

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: P646627

Luminaire Tested: S123DR-S1165D930-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2019
Report Number: P646627
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-S1165D930-X4F0-XX-UDD-G-W
Description: DEFINE 3 DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 3000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4183.9 lumens
Efficiency: N/A
Efficacy: 104.3 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

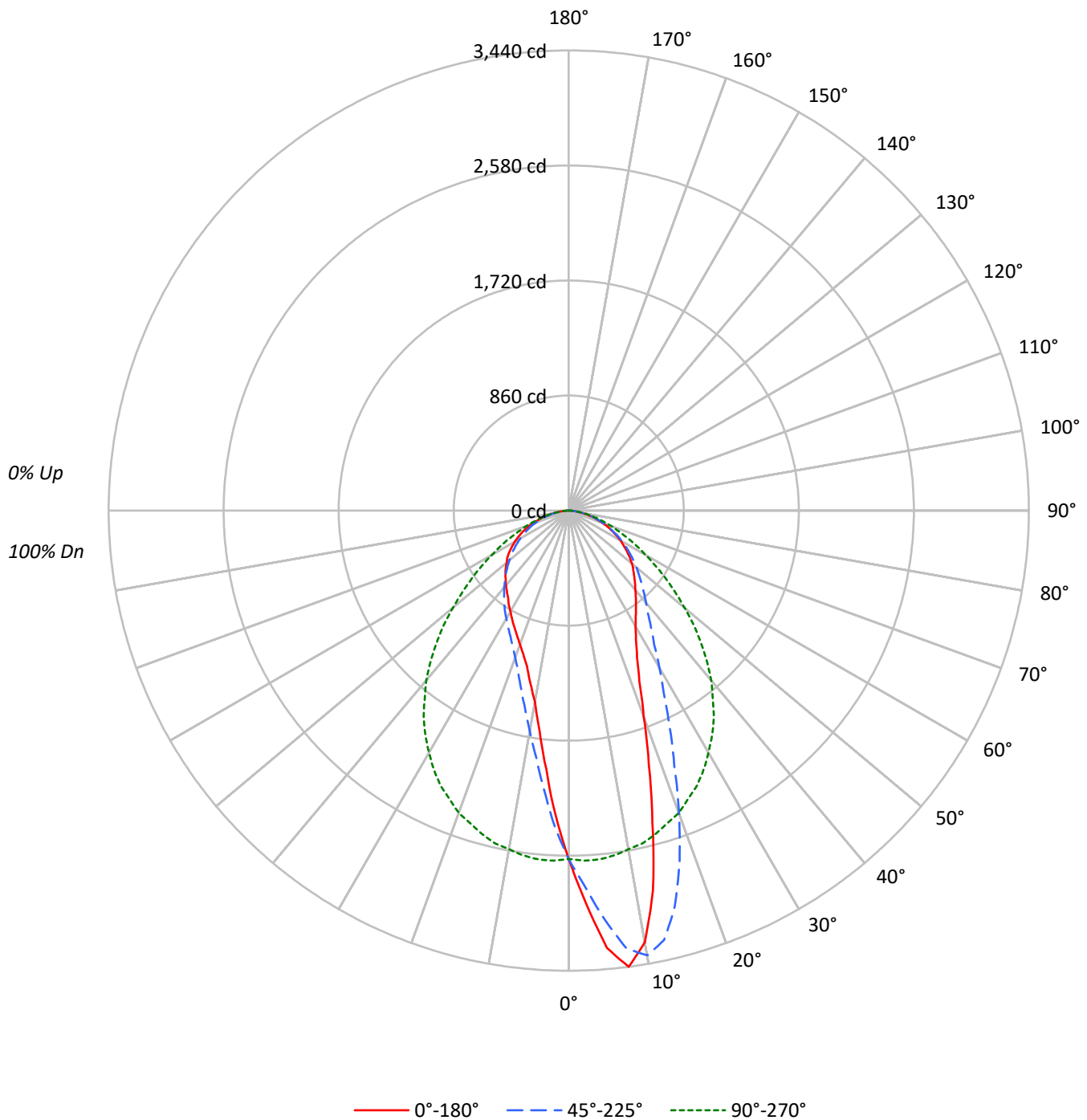
Input Watts (W): 40.1
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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					0
RW	70	50	30	10	70	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			
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°	31376	31376	31376	31376	31376
5°	39680	37108	31657	25387	23443
10°	40065	41307	31445	20506	17770
15°	30176	38225	31232	17183	15028
20°	21025	30910	30833	14983	13650
25°	16032	23711	30153	13735	12803
30°	13870	18845	29067	12978	12121
35°	12868	15783	27815	12371	11642
40°	12182	14122	26057	11803	11479
45°	11778	13116	23822	11304	11407
50°	11575	12391	21178	10872	11348
55°	11144	11701	18581	10483	11396
60°	10745	11066	16016	10104	11211
65°	10093	10369	13813	9679	10991
70°	9322	9621	11749	9153	10343
75°	8440	8720	10070	8380	9451
80°	6960	7459	7966	7293	7966
85°	5516	6014	5848	6346	6346

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°

Vertical Angle: 45°

Luminance: 27199 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	246.2	5.9
10°-20°	612.5	14.6
20°-30°	725.0	17.3
30°-40°	728.7	17.4
40°-50°	668.2	16.0
50°-60°	551.6	13.2
60°-70°	390.3	9.3
70°-80°	208.4	5.0
80°-90°	52.9	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°	1583.8	37.9
0°-40°	2312.4	55.3
0°-60°	3532.2	84.4
0°-90°	4183.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4183.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	2604	2604	2604	2604	2604	
5°	3281	3068	2617	2099	1938	313
15°	2419	3064	2504	1378	1205	668
25°	1206	1784	2268	1033	963	569
35°	875	1073	1891	841	792	550
45°	691	770	1398	663	669	535
55°	530	557	884	499	542	475
65°	354	364	484	340	386	352
75°	181	187	216	180	203	190
85°	40	44	42	46	46	47
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°	2604.0	2604.0	2604.0	2604.0	2604.0	2604.0	2604.0	2604.0	2604.0	2604.0	2604.0
2.5°	2935.0	2929.0	2898.8	2879.5	2884.3	2840.8	2814.2	2792.5	2778.0	2742.9	2724.8
5°	3280.6	3297.6	3278.2	3268.6	3219.0	3140.5	3068.0	3052.3	2984.6	2901.2	2872.2
7.5°	3440.1	3449.8	3437.7	3437.7	3422.0	3351.9	3301.2	3261.3	3145.3	3037.8	2988.2
10°	3274.6	3296.3	3343.5	3365.2	3396.6	3387.0	3376.1	3360.4	3281.8	3157.4	3100.6
12.5°	2910.9	2937.5	3031.7	3045.0	3152.5	3256.5	3290.3	3329.0	3336.2	3231.1	3169.5
15°	2419.1	2492.8	2578.6	2619.7	2756.2	2974.9	3064.3	3169.5	3293.9	3250.4	3202.1
17.5°	1992.5	2020.3	2112.2	2199.2	2335.7	2588.3	2753.8	2910.9	3177.9	3221.4	3191.2
20°	1639.7	1665.1	1785.9	1779.9	1961.1	2245.1	2410.6	2591.9	2985.8	3127.2	3121.1
22.5°	1377.5	1417.4	1485.0	1522.5	1653.0	1905.5	2062.6	2288.6	2767.1	2990.6	3014.8
25°	1205.9	1234.9	1276.0	1308.6	1410.1	1618.0	1783.5	1969.6	2491.6	2811.8	2872.2
27.5°	1088.7	1100.8	1141.9	1161.2	1228.9	1407.7	1535.8	1706.2	2236.6	2611.2	2695.8
30°	996.9	1005.3	1041.6	1047.6	1100.8	1230.1	1354.5	1493.5	1987.7	2404.6	2501.3
32.5°	932.8	938.9	966.7	969.1	1009.0	1103.2	1190.2	1320.7	1752.1	2183.5	2303.1
35°	874.8	878.5	899.0	905.0	930.4	1001.7	1073.0	1173.3	1564.8	1984.1	2115.8
37.5°	824.1	828.9	841.0	848.3	868.8	925.6	973.9	1057.3	1384.8	1776.3	1922.5
40°	774.5	783.0	791.5	791.5	814.4	857.9	897.8	966.7	1230.1	1595.0	1724.3
42.5°	732.3	740.7	744.3	745.5	757.6	797.5	831.3	878.5	1112.9	1434.3	1561.2
45°	691.2	694.8	698.4	700.8	709.3	744.3	769.7	814.4	1001.7	1285.7	1408.9
47.5°	653.7	653.7	656.1	659.8	665.8	691.2	712.9	745.5	906.3	1152.8	1254.3
50°	617.5	617.5	613.8	616.3	619.9	639.2	661.0	687.5	816.8	1030.7	1121.3
52.5°	574.0	574.0	575.2	571.5	575.2	592.1	609.0	635.6	740.7	918.3	995.7
55°	530.5	535.3	531.7	529.3	534.1	545.0	557.0	580.0	669.4	828.9	890.5
57.5°	487.0	489.4	488.2	491.8	489.4	499.0	509.9	525.6	605.4	728.6	786.6
60°	445.9	445.9	443.5	445.9	445.9	450.7	459.2	474.9	540.1	642.8	691.2
62.5°	400.0	401.2	402.4	401.2	400.0	406.0	413.3	424.1	483.3	559.5	595.7
65°	354.0	355.3	358.9	357.7	356.5	362.5	363.7	375.8	420.5	485.8	512.3
67.5°	313.0	310.5	311.8	314.2	315.4	316.6	319.0	331.1	362.5	415.7	437.4
70°	264.6	267.0	265.8	269.5	267.0	270.7	273.1	281.5	311.8	346.8	361.3
72.5°	221.1	222.3	222.3	226.0	224.8	228.4	230.8	234.4	256.2	287.6	293.6
75°	181.3	181.3	183.7	184.9	184.9	184.9	187.3	189.7	207.8	227.2	233.2
77.5°	137.8	143.8	142.6	143.8	145.0	148.6	146.2	151.0	161.9	172.8	176.4
80°	100.3	100.3	101.5	102.7	105.1	107.5	107.5	112.4	117.2	123.3	126.9
82.5°	64.0	65.3	68.9	70.1	71.3	74.9	74.9	74.9	81.0	83.4	83.4
85°	39.9	37.5	39.9	41.1	42.3	43.5	43.5	45.9	47.1	48.3	48.3
87.5°	19.3	19.3	19.3	19.3	20.5	20.5	20.5	20.5	21.8	21.8	21.8
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°	2604.0	2604.0	2604.0	2604.0	2604.0	2604.0	2604.0	2604.0	2604.0	2604.0	2604.0
2.5°	2664.4	2619.7	2553.2	2498.8	2501.3	2451.7	2415.5	2368.3	2353.8	2339.3	2320.0
5°	2720.0	2617.3	2479.5	2369.5	2335.7	2253.5	2149.6	2098.9	2068.7	2015.5	1995.0
7.5°	2788.8	2600.3	2390.1	2218.5	2181.0	2044.5	1921.3	1860.8	1804.0	1766.6	1720.7
10°	2833.5	2570.1	2299.5	2072.3	2036.0	1880.2	1719.5	1676.0	1604.7	1558.8	1515.3
12.5°	2867.4	2547.2	2206.4	1941.8	1882.6	1731.5	1569.6	1510.4	1458.5	1392.0	1360.6
15°	2897.6	2503.7	2111.0	1805.3	1743.6	1580.5	1430.7	1377.5	1330.4	1272.4	1244.6
17.5°	2886.7	2450.5	2005.8	1684.4	1622.8	1462.1	1318.3	1257.9	1226.5	1175.7	1156.4
20°	2873.4	2404.6	1906.8	1569.6	1502.0	1352.1	1212.0	1168.5	1137.0	1104.4	1087.5
22.5°	2831.1	2332.1	1806.5	1464.5	1400.5	1250.6	1131.0	1094.8	1070.6	1047.6	1033.1
25°	2759.8	2268.0	1708.6	1359.4	1308.6	1168.5	1067.0	1033.1	1017.4	994.5	981.2
27.5°	2671.6	2183.5	1610.7	1273.6	1215.6	1091.1	1004.1	982.4	965.5	947.3	934.0
30°	2560.5	2089.2	1515.3	1190.2	1137.0	1027.1	952.2	932.8	917.1	899.0	883.3
32.5°	2419.1	1993.8	1425.8	1112.9	1068.2	972.7	903.8	888.1	874.8	853.1	844.6
35°	2260.8	1891.0	1337.6	1039.2	996.9	913.5	856.7	841.0	827.7	809.6	802.3
37.5°	2100.1	1769.0	1250.6	976.3	938.9	864.0	809.6	793.9	781.8	766.1	762.5
40°	1929.7	1656.6	1164.8	912.3	879.7	815.6	762.5	750.4	738.3	728.6	726.2
42.5°	1758.1	1527.3	1089.9	859.1	824.1	764.9	716.5	703.3	696.0	691.2	692.4
45°	1596.2	1398.0	1012.6	797.5	773.3	719.0	674.3	663.4	657.3	653.7	658.5
47.5°	1421.0	1266.3	940.1	745.5	721.4	673.0	630.8	621.1	618.7	617.5	625.9
50°	1266.3	1129.8	861.5	692.4	671.8	622.3	588.5	580.0	577.6	581.2	593.3
52.5°	1120.1	1002.9	790.3	642.8	622.3	577.6	546.2	540.1	538.9	547.4	559.5
55°	975.1	884.5	712.9	588.5	567.9	529.3	505.1	499.0	497.8	514.8	525.6
57.5°	851.9	769.7	640.4	536.5	520.8	484.5	462.8	458.0	461.6	477.3	488.2
60°	731.0	664.6	574.0	480.9	468.8	437.4	420.5	419.3	422.9	441.0	451.9
62.5°	622.3	571.5	502.7	430.2	421.7	393.9	378.2	380.6	384.3	402.4	412.0
65°	529.3	484.5	432.6	379.4	368.5	349.2	338.3	339.5	346.8	362.5	372.2
67.5°	438.6	402.4	373.4	331.1	322.6	305.7	297.3	302.1	305.7	321.4	331.1
70°	362.5	333.5	311.8	280.3	274.3	259.8	253.8	259.8	263.4	276.7	288.8
72.5°	291.2	273.1	256.2	233.2	227.2	217.5	216.3	218.7	224.8	238.0	242.9
75°	226.0	216.3	201.8	187.3	183.7	178.8	177.6	180.0	186.1	193.3	198.2
77.5°	171.6	163.1	152.3	146.2	141.4	139.0	140.2	143.8	146.2	153.5	157.1
80°	124.5	114.8	112.4	103.9	102.7	101.5	103.9	105.1	108.8	113.6	116.0
82.5°	82.2	74.9	72.5	71.3	70.1	68.9	72.5	73.7	76.1	79.8	81.0
85°	44.7	42.3	42.3	41.1	42.3	44.7	44.7	45.9	45.9	47.1	45.9
87.5°	20.5	18.1	19.3	19.3	19.3	20.5	20.5	21.8	21.8	21.8	20.5
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°	2604.0	2604.0	2604.0
2.5°	2318.8	2310.3	2276.5
5°	1976.8	1947.8	1938.2
7.5°	1715.8	1713.4	1662.7
10°	1494.7	1498.3	1452.4
12.5°	1355.8	1325.5	1321.9
15°	1237.3	1209.5	1204.7
17.5°	1149.1	1132.2	1127.4
20°	1082.7	1073.0	1064.5
22.5°	1029.5	1017.4	1010.2
25°	976.3	965.5	963.0
27.5°	930.4	917.1	917.1
30°	883.3	874.8	871.2
32.5°	841.0	833.8	833.8
35°	799.9	796.3	791.5
37.5°	762.5	762.5	760.0
40°	726.2	729.8	729.8
42.5°	694.8	698.4	698.4
45°	661.0	667.0	669.4
47.5°	627.1	636.8	639.2
50°	596.9	604.2	605.4
52.5°	564.3	572.8	578.8
55°	530.5	538.9	542.5
57.5°	494.2	502.7	503.9
60°	454.3	462.8	465.2
62.5°	418.1	422.9	425.3
65°	373.4	380.6	385.5
67.5°	332.3	338.3	338.3
70°	287.6	290.0	293.6
72.5°	245.3	246.5	246.5
75°	199.4	201.8	203.0
77.5°	157.1	158.3	158.3
80°	116.0	114.8	114.8
82.5°	81.0	77.3	77.3
85°	45.9	44.7	45.9
87.5°	20.5	20.5	20.5
90°	0.0	0.0	0.0

(END OF REPORT)