

Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



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: P646664

Luminaire Tested: S123RDR-S1000D935-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P646664  
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-S1000D935-X4F0-XX-UDD-G-W  
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC  
STANDARD LIGHT ENGINE  
Light Source: 3500K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

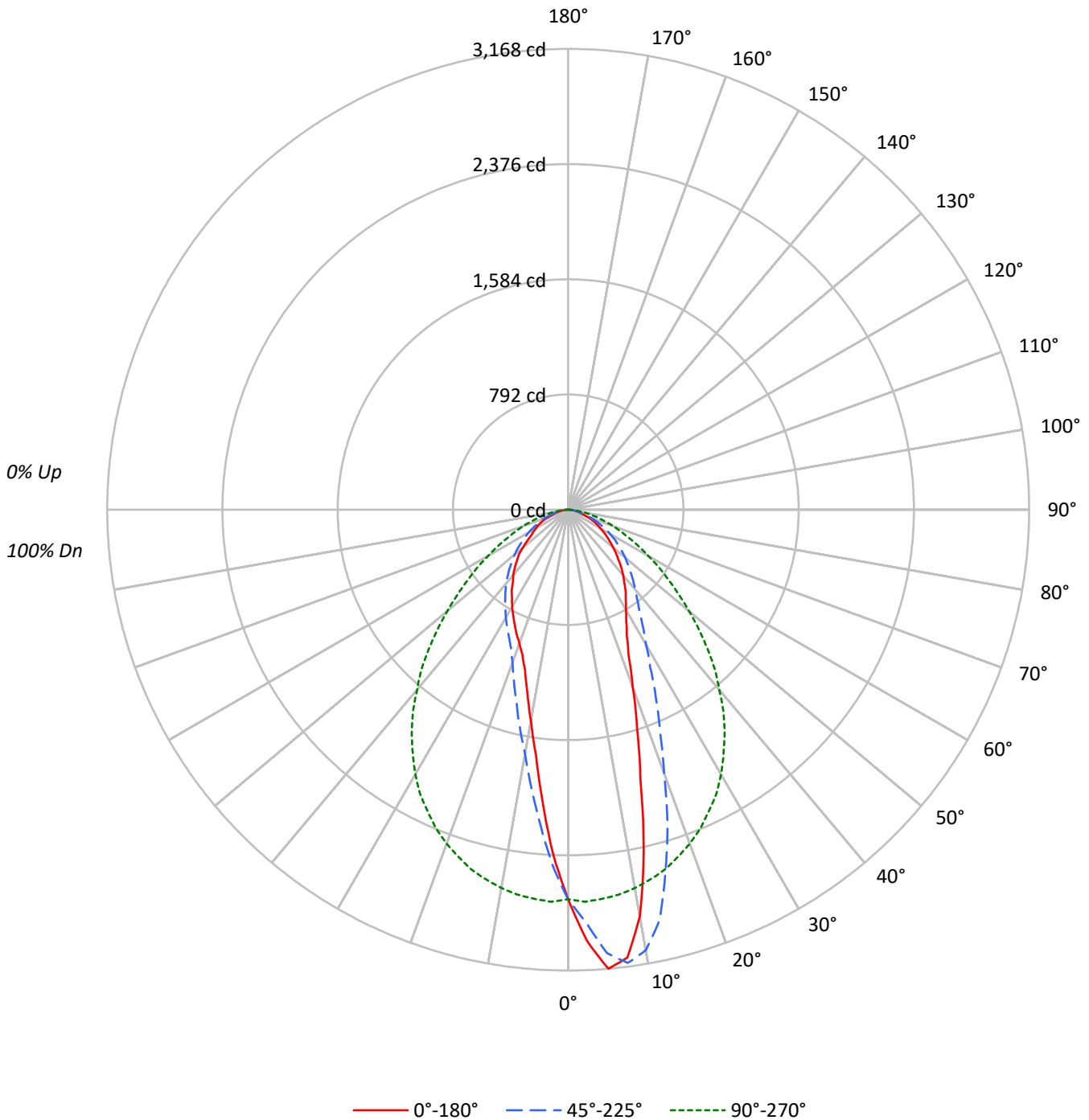
Lumens per Lamp: N/A  
Luminaire Lumens: 3547.9 lumens  
Efficiency: N/A  
Efficacy: 102.8 lumens/watt  
Spacing Criteria (0/90/45): 0.55 / 1.17 / 0.79  
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')  
CIE Type: Direct

Input Watts (W): 34.5  
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	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°	32268	32268	32268	32268	32268
5°	38314	37013	32471	26335	24369
10°	34713	37615	32309	20850	18042
15°	23901	32215	31968	17121	14272
20°	16627	24709	31325	14346	12544
25°	12671	18962	30392	12816	11561
30°	11029	14909	29223	11915	10709
35°	10126	12549	27570	11111	9933
40°	9239	11260	25404	10432	9222
45°	8345	10309	23069	9692	8513
50°	7575	9571	20314	9015	7637
55°	6850	8787	17669	8235	6550
60°	6138	7991	15346	7540	6191
65°	5665	7105	13209	6700	5853
70°	4604	6074	11527	6074	4759
75°	4036	4907	9762	5060	4190
80°	3657	4115	8000	4267	3962
85°	3346	3498	6069	3788	3650

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 80°  
 Vertical Angle: 45°  
 Luminance: 24342 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	244.1	6.9
10°-20°	564.7	15.9
20°-30°	647.9	18.3
30°-40°	638.2	18.0
40°-50°	562.5	15.9
50°-60°	432.9	12.2
60°-70°	284.7	8.0
70°-80°	138.2	3.9
80°-90°	34.9	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°	1456.6	41.1
0°-40°	2094.8	59.0
0°-60°	3090.2	87.1
0°-90°	3547.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3547.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	2678	2678	2678	2678	2678	
5°	3168	3060	2685	2177	2015	289
15°	1916	2582	2563	1372	1144	541
25°	953	1426	2286	964	870	450
35°	688	853	1874	755	675	429
45°	490	605	1354	569	500	380
55°	326	418	841	392	312	293
65°	199	249	463	235	205	195
75°	87	105	210	109	90	93
85°	24	25	44	27	26	27
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°	2678.0	2678.0	2678.0	2678.0	2678.0	2678.0	2678.0	2678.0	2678.0	2678.0	2678.0
2.5°	2967.9	2949.2	2943.7	2937.1	2926.1	2886.6	2841.6	2846.0	2840.5	2806.4	2787.8
5°	3167.7	3169.9	3164.4	3160.0	3141.3	3093.0	3060.1	3040.3	2998.6	2934.9	2915.2
7.5°	3106.2	3141.3	3147.9	3155.6	3165.5	3154.5	3142.4	3134.7	3100.7	3031.5	2999.7
10°	2837.2	2835.0	2874.5	2906.4	2992.0	3052.4	3074.4	3106.2	3134.7	3086.4	3051.3
12.5°	2398.0	2401.3	2530.9	2530.9	2641.8	2795.5	2894.3	2961.3	3084.2	3087.5	3066.7
15°	1916.0	1969.8	2085.1	2109.2	2252.0	2458.4	2582.5	2720.8	2959.1	3033.7	3029.3
17.5°	1573.4	1596.5	1707.4	1739.2	1865.5	2099.3	2270.6	2437.5	2771.3	2928.3	2956.9
20°	1296.7	1317.6	1397.7	1421.9	1549.3	1772.1	1927.0	2107.0	2544.0	2784.5	2835.0
22.5°	1082.6	1123.2	1177.0	1214.4	1286.8	1514.1	1647.0	1819.4	2280.5	2623.1	2682.4
25°	953.1	971.7	1017.8	1035.4	1123.2	1273.7	1426.3	1577.8	2046.6	2421.1	2525.4
27.5°	865.2	870.7	904.7	920.1	972.8	1112.3	1222.1	1362.6	1808.4	2213.5	2335.4
30°	792.7	802.6	829.0	832.3	878.4	977.2	1071.6	1201.2	1599.8	2012.6	2137.8
32.5°	736.7	742.2	764.2	770.8	800.4	878.4	955.2	1049.7	1406.5	1802.9	1946.7
35°	688.4	689.5	706.0	714.8	741.1	805.9	853.1	932.2	1251.7	1629.4	1755.7
37.5°	633.5	641.2	653.3	661.0	684.0	736.7	779.6	841.1	1109.0	1464.7	1582.2
40°	587.4	594.0	608.3	611.6	632.4	680.8	715.9	770.8	986.0	1306.6	1426.3
42.5°	541.3	545.7	560.0	566.6	589.6	628.0	659.9	702.7	888.3	1166.1	1283.5
45°	489.7	500.7	516.1	519.3	541.3	580.8	605.0	644.5	800.4	1044.2	1148.5
47.5°	446.9	452.4	465.5	471.0	496.3	531.4	556.7	590.7	724.7	933.3	1035.4
50°	404.1	406.3	418.3	426.0	445.8	486.4	510.6	541.3	655.5	843.3	914.6
52.5°	363.4	368.9	381.0	386.5	399.7	441.4	463.3	495.2	589.6	751.0	822.4
55°	326.1	329.4	338.2	344.8	360.1	396.4	418.3	445.8	532.5	666.5	729.1
57.5°	291.0	295.4	301.9	307.4	321.7	353.6	375.5	403.0	478.7	589.6	637.9
60°	254.7	260.2	267.9	270.1	283.3	311.8	331.6	355.7	423.8	518.2	561.1
62.5°	228.4	229.5	236.1	239.4	247.0	270.1	291.0	314.0	374.4	449.1	484.2
65°	198.7	202.0	205.3	207.5	214.1	233.9	249.2	266.8	326.1	390.9	415.0
67.5°	168.0	171.3	176.8	179.0	184.5	197.6	210.8	228.4	277.8	332.7	354.6
70°	130.7	130.7	139.4	143.8	152.6	162.5	172.4	187.8	230.6	277.8	294.3
72.5°	106.5	107.6	108.7	108.7	116.4	132.9	138.3	148.2	182.3	227.3	241.6
75°	86.7	87.8	88.9	90.0	91.1	96.6	105.4	114.2	139.4	172.4	185.6
77.5°	69.2	70.3	71.4	71.4	73.6	75.8	78.0	82.3	99.9	124.1	135.1
80°	52.7	53.8	54.9	54.9	56.0	58.2	59.3	61.5	67.0	83.4	88.9
82.5°	38.4	38.4	38.4	39.5	40.6	40.6	42.8	42.8	46.1	50.5	53.8
85°	24.2	24.2	25.3	25.3	25.3	26.4	25.3	26.4	27.4	28.5	30.7
87.5°	11.0	9.9	11.0	11.0	11.0	12.1	12.1	12.1	12.1	13.2	13.2
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):**

	80°	90°	100°	110°	112.5°	120°	130°	135°	140°	150°	157.5°
0°	2678.0	2678.0	2678.0	2678.0	2678.0	2678.0	2678.0	2678.0	2678.0	2678.0	2678.0
2.5°	2736.2	2697.7	2633.0	2592.3	2577.0	2529.8	2484.7	2447.4	2428.7	2426.5	2392.5
5°	2790.0	2684.6	2550.6	2438.6	2412.3	2329.9	2223.4	2177.3	2116.9	2092.8	2064.2
7.5°	2833.9	2669.2	2471.6	2302.5	2253.1	2129.0	1992.8	1932.5	1886.3	1813.9	1771.0
10°	2864.6	2640.7	2374.9	2156.4	2086.2	1941.2	1776.5	1704.1	1661.3	1577.8	1543.8
12.5°	2876.7	2604.4	2278.3	2004.9	1943.4	1771.0	1609.6	1535.0	1471.3	1395.5	1362.6
15°	2872.3	2562.7	2179.5	1865.5	1788.6	1614.0	1442.8	1372.5	1313.2	1237.4	1194.6
17.5°	2842.7	2503.4	2071.9	1730.4	1656.9	1476.8	1303.3	1238.5	1185.8	1112.3	1079.3
20°	2793.3	2443.0	1977.5	1607.5	1524.0	1351.6	1188.0	1118.8	1072.7	1033.2	1009.0
22.5°	2725.2	2371.6	1862.2	1485.6	1413.1	1239.6	1082.6	1026.6	999.2	967.3	949.8
25°	2622.0	2286.0	1757.9	1383.5	1311.0	1138.6	1001.4	964.0	936.6	915.7	897.1
27.5°	2511.1	2203.7	1653.6	1280.3	1212.2	1047.5	937.7	909.1	885.0	858.6	842.2
30°	2382.6	2100.4	1554.7	1189.1	1123.2	973.9	882.8	856.4	836.7	808.1	791.6
32.5°	2231.1	1987.4	1462.5	1101.3	1039.8	910.2	832.3	803.7	787.3	759.8	743.3
35°	2074.1	1874.3	1361.5	1020.0	964.0	854.2	782.9	755.4	737.8	710.4	693.9
37.5°	1920.4	1753.5	1271.5	948.7	898.2	798.2	731.3	708.2	691.7	663.2	643.4
40°	1757.9	1615.1	1183.6	881.7	834.5	748.8	684.0	663.2	641.2	616.0	596.2
42.5°	1587.7	1493.3	1102.4	822.4	778.5	700.5	636.8	614.9	596.2	566.6	557.8
45°	1428.5	1353.8	1016.7	759.8	724.7	652.2	590.7	568.8	547.9	522.6	513.9
47.5°	1286.8	1217.7	938.8	704.9	669.8	605.0	544.6	521.5	506.2	486.4	473.2
50°	1140.8	1083.7	853.1	651.1	618.2	554.5	496.3	480.9	463.3	439.2	429.3
52.5°	1004.7	960.7	782.9	599.5	568.8	511.7	452.4	437.0	420.5	399.7	385.4
55°	885.0	841.1	702.7	541.3	518.2	464.4	411.7	392.0	378.8	354.6	337.1
57.5°	762.0	741.1	625.9	493.0	471.0	417.2	370.0	354.6	338.2	311.8	294.3
60°	661.0	636.8	554.5	440.3	419.4	374.4	328.3	312.9	297.6	272.3	264.6
62.5°	565.5	547.9	485.3	390.9	373.3	329.4	288.8	274.5	259.1	242.7	237.2
65°	478.7	463.3	416.1	340.4	326.1	287.7	250.3	235.0	225.1	217.4	211.9
67.5°	397.5	388.7	352.5	293.2	282.2	248.1	215.2	203.1	197.6	188.9	184.5
70°	323.9	327.2	294.3	250.3	238.3	210.8	182.3	172.4	165.8	158.1	149.3
72.5°	264.6	263.5	243.8	204.2	195.4	173.5	151.5	144.9	137.2	121.9	112.0
75°	205.3	209.7	191.0	169.1	160.3	138.3	117.5	108.7	101.0	95.5	92.2
77.5°	157.0	159.2	150.4	129.6	121.9	103.2	86.7	82.3	79.1	75.8	74.7
80°	112.0	115.3	106.5	93.3	86.7	71.4	62.6	61.5	60.4	58.2	57.1
82.5°	72.5	76.9	72.5	58.2	54.9	47.2	45.0	45.0	43.9	42.8	41.7
85°	39.5	43.9	41.7	34.0	31.8	29.6	28.5	27.4	27.4	27.4	27.4
87.5°	15.4	20.9	17.6	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3
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°	2678.0	2678.0	2678.0
2.5°	2384.8	2373.8	2369.5
5°	2056.5	2022.5	2014.8
7.5°	1757.9	1743.6	1696.4
10°	1538.3	1494.4	1474.6
12.5°	1340.6	1300.0	1293.4
15°	1182.5	1154.0	1144.1
17.5°	1078.2	1058.5	1046.4
20°	1001.4	987.1	978.3
22.5°	943.2	932.2	925.6
25°	891.6	875.1	869.6
27.5°	838.9	824.6	819.1
30°	789.5	777.4	769.7
32.5°	737.8	723.6	719.2
35°	688.4	679.7	675.3
37.5°	640.1	629.1	622.6
40°	595.1	589.6	586.3
42.5°	554.5	544.6	543.5
45°	511.7	501.8	499.6
47.5°	471.0	462.3	461.2
50°	428.2	416.1	407.4
52.5°	376.6	365.6	357.9
55°	330.5	318.4	311.8
57.5°	292.1	286.6	283.3
60°	262.4	259.1	256.9
62.5°	236.1	232.8	232.8
65°	211.9	208.6	205.3
67.5°	182.3	175.7	174.6
70°	146.0	136.2	135.1
72.5°	110.9	109.8	107.6
75°	92.2	90.0	90.0
77.5°	74.7	72.5	72.5
80°	57.1	56.0	57.1
82.5°	41.7	41.7	40.6
85°	27.4	26.4	26.4
87.5°	13.2	13.2	13.2
90°	0.0	0.0	0.0

(END OF REPORT)