4	270.5	246.3	239.9	229.7	228.4	231.0	237.3	251.4	256.5
75°	238.6	228.4	213.1	197.8	194.0	188.9	187.6	190.1	196.5	204.2	209.3
77.5°	181.2	172.3	160.8	154.4	149.3	146.7	148.0	151.9	154.4	162.1	165.9
80°	131.4	121.2	118.7	109.7	108.5	107.2	109.7	111.0	114.8	120.0	122.5
82.5°	86.8	79.1	76.6	75.3	74.0	72.7	76.6	77.8	80.4	84.2	85.5
85°	47.2	44.7	44.7	43.4	44.7	47.2	47.2	48.5	48.5	49.8	48.5
87.5°	21.7	19.1	20.4	20.4	20.4	21.7	21.7	23.0	23.0	23.0	21.7
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°	2749.9	2749.9	2749.9
2.5°	2448.8	2439.8	2404.1
5°	2087.6	2057.0	2046.8
7.5°	1812.0	1809.5	1755.9
10°	1578.5	1582.3	1533.8
12.5°	1431.7	1399.8	1396.0
15°	1306.7	1277.3	1272.2
17.5°	1213.5	1195.7	1190.6
20°	1143.4	1133.1	1124.2
22.5°	1087.2	1074.4	1066.8
25°	1031.1	1019.6	1017.0
27.5°	982.6	968.5	968.5
30°	932.8	923.9	920.0
32.5°	888.1	880.5	880.5
35°	844.8	840.9	835.8
37.5°	805.2	805.2	802.6
40°	766.9	770.7	770.7
42.5°	733.7	737.6	737.6
45°	698.0	704.4	706.9
47.5°	662.3	672.5	675.0
50°	630.4	638.0	639.3
52.5°	595.9	604.9	611.2
55°	560.2	569.1	573.0
57.5°	521.9	530.8	532.1
60°	479.8	488.7	491.3
62.5°	441.5	446.6	449.2
65°	394.3	402.0	407.1
67.5°	350.9	357.3	357.3
70°	303.7	306.3	310.1
72.5°	259.0	260.3	260.3
75°	210.6	213.1	214.4
77.5°	165.9	167.2	167.2
80°	122.5	121.2	121.2
82.5°	85.5	81.7	81.7
85°	48.5	47.2	48.5
87.5°	21.7	21.7	21.7
90°	0.0	0.0	0.0

(END OF REPORT)