

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: P646626

Luminaire Tested: S123DR-S1165D927-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2019
Report Number: P646626
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-S1165D927-X4F0-XX-UDD-G-W
Description: DEFINE 3 DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 2700K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4065.2 lumens
Efficiency: N/A
Efficacy: 101.4 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

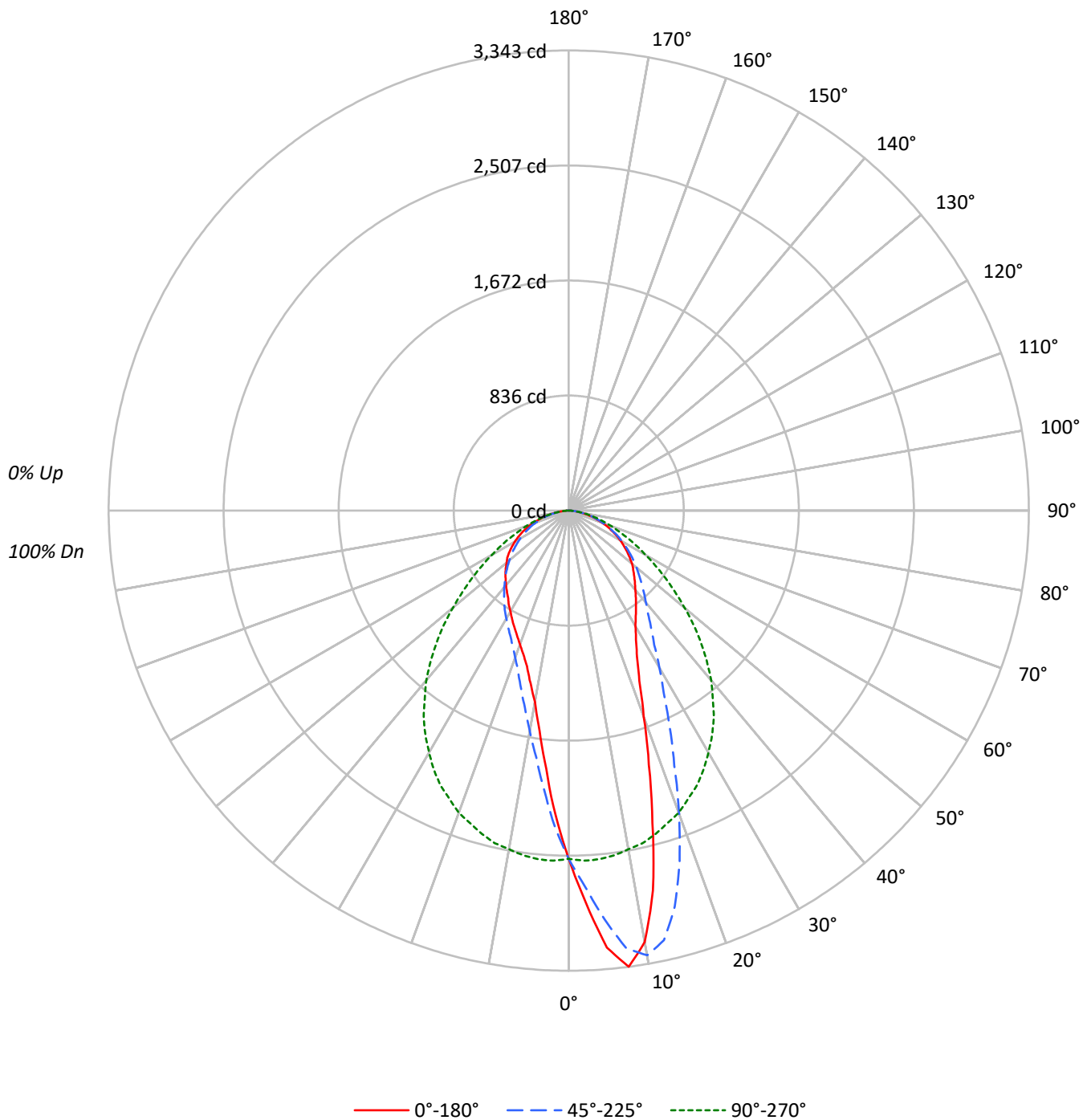
Input Watts (W): 40.1
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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	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°	30486	30486	30486	30486	30486
5°	38555	36056	30758	24667	22778
10°	38928	40136	30555	19924	17266
15°	29321	37142	30346	16696	14602
20°	20429	30034	29958	14557	13264
25°	15578	23039	29298	13345	12440
30°	13476	18311	28244	12611	11778
35°	12503	15336	27027	12020	11311
40°	11838	13720	25319	11468	11153
45°	11444	12744	23147	10984	11083
50°	11247	12038	20578	10565	11026
55°	10827	11369	18054	10186	11075
60°	10439	10750	15560	9818	10892
65°	9808	10076	13423	9406	10677
70°	9057	9346	11414	8892	10051
75°	8198	8473	9786	8142	9181
80°	6758	7251	7737	7085	7737
85°	5350	5848	5682	6166	6166

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°

Vertical Angle: 45°

Luminance: 26429 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	239.2	5.9
10°-20°	595.2	14.6
20°-30°	704.5	17.3
30°-40°	708.0	17.4
40°-50°	649.3	16.0
50°-60°	535.9	13.2
60°-70°	379.2	9.3
70°-80°	202.5	5.0
80°-90°	51.4	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°	1538.9	37.9
0°-40°	2246.9	55.3
0°-60°	3432.1	84.4
0°-90°	4065.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4065.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	2530	2530	2530	2530	2530	
5°	3188	2981	2543	2039	1883	304
15°	2350	2978	2433	1338	1171	649
25°	1172	1733	2204	1004	936	553
35°	850	1043	1837	817	769	534
45°	672	748	1358	645	650	520
55°	515	541	859	485	527	461
65°	344	353	471	330	374	342
75°	176	182	210	175	197	185
85°	39	42	41	45	45	46
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°	2530.1	2530.1	2530.1	2530.1	2530.1	2530.1	2530.1	2530.1	2530.1	2530.1	2530.1
2.5°	2851.8	2846.0	2816.6	2797.8	2802.5	2760.3	2734.4	2713.3	2699.2	2665.2	2647.5
5°	3187.6	3204.1	3185.3	3175.9	3127.7	3051.4	2981.0	2965.7	2900.0	2819.0	2790.8
7.5°	3342.6	3352.0	3340.2	3340.2	3325.0	3256.9	3207.6	3168.8	3056.1	2951.6	2903.5
10°	3181.7	3202.9	3248.7	3269.8	3300.3	3290.9	3280.4	3265.1	3188.8	3067.9	3012.7
12.5°	2828.3	2854.2	2945.8	2958.7	3063.2	3164.1	3197.0	3234.6	3241.6	3139.5	3079.6
15°	2350.5	2422.1	2505.5	2545.4	2678.1	2890.6	2977.5	3079.6	3200.5	3158.3	3111.3
17.5°	1936.0	1963.1	2052.3	2136.8	2269.5	2514.9	2675.7	2828.3	3087.8	3130.1	3100.7
20°	1593.2	1617.9	1735.3	1729.4	1905.5	2181.4	2342.3	2518.4	2901.1	3038.5	3032.6
22.5°	1338.4	1377.2	1442.9	1479.3	1606.1	1851.5	2004.1	2223.7	2688.6	2905.8	2929.3
25°	1171.7	1199.9	1239.8	1271.5	1370.1	1572.1	1732.9	1913.7	2420.9	2732.1	2790.8
27.5°	1057.8	1069.6	1109.5	1128.3	1194.0	1367.8	1492.2	1657.8	2173.2	2537.2	2619.4
30°	968.6	976.8	1012.1	1017.9	1069.6	1195.2	1316.1	1451.2	1931.4	2336.4	2430.3
32.5°	906.4	912.3	939.3	941.6	980.4	1071.9	1156.5	1283.3	1702.4	2121.6	2237.8
35°	850.0	853.6	873.5	879.4	904.0	973.3	1042.6	1140.0	1520.4	1927.8	2055.8
37.5°	800.7	805.4	817.2	824.2	844.2	899.3	946.3	1027.3	1345.5	1725.9	1868.0
40°	752.6	760.8	769.0	769.0	791.3	833.6	872.3	939.3	1195.2	1549.8	1675.4
42.5°	711.5	719.7	723.2	724.4	736.1	774.9	807.8	853.6	1081.3	1393.6	1516.9
45°	671.6	675.1	678.6	681.0	689.2	723.2	747.9	791.3	973.3	1249.2	1369.0
47.5°	635.2	635.2	637.5	641.0	646.9	671.6	692.7	724.4	880.6	1120.1	1218.7
50°	600.0	600.0	596.4	598.8	602.3	621.1	642.2	668.0	793.7	1001.5	1089.5
52.5°	557.7	557.7	558.9	555.3	558.9	575.3	591.7	617.6	719.7	892.3	967.4
55°	515.4	520.1	516.6	514.2	518.9	529.5	541.2	563.6	650.4	805.4	865.3
57.5°	473.2	475.5	474.3	477.8	475.5	484.9	495.5	510.7	588.2	708.0	764.3
60°	433.2	433.2	430.9	433.2	433.2	437.9	446.1	461.4	524.8	624.6	671.6
62.5°	388.6	389.8	391.0	389.8	388.6	394.5	401.5	412.1	469.6	543.6	578.8
65°	344.0	345.2	348.7	347.5	346.4	352.2	353.4	365.1	408.6	472.0	497.8
67.5°	304.1	301.7	302.9	305.3	306.4	307.6	310.0	321.7	352.2	403.9	425.0
70°	257.1	259.5	258.3	261.8	259.5	263.0	265.3	273.6	302.9	337.0	351.0
72.5°	214.9	216.0	216.0	219.6	218.4	221.9	224.2	227.8	248.9	279.4	285.3
75°	176.1	176.1	178.5	179.6	179.6	179.6	182.0	184.3	201.9	220.7	226.6
77.5°	133.8	139.7	138.5	139.7	140.9	144.4	142.1	146.8	157.3	167.9	171.4
80°	97.4	97.4	98.6	99.8	102.1	104.5	104.5	109.2	113.9	119.8	123.3
82.5°	62.2	63.4	66.9	68.1	69.3	72.8	72.8	72.8	78.7	81.0	81.0
85°	38.7	36.4	38.7	39.9	41.1	42.3	42.3	44.6	45.8	47.0	47.0
87.5°	18.8	18.8	18.8	18.8	20.0	20.0	20.0	20.0	21.1	21.1	21.1
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°	2530.1	2530.1	2530.1	2530.1	2530.1	2530.1	2530.1	2530.1	2530.1	2530.1	2530.1
2.5°	2588.8	2545.4	2480.8	2428.0	2430.3	2382.2	2347.0	2301.2	2287.1	2273.0	2254.2
5°	2642.8	2543.0	2409.2	2302.4	2269.5	2189.7	2088.7	2039.4	2010.0	1958.4	1938.4
7.5°	2709.8	2526.6	2322.3	2155.6	2119.2	1986.5	1866.8	1808.1	1752.9	1716.5	1671.9
10°	2753.2	2497.3	2234.3	2013.5	1978.3	1826.9	1670.7	1628.4	1559.2	1514.6	1472.3
12.5°	2786.1	2475.0	2143.9	1886.7	1829.2	1682.4	1525.1	1467.6	1417.1	1352.5	1322.0
15°	2815.4	2432.7	2051.1	1754.1	1694.2	1535.7	1390.1	1338.4	1292.7	1236.3	1209.3
17.5°	2804.9	2381.0	1949.0	1636.7	1576.8	1420.6	1280.9	1222.2	1191.7	1142.4	1123.6
20°	2792.0	2336.4	1852.7	1525.1	1459.4	1313.8	1177.6	1135.3	1104.8	1073.1	1056.7
22.5°	2750.9	2266.0	1755.2	1423.0	1360.8	1215.2	1098.9	1063.7	1040.2	1017.9	1003.8
25°	2681.6	2203.7	1660.1	1320.8	1271.5	1135.3	1036.7	1003.8	988.6	966.3	953.3
27.5°	2595.9	2121.6	1565.0	1237.5	1181.1	1060.2	975.7	954.5	938.1	920.5	907.6
30°	2487.9	2030.0	1472.3	1156.5	1104.8	998.0	925.2	906.4	891.1	873.5	858.2
32.5°	2350.5	1937.2	1385.4	1081.3	1037.9	945.1	878.2	862.9	850.0	828.9	820.7
35°	2196.7	1837.4	1299.7	1009.7	968.6	887.6	832.4	817.2	804.2	786.6	779.6
37.5°	2040.5	1718.8	1215.2	948.7	912.3	839.5	786.6	771.4	759.6	744.4	740.8
40°	1875.0	1609.7	1131.8	886.4	854.7	792.5	740.8	729.1	717.4	708.0	705.6
42.5°	1708.3	1484.0	1059.0	834.8	800.7	743.2	696.2	683.3	676.3	671.6	672.7
45°	1551.0	1358.4	983.9	774.9	751.4	698.6	655.1	644.6	638.7	635.2	639.9
47.5°	1380.7	1230.4	913.4	724.4	700.9	654.0	612.9	603.5	601.1	600.0	608.2
50°	1230.4	1097.8	837.1	672.7	652.8	604.6	571.8	563.6	561.2	564.7	576.5
52.5°	1088.4	974.5	767.8	624.6	604.6	561.2	530.7	524.8	523.6	531.9	543.6
55°	947.5	859.4	692.7	571.8	551.8	514.2	490.8	484.9	483.7	500.2	510.7
57.5°	827.7	747.9	622.3	521.3	506.0	470.8	449.7	445.0	448.5	463.8	474.3
60°	710.3	645.7	557.7	467.3	455.5	425.0	408.6	407.4	410.9	428.5	439.1
62.5°	604.6	555.3	488.4	418.0	409.8	382.7	367.5	369.8	373.4	391.0	400.4
65°	514.2	470.8	420.3	368.7	358.1	339.3	328.7	329.9	337.0	352.2	361.6
67.5°	426.2	391.0	362.8	321.7	313.5	297.0	288.8	293.5	297.0	312.3	321.7
70°	352.2	324.0	302.9	272.4	266.5	252.4	246.6	252.4	255.9	268.9	280.6
72.5°	283.0	265.3	248.9	226.6	220.7	211.3	210.2	212.5	218.4	231.3	236.0
75°	219.6	210.2	196.1	182.0	178.5	173.8	172.6	174.9	180.8	187.9	192.5
77.5°	166.7	158.5	147.9	142.1	137.4	135.0	136.2	139.7	142.1	149.1	152.6
80°	120.9	111.5	109.2	101.0	99.8	98.6	101.0	102.1	105.7	110.4	112.7
82.5°	79.8	72.8	70.4	69.3	68.1	66.9	70.4	71.6	74.0	77.5	78.7
85°	43.4	41.1	41.1	39.9	41.1	43.4	43.4	44.6	44.6	45.8	44.6
87.5°	20.0	17.6	18.8	18.8	18.8	20.0	20.0	21.1	21.1	21.1	20.0
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):

	160°	170°	180°
0°	2530.1	2530.1	2530.1
2.5°	2253.1	2244.8	2212.0
5°	1920.8	1892.6	1883.2
7.5°	1667.2	1664.8	1615.5
10°	1452.3	1455.9	1411.2
12.5°	1317.3	1288.0	1284.4
15°	1202.3	1175.2	1170.6
17.5°	1116.5	1100.1	1095.4
20°	1052.0	1042.6	1034.4
22.5°	1000.3	988.6	981.5
25°	948.7	938.1	935.7
27.5°	904.0	891.1	891.1
30°	858.2	850.0	846.5
32.5°	817.2	810.1	810.1
35°	777.2	773.7	769.0
37.5°	740.8	740.8	738.5
40°	705.6	709.1	709.1
42.5°	675.1	678.6	678.6
45°	642.2	648.1	650.4
47.5°	609.3	618.7	621.1
50°	580.0	587.0	588.2
52.5°	548.3	556.5	562.4
55°	515.4	523.6	527.2
57.5°	480.2	488.4	489.6
60°	441.5	449.7	452.0
62.5°	406.2	410.9	413.3
65°	362.8	369.8	374.5
67.5°	322.9	328.7	328.7
70°	279.4	281.8	285.3
72.5°	238.3	239.5	239.5
75°	193.7	196.1	197.2
77.5°	152.6	153.8	153.8
80°	112.7	111.5	111.5
82.5°	78.7	75.1	75.1
85°	44.6	43.4	44.6
87.5°	20.0	20.0	20.0
90°	0.0	0.0	0.0

(END OF REPORT)