

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: P646701

Luminaire Tested: S123RDR-S775D940-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P646701  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2301-905-2)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/20/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S123RDR-S775D940-X4F0-XX-UDD-G-W  
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC STANDARD LIGHT ENGINE  
Light Source: 4000K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

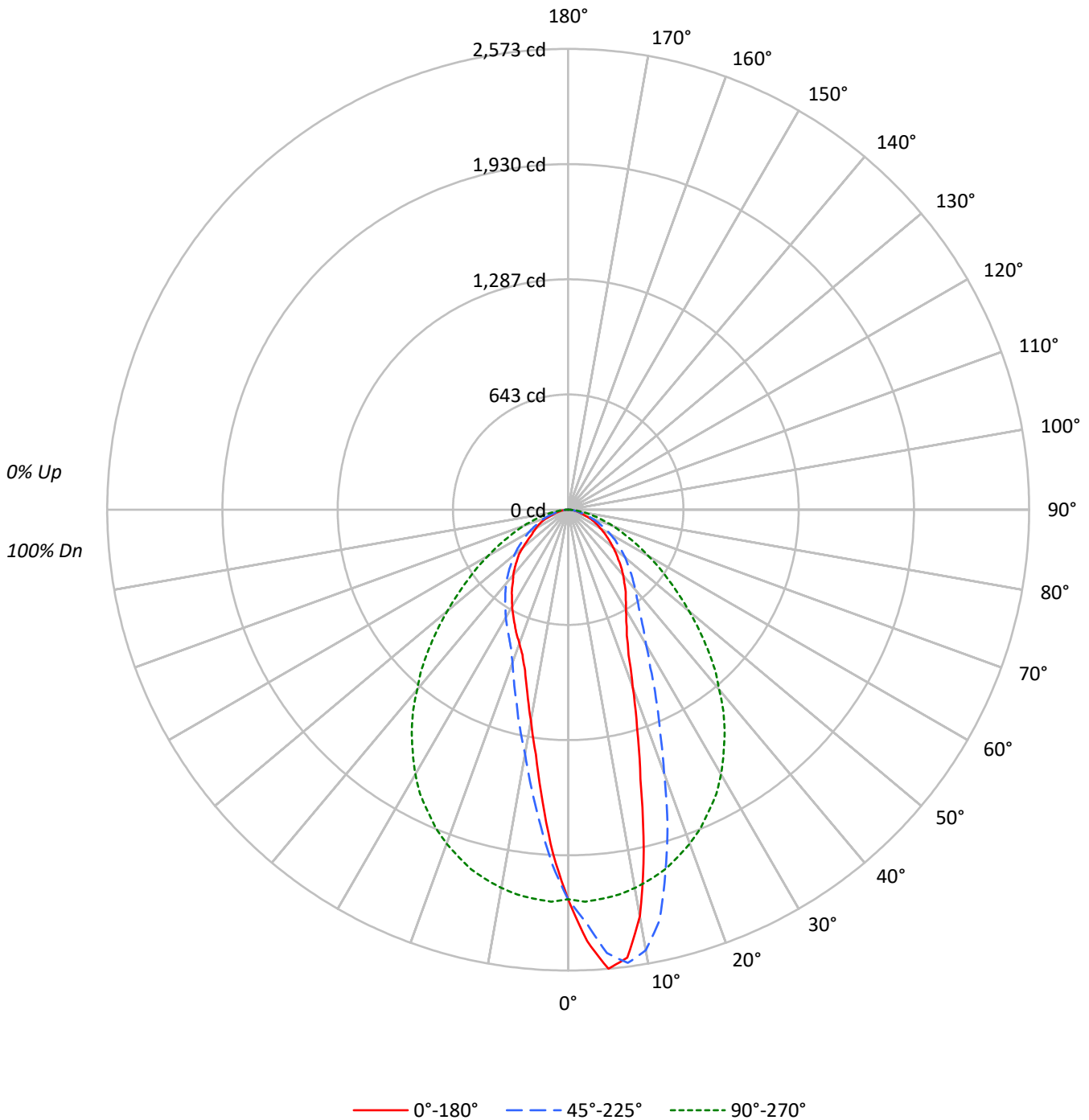
Lumens per Lamp: N/A  
Luminaire Lumens: 2881.4 lumens  
Efficiency: N/A  
Efficacy: 110.8 lumens/watt  
Spacing Criteria (0/90/45): 0.55 / 1.17 / 0.79  
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')  
CIE Type: Direct

Input Watts (W): 26  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): 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	0
RW	70	50	30	10	70	50	30	10	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				100
1	111	107	103	100	108	104	101	98	100	97	95	96	94	92	93	91	89				87	
2	102	95	89	84	100	93	88	83	90	85	81	87	83	80	84	81	78				76	
3	94	85	78	73	92	84	77	72	81	75	71	78	74	70	76	72	69				67	
4	88	77	69	64	85	76	69	63	73	67	62	71	66	62	69	65	61				59	
5	82	70	62	56	80	69	62	56	67	61	56	65	60	55	63	58	54				53	
6	76	64	56	51	74	63	56	50	62	55	50	60	54	50	59	53	49				47	
7	71	59	51	46	70	58	51	46	57	50	45	56	50	45	54	49	45				43	
8	67	55	47	42	65	54	47	42	53	46	41	52	46	41	51	45	41				39	
9	63	51	43	38	62	50	43	38	49	43	38	48	42	38	47	42	38				36	
10	60	47	40	36	58	47	40	35	46	40	35	45	39	35	44	39	35				33	

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°	135°	180°
0°	26206	26206	26206	26206	26206
5°	31116	30059	26370	21388	19791
10°	28192	30548	26239	16932	14653
15°	19410	26162	25963	13904	11591
20°	13503	20067	25441	11652	10187
25°	10290	15399	24682	10408	9389
30°	8957	12109	23733	9677	8697
35°	8224	10192	22391	9024	8067
40°	7504	9145	20632	8472	7490
45°	6777	8372	18736	7871	6913
50°	6150	7772	16498	7322	6201
55°	5563	7136	14350	6687	5319
60°	4986	6490	12464	6123	5029
65°	4602	5771	10729	5440	4753
70°	3738	4932	9360	4932	3865
75°	3277	3985	7928	4111	3403
80°	2970	3345	6495	3462	3220
85°	2710	2834	4935	3083	2959

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 80°

Vertical Angle: 45°

Luminance: 19768 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	198.2	6.9
10°-20°	458.6	15.9
20°-30°	526.1	18.3
30°-40°	518.3	18.0
40°-50°	456.8	15.9
50°-60°	351.6	12.2
60°-70°	231.2	8.0
70°-80°	112.3	3.9
80°-90°	28.3	1.0
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°	1183.0	41.1
0°-40°	1701.3	59.0
0°-60°	2509.6	87.1
0°-90°	2881.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2881.4	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	2175	2175	2175	2175	2175	
5°	2573	2485	2180	1768	1636	235
15°	1556	2097	2081	1115	929	439
25°	774	1158	1856	783	706	366
35°	559	693	1522	614	548	349
45°	398	491	1100	462	406	309
55°	265	340	683	318	253	238
65°	161	202	376	191	167	158
75°	70	86	170	88	73	76
85°	20	20	36	22	21	22
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°	2174.9	2174.9	2174.9	2174.9	2174.9	2174.9	2174.9	2174.9	2174.9	2174.9	2174.9
2.5°	2410.3	2395.1	2390.7	2385.3	2376.4	2344.3	2307.7	2311.3	2306.9	2279.2	2264.1
5°	2572.6	2574.4	2569.9	2566.3	2551.2	2511.9	2485.2	2469.1	2435.3	2383.5	2367.5
7.5°	2522.7	2551.2	2556.5	2562.8	2570.8	2561.9	2552.1	2545.8	2518.2	2462.0	2436.2
10°	2304.2	2302.4	2334.5	2360.4	2429.9	2479.0	2496.8	2522.7	2545.8	2506.6	2478.1
12.5°	1947.5	1950.2	2055.4	2055.4	2145.5	2270.3	2350.6	2404.9	2504.8	2507.5	2490.5
15°	1556.0	1599.7	1693.4	1713.0	1828.9	1996.5	2097.3	2209.7	2403.2	2463.8	2460.2
17.5°	1277.8	1296.5	1386.6	1412.5	1515.0	1705.0	1844.1	1979.6	2250.7	2378.2	2401.4
20°	1053.1	1070.1	1135.1	1154.8	1258.2	1439.2	1565.0	1711.2	2066.1	2261.4	2302.4
22.5°	879.2	912.2	955.9	986.2	1045.1	1229.7	1337.6	1477.6	1852.1	2130.3	2178.4
25°	774.0	789.2	826.6	840.9	912.2	1034.4	1158.3	1281.4	1662.1	1966.2	2050.9
27.5°	702.7	707.1	734.8	747.3	790.1	903.3	992.5	1106.6	1468.6	1797.7	1896.7
30°	643.8	651.8	673.2	675.9	713.4	793.6	870.3	975.5	1299.2	1634.5	1736.2
32.5°	598.3	602.8	620.6	626.0	650.1	713.4	775.8	852.5	1142.3	1464.2	1581.0
35°	559.1	560.0	573.4	580.5	601.9	654.5	692.9	757.1	1016.6	1323.3	1425.8
37.5°	514.5	520.8	530.6	536.8	555.5	598.3	633.1	683.1	900.6	1189.5	1285.0
40°	477.1	482.4	494.0	496.7	513.6	552.9	581.4	626.0	800.8	1061.1	1158.3
42.5°	439.6	443.2	454.8	460.1	478.8	510.1	535.9	570.7	721.4	947.0	1042.4
45°	397.7	406.6	419.1	421.8	439.6	471.7	491.3	523.4	650.1	848.0	932.7
47.5°	362.9	367.4	378.1	382.5	403.1	431.6	452.1	479.7	588.5	758.0	840.9
50°	328.1	329.9	339.7	346.0	362.0	395.0	414.6	439.6	532.4	684.8	742.8
52.5°	295.2	299.6	309.4	313.9	324.6	358.5	376.3	402.2	478.8	609.9	667.9
55°	264.8	267.5	274.6	280.0	292.5	321.9	339.7	362.0	432.5	541.3	592.1
57.5°	236.3	239.9	245.2	249.7	261.3	287.1	305.0	327.3	388.8	478.8	518.1
60°	206.9	211.3	217.6	219.4	230.1	253.2	269.3	288.9	344.2	420.9	455.7
62.5°	185.5	186.4	191.7	194.4	200.6	219.4	236.3	255.0	304.1	364.7	393.2
65°	161.4	164.1	166.7	168.5	173.9	189.9	202.4	216.7	264.8	317.4	337.1
67.5°	136.4	139.1	143.6	145.3	149.8	160.5	171.2	185.5	225.6	270.2	288.0
70°	106.1	106.1	113.2	116.8	123.9	132.0	140.0	152.5	187.3	225.6	239.0
72.5°	86.5	87.4	88.3	88.3	94.5	107.9	112.4	120.4	148.0	184.6	196.2
75°	70.4	71.3	72.2	73.1	74.0	78.5	85.6	92.7	113.2	140.0	150.7
77.5°	56.2	57.1	58.0	58.0	59.7	61.5	63.3	66.9	81.1	100.8	109.7
80°	42.8	43.7	44.6	44.6	45.5	47.3	48.2	49.9	54.4	67.8	72.2
82.5°	31.2	31.2	31.2	32.1	33.0	33.0	34.8	34.8	37.5	41.0	43.7
85°	19.6	19.6	20.5	20.5	20.5	21.4	20.5	21.4	22.3	23.2	25.0
87.5°	8.9	8.0	8.9	8.9	8.9	9.8	9.8	9.8	9.8	10.7	10.7
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°	2174.9	2174.9	2174.9	2174.9	2174.9	2174.9	2174.9	2174.9	2174.9	2174.9	2174.9
2.5°	2222.1	2190.9	2138.3	2105.3	2092.8	2054.5	2017.9	1987.6	1972.5	1970.7	1943.0
5°	2265.8	2180.2	2071.4	1980.5	1959.1	1892.2	1805.7	1768.3	1719.2	1699.6	1676.4
7.5°	2301.5	2167.7	2007.2	1869.9	1829.8	1729.0	1618.5	1569.4	1532.0	1473.1	1438.3
10°	2326.5	2144.6	1928.8	1751.3	1694.3	1576.5	1442.8	1383.9	1349.2	1281.4	1253.7
12.5°	2336.3	2115.1	1850.3	1628.3	1578.3	1438.3	1307.2	1246.6	1194.9	1133.4	1106.6
15°	2332.7	2081.3	1770.0	1515.0	1452.6	1310.8	1171.7	1114.6	1066.5	1005.0	970.2
17.5°	2308.6	2033.1	1682.7	1405.3	1345.6	1199.4	1058.5	1005.8	963.0	903.3	876.6
20°	2268.5	1984.1	1606.0	1305.5	1237.7	1097.7	964.8	908.7	871.2	839.1	819.5
22.5°	2213.2	1926.1	1512.3	1206.5	1147.6	1006.7	879.2	833.7	811.5	785.6	771.3
25°	2129.4	1856.5	1427.6	1123.6	1064.7	924.7	813.2	782.9	760.6	743.7	728.5
27.5°	2039.3	1789.7	1342.9	1039.7	984.4	850.7	761.5	738.3	718.7	697.3	683.9
30°	1935.0	1705.8	1262.7	965.7	912.2	790.9	716.9	695.5	679.5	656.3	642.9
32.5°	1812.0	1614.0	1187.8	894.4	844.5	739.2	675.9	652.7	639.4	617.1	603.7
35°	1684.4	1522.2	1105.7	828.4	782.9	693.8	635.8	613.5	599.2	576.9	563.6
37.5°	1559.6	1424.1	1032.6	770.4	729.4	648.3	593.9	575.2	561.8	538.6	522.5
40°	1427.6	1311.7	961.3	716.0	677.7	608.1	555.5	538.6	520.8	500.2	484.2
42.5°	1289.4	1212.7	895.3	667.9	632.2	568.9	517.2	499.4	484.2	460.1	453.0
45°	1160.1	1099.5	825.7	617.1	588.5	529.7	479.7	461.9	445.0	424.5	417.3
47.5°	1045.1	988.9	762.4	572.5	543.9	491.3	442.3	423.6	411.1	395.0	384.3
50°	926.5	880.1	692.9	528.8	502.0	450.3	403.1	390.6	376.3	356.7	348.7
52.5°	815.9	780.2	635.8	486.9	461.9	415.5	367.4	354.9	341.5	324.6	313.0
55°	718.7	683.1	570.7	439.6	420.9	377.2	334.4	318.3	307.6	288.0	273.8
57.5°	618.8	601.9	508.3	400.4	382.5	338.9	300.5	288.0	274.6	253.2	239.0
60°	536.8	517.2	450.3	357.6	340.6	304.1	266.6	254.1	241.7	221.1	214.9
62.5°	459.2	445.0	394.1	317.4	303.2	267.5	234.5	222.9	210.4	197.1	192.6
65°	388.8	376.3	338.0	276.4	264.8	233.6	203.3	190.8	182.8	176.6	172.1
67.5°	322.8	315.7	286.2	238.1	229.2	201.5	174.8	165.0	160.5	153.4	149.8
70°	263.1	265.7	239.0	203.3	193.5	171.2	148.0	140.0	134.6	128.4	121.3
72.5°	214.9	214.0	198.0	165.9	158.7	140.9	123.1	117.7	111.5	99.0	91.0
75°	166.7	170.3	155.2	137.3	130.2	112.4	95.4	88.3	82.0	77.6	74.9
77.5°	127.5	129.3	122.2	105.2	99.0	83.8	70.4	66.9	64.2	61.5	60.6
80°	91.0	93.6	86.5	75.8	70.4	58.0	50.8	49.9	49.0	47.3	46.4
82.5°	58.9	62.4	58.9	47.3	44.6	38.3	36.6	36.6	35.7	34.8	33.9
85°	32.1	35.7	33.9	27.6	25.9	24.1	23.2	22.3	22.3	22.3	22.3
87.5°	12.5	16.9	14.3	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6
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°	2174.9	2174.9	2174.9
2.5°	1936.8	1927.9	1924.3
5°	1670.2	1642.5	1636.3
7.5°	1427.6	1416.0	1377.7
10°	1249.3	1213.6	1197.6
12.5°	1088.8	1055.8	1050.4
15°	960.4	937.2	929.2
17.5°	875.7	859.6	849.8
20°	813.2	801.6	794.5
22.5°	766.0	757.1	751.7
25°	724.1	710.7	706.2
27.5°	681.3	669.7	665.2
30°	641.1	631.3	625.1
32.5°	599.2	587.6	584.1
35°	559.1	552.0	548.4
37.5°	519.9	511.0	505.6
40°	483.3	478.8	476.2
42.5°	450.3	442.3	441.4
45°	415.5	407.5	405.7
47.5°	382.5	375.4	374.5
50°	347.8	338.0	330.8
52.5°	305.9	296.9	290.7
55°	268.4	258.6	253.2
57.5°	237.2	232.7	230.1
60°	213.1	210.4	208.7
62.5°	191.7	189.0	189.0
65°	172.1	169.4	166.7
67.5°	148.0	142.7	141.8
70°	118.6	110.6	109.7
72.5°	90.1	89.2	87.4
75°	74.9	73.1	73.1
77.5°	60.6	58.9	58.9
80°	46.4	45.5	46.4
82.5°	33.9	33.9	33.0
85°	22.3	21.4	21.4
87.5°	10.7	10.7	10.7
90°	0.0	0.0	0.0

(END OF REPORT)