

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: P646673

Luminaire Tested: S123RDR-S1165D935-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P646673  
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-S1165D935-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**

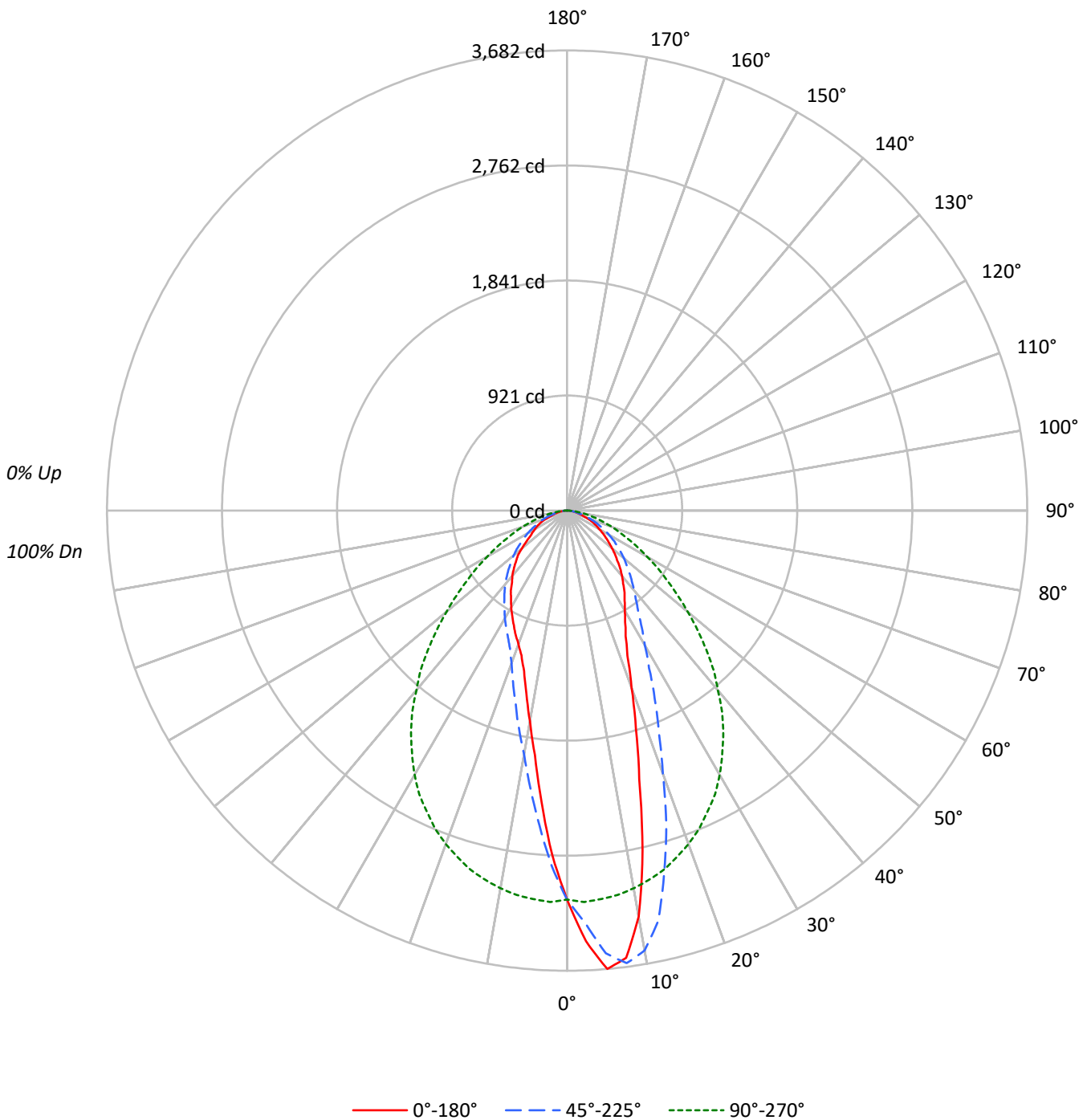
Lumens per Lamp: N/A  
Luminaire Lumens: 4123.3 lumens  
Efficiency: N/A  
Efficacy: 102.8 lumens/watt  
Spacing Criteria (0/90/45): 0.55 / 1.17 / 0.79  
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')  
CIE Type: Direct

Input Watts (W): 40.1  
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°	37501	37501	37501	37501	37501
5°	44528	43015	37737	30606	28322
10°	40344	43716	37548	24232	20968
15°	27776	37439	37152	19898	16587
20°	19323	28716	36406	16673	14579
25°	14725	22037	35322	14895	13436
30°	12818	17327	33963	13848	12445
35°	11769	14584	32040	12913	11544
40°	10738	13087	29525	12122	10718
45°	9698	11981	26811	11264	9893
50°	8803	11123	23610	10477	8874
55°	7962	10214	20534	9571	7613
60°	7133	9288	17835	8765	7196
65°	6586	8260	15353	7786	6803
70°	5351	7056	13398	7056	5531
75°	4693	5703	11345	5880	4870
80°	4254	4781	9298	4961	4607
85°	3885	4051	7051	4410	4230

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 80°

Vertical Angle: 45°

Luminance: 28290 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	283.6	6.9
10°-20°	656.3	15.9
20°-30°	752.9	18.3
30°-40°	741.7	18.0
40°-50°	653.7	15.9
50°-60°	503.1	12.2
60°-70°	330.8	8.0
70°-80°	160.6	3.9
80°-90°	40.5	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°	1692.9	41.1
0°-40°	2434.5	59.0
0°-60°	3591.4	87.1
0°-90°	4123.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4123.3	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	3112	3112	3112	3112	3112	
5°	3682	3556	3120	2530	2342	336
15°	2227	3001	2978	1595	1330	629
25°	1108	1658	2657	1120	1011	523
35°	800	992	2178	878	785	499
45°	569	703	1573	661	581	442
55°	379	486	978	456	362	340
65°	231	290	538	273	239	226
75°	101	122	244	126	105	109
85°	28	29	51	32	31	32
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°	3112.3	3112.3	3112.3	3112.3	3112.3	3112.3	3112.3	3112.3	3112.3	3112.3	3112.3
2.5°	3449.2	3427.5	3421.1	3413.5	3400.7	3354.8	3302.5	3307.6	3301.2	3261.6	3239.9
5°	3681.5	3684.0	3677.6	3672.5	3650.8	3594.7	3556.4	3533.4	3484.9	3410.9	3388.0
7.5°	3610.0	3650.8	3658.5	3667.4	3678.9	3666.1	3652.1	3643.2	3603.6	3523.2	3486.2
10°	3297.4	3294.8	3340.7	3377.7	3477.3	3547.5	3573.0	3610.0	3643.2	3587.0	3546.2
12.5°	2786.9	2790.8	2941.3	2941.3	3070.2	3248.9	3363.7	3441.6	3584.5	3588.3	3564.1
15°	2226.7	2289.3	2423.3	2451.3	2617.2	2857.1	3001.3	3162.1	3439.0	3525.8	3520.7
17.5°	1828.6	1855.4	1984.3	2021.3	2168.0	2439.8	2638.9	2832.9	3220.8	3403.3	3436.4
20°	1507.0	1531.3	1624.4	1652.5	1800.5	2059.6	2239.5	2448.8	2956.6	3236.1	3294.8
22.5°	1258.2	1305.4	1367.9	1411.3	1495.5	1759.7	1914.1	2114.4	2650.4	3048.5	3117.4
25°	1107.6	1129.3	1182.9	1203.3	1305.4	1480.2	1657.6	1833.7	2378.6	2813.7	2935.0
27.5°	1005.5	1011.9	1051.5	1069.3	1130.6	1292.7	1420.3	1583.6	2101.7	2572.5	2714.2
30°	921.3	932.8	963.4	967.3	1020.9	1135.7	1245.4	1396.0	1859.2	2339.0	2484.5
32.5°	856.2	862.6	888.1	895.8	930.3	1020.9	1110.2	1219.9	1634.6	2095.3	2262.5
35°	800.1	801.4	820.5	830.7	861.3	936.6	991.5	1083.4	1454.7	1893.7	2040.4
37.5°	736.3	745.2	759.3	768.2	795.0	856.2	906.0	977.5	1288.8	1702.3	1838.8
40°	682.7	690.4	706.9	710.8	735.0	791.2	832.0	895.8	1145.9	1518.5	1657.6
42.5°	629.1	634.2	650.8	658.5	685.2	729.9	766.9	816.7	1032.3	1355.2	1491.7
45°	569.1	581.9	599.8	603.6	629.1	675.0	703.1	749.1	930.3	1213.5	1334.8
47.5°	519.4	525.7	541.1	547.4	576.8	617.6	647.0	686.5	842.2	1084.7	1203.3
50°	469.6	472.1	486.2	495.1	518.1	565.3	593.4	629.1	761.8	980.0	1063.0
52.5°	422.4	428.8	442.8	449.2	464.5	513.0	538.5	575.5	685.2	872.8	955.8
55°	379.0	382.8	393.0	400.7	418.5	460.7	486.2	518.1	618.9	774.6	847.3
57.5°	338.2	343.3	350.9	357.3	373.9	410.9	436.4	468.3	556.4	685.2	741.4
60°	296.0	302.4	311.4	313.9	329.2	362.4	385.4	413.4	492.6	602.3	652.1
62.5°	265.4	266.7	274.4	278.2	287.1	313.9	338.2	365.0	435.1	521.9	562.7
65°	231.0	234.8	238.6	241.2	248.8	271.8	289.7	310.1	379.0	454.3	482.4
67.5°	195.2	199.1	205.4	208.0	214.4	229.7	245.0	265.4	322.8	386.6	412.2
70°	151.9	151.9	162.1	167.2	177.4	188.9	200.3	218.2	268.0	322.8	342.0
72.5°	123.8	125.1	126.3	126.3	135.3	154.4	160.8	172.3	211.8	264.1	280.7
75°	100.8	102.1	103.4	104.6	105.9	112.3	122.5	132.7	162.1	200.3	215.7
77.5°	80.4	81.7	82.9	82.9	85.5	88.0	90.6	95.7	116.1	144.2	157.0
80°	61.3	62.5	63.8	63.8	65.1	67.6	68.9	71.5	77.8	97.0	103.4
82.5°	44.7	44.7	44.7	45.9	47.2	47.2	49.8	49.8	53.6	58.7	62.5
85°	28.1	28.1	29.3	29.3	29.3	30.6	29.3	30.6	31.9	33.2	35.7
87.5°	12.8	11.5	12.8	12.8	12.8	14.0	14.0	14.0	14.0	15.3	15.3
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):**

	80°	90°	100°	110°	112.5°	120°	130°	135°	140°	150°	157.5°
0°	3112.3	3112.3	3112.3	3112.3	3112.3	3112.3	3112.3	3112.3	3112.3	3112.3	3112.3
2.5°	3180.0	3135.3	3060.0	3012.8	2994.9	2940.1	2887.7	2844.4	2822.7	2820.1	2780.5
5°	3242.5	3120.0	2964.3	2834.1	2803.5	2707.8	2584.0	2530.4	2460.3	2432.2	2399.0
7.5°	3293.5	3102.1	2872.4	2675.9	2618.5	2474.3	2316.1	2245.9	2192.3	2108.1	2058.3
10°	3329.3	3068.9	2760.1	2506.2	2424.5	2256.1	2064.7	1980.5	1930.7	1833.7	1794.1
12.5°	3343.3	3026.8	2647.8	2330.1	2258.6	2058.3	1870.7	1783.9	1709.9	1621.9	1583.6
15°	3338.2	2978.3	2533.0	2168.0	2078.7	1875.8	1676.8	1595.1	1526.2	1438.1	1388.4
17.5°	3303.7	2909.4	2407.9	2011.1	1925.6	1716.3	1514.7	1439.4	1378.2	1292.7	1254.4
20°	3246.3	2839.2	2298.2	1868.2	1771.2	1570.8	1380.7	1300.3	1246.7	1200.8	1172.7
22.5°	3167.2	2756.3	2164.2	1726.5	1642.3	1440.7	1258.2	1193.1	1161.2	1124.2	1103.8
25°	3047.2	2656.8	2043.0	1607.8	1523.6	1323.3	1163.8	1120.4	1088.5	1064.2	1042.5
27.5°	2918.4	2561.1	1921.8	1487.9	1408.8	1217.4	1089.8	1056.6	1028.5	997.9	978.7
30°	2769.1	2441.1	1806.9	1382.0	1305.4	1131.9	1026.0	995.3	972.4	939.2	920.0
32.5°	2593.0	2309.7	1699.7	1279.9	1208.4	1057.9	967.3	934.1	914.9	883.0	863.9
35°	2410.5	2178.2	1582.3	1185.5	1120.4	992.8	909.8	877.9	857.5	825.6	806.5
37.5°	2231.8	2037.9	1477.7	1102.5	1043.8	927.7	849.9	823.1	803.9	770.7	747.8
40°	2043.0	1877.1	1375.6	1024.7	969.8	870.3	795.0	770.7	745.2	715.9	692.9
42.5°	1845.2	1735.5	1281.2	955.8	904.7	814.1	740.1	714.6	692.9	658.5	648.2
45°	1660.2	1573.4	1181.6	883.0	842.2	758.0	686.5	661.0	636.8	607.4	597.2
47.5°	1495.5	1415.2	1091.0	819.2	778.4	703.1	632.9	606.1	588.3	565.3	550.0
50°	1325.8	1259.5	991.5	756.7	718.4	644.4	576.8	558.9	538.5	510.4	498.9
52.5°	1167.6	1116.6	909.8	696.7	661.0	594.6	525.7	507.9	488.7	464.5	447.9
55°	1028.5	977.5	816.7	629.1	602.3	539.8	478.5	455.6	440.2	412.2	391.8
57.5°	885.6	861.3	727.4	573.0	547.4	484.9	430.0	412.2	393.0	362.4	342.0
60°	768.2	740.1	644.4	511.7	487.5	435.1	381.5	363.7	345.8	316.5	307.5
62.5°	657.2	636.8	564.0	454.3	433.9	382.8	335.6	319.0	301.2	282.0	275.6
65°	556.4	538.5	483.6	395.6	379.0	334.3	290.9	273.1	261.6	252.7	246.3
67.5°	461.9	451.7	409.6	340.7	327.9	288.4	250.1	236.1	229.7	219.5	214.4
70°	376.4	380.3	342.0	290.9	276.9	245.0	211.8	200.3	192.7	183.8	173.5
72.5°	307.5	306.3	283.3	237.3	227.1	201.6	176.1	168.4	159.5	141.6	130.2
75°	238.6	243.7	222.0	196.5	186.3	160.8	136.5	126.3	117.4	111.0	107.2
77.5°	182.5	185.0	174.8	150.6	141.6	120.0	100.8	95.7	91.9	88.0	86.8
80°	130.2	134.0	123.8	108.5	100.8	82.9	72.7	71.5	70.2	67.6	66.4
82.5°	84.2	89.3	84.2	67.6	63.8	54.9	52.3	52.3	51.0	49.8	48.5
85°	45.9	51.0	48.5	39.6	37.0	34.5	33.2	31.9	31.9	31.9	31.9
87.5°	17.9	24.2	20.4	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6
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°	3112.3	3112.3	3112.3
2.5°	2771.6	2758.9	2753.8
5°	2390.1	2350.5	2341.6
7.5°	2043.0	2026.4	1971.5
10°	1787.8	1736.7	1713.8
12.5°	1558.1	1510.9	1503.2
15°	1374.3	1341.1	1329.7
17.5°	1253.1	1230.1	1216.1
20°	1163.8	1147.2	1137.0
22.5°	1096.1	1083.4	1075.7
25°	1036.2	1017.0	1010.6
27.5°	974.9	958.3	951.9
30°	917.5	903.5	894.5
32.5°	857.5	840.9	835.8
35°	800.1	789.9	784.8
37.5°	743.9	731.2	723.5
40°	691.6	685.2	681.4
42.5°	644.4	632.9	631.7
45°	594.6	583.2	580.6
47.5°	547.4	537.2	535.9
50°	497.7	483.6	473.4
52.5°	437.7	424.9	416.0
55°	384.1	370.1	362.4
57.5°	339.4	333.1	329.2
60°	305.0	301.2	298.6
62.5°	274.4	270.5	270.5
65°	246.3	242.5	238.6
67.5°	211.8	204.2	202.9
70°	169.7	158.2	157.0
72.5°	128.9	127.6	125.1
75°	107.2	104.6	104.6
77.5°	86.8	84.2	84.2
80°	66.4	65.1	66.4
82.5°	48.5	48.5	47.2
85°	31.9	30.6	30.6
87.5°	15.3	15.3	15.3
90°	0.0	0.0	0.0

(END OF REPORT)