

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: P646671

Luminaire Tested: S123RDR-S1165D927-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P646671  
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-S1165D927-X4F0-XX-UDD-G-W  
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC  
STANDARD LIGHT ENGINE  
Light Source: 2700K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

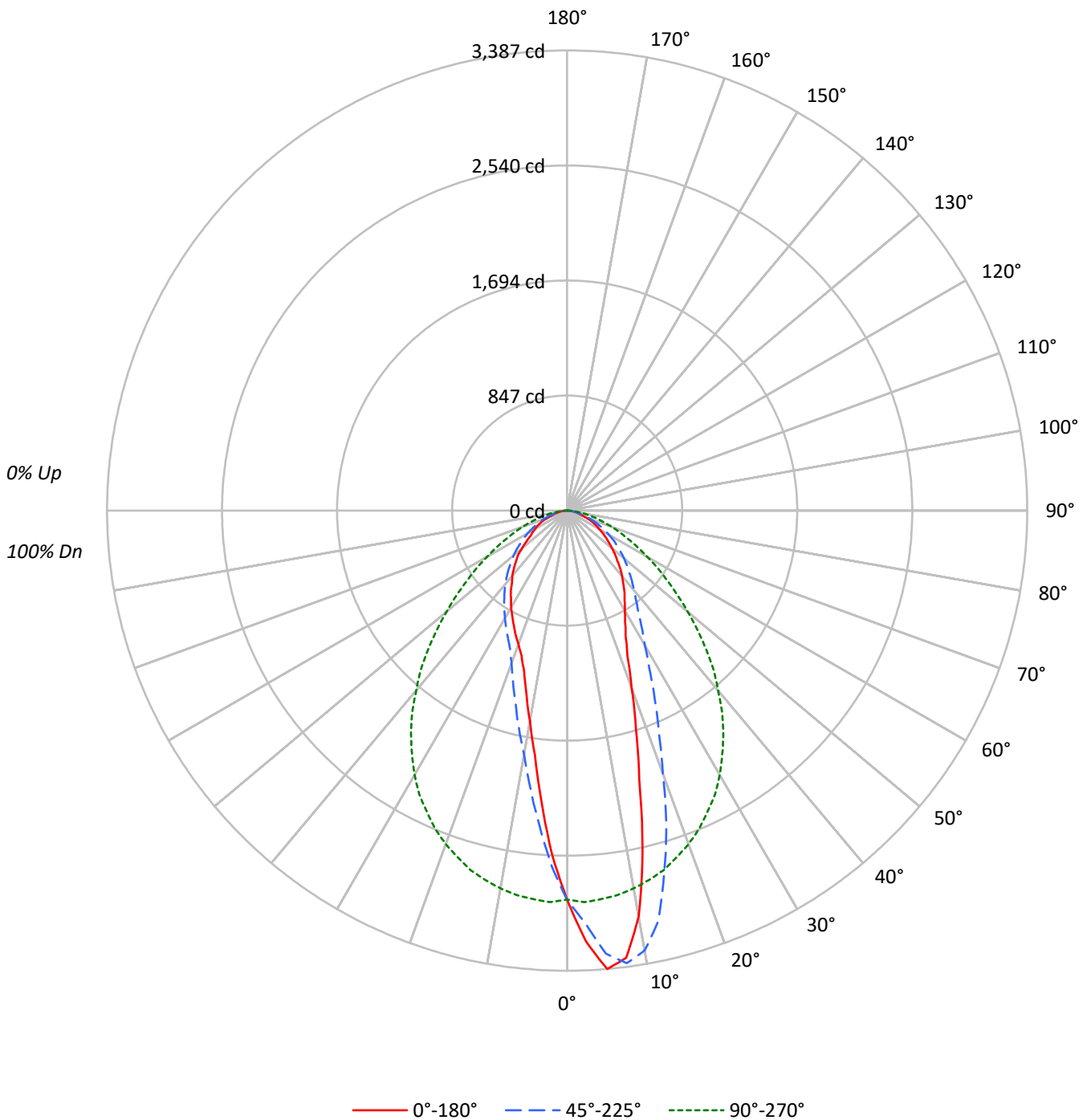
Lumens per Lamp: N/A  
Luminaire Lumens: 3793.8 lumens  
Efficiency: N/A  
Efficacy: 94.6 lumens/watt  
Spacing Criteria (0/90/45): 0.55 / 1.17 / 0.79  
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')  
CIE Type: Direct

Input Watts (W): 40.1  
Input Voltage (V): 120  
Input Current (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					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°	34504	34504	34504	34504	34504
5°	40969	39577	34720	28160	26058
10°	37119	40222	34547	22295	19292
15°	25557	34446	34183	18307	15261
20°	17780	26421	33496	15341	13414
25°	13549	20276	32498	13704	12363
30°	11794	15943	31249	12742	11451
35°	10828	13419	29479	11882	10622
40°	9879	12041	27166	11153	9862
45°	8922	11023	24667	10364	9103
50°	8100	10233	21722	9639	8165
55°	7325	9396	18892	8804	7004
60°	6564	8545	16411	8063	6620
65°	6059	7598	14127	7165	6261
70°	4922	6493	12327	6493	5087
75°	4320	5247	10438	5410	4483
80°	3914	4399	8556	4559	4240
85°	3567	3733	6498	4065	3899

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 80°  
 Vertical Angle: 45°  
 Luminance: 26029 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	261.0	6.9
10°-20°	603.8	15.9
20°-30°	692.8	18.3
30°-40°	682.4	18.0
40°-50°	601.5	15.9
50°-60°	462.9	12.2
60°-70°	304.4	8.0
70°-80°	147.8	3.9
80°-90°	37.3	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°	1557.6	41.1
0°-40°	2240.0	59.0
0°-60°	3304.3	87.1
0°-90°	3793.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3793.8	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	2864	2864	2864	2864	2864	
5°	3387	3272	2871	2328	2154	309
15°	2049	2761	2740	1468	1223	578
25°	1019	1525	2444	1031	930	481
35°	736	912	2004	808	722	459
45°	524	647	1448	608	534	406
55°	349	447	899	419	333	313
65°	212	266	496	251	220	208
75°	93	113	224	116	96	100
85°	26	27	47	29	28	29
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°	2863.6	2863.6	2863.6	2863.6	2863.6	2863.6	2863.6	2863.6	2863.6	2863.6	2863.6
2.5°	3173.5	3153.6	3147.7	3140.6	3128.9	3086.6	3038.5	3043.2	3037.3	3000.9	2981.0
5°	3387.2	3389.6	3383.7	3379.0	3359.0	3307.4	3272.1	3251.0	3206.4	3138.3	3117.2
7.5°	3321.5	3359.0	3366.1	3374.3	3384.9	3373.1	3360.2	3352.0	3315.6	3241.6	3207.6
10°	3033.8	3031.5	3073.7	3107.8	3199.4	3263.9	3287.4	3321.5	3352.0	3300.3	3262.8
12.5°	2564.2	2567.7	2706.2	2706.2	2824.8	2989.2	3094.9	3166.5	3298.0	3301.5	3279.2
15°	2048.8	2106.3	2229.6	2255.4	2408.0	2628.8	2761.4	2909.4	3164.1	3244.0	3239.3
17.5°	1682.4	1707.1	1825.7	1859.7	1994.8	2244.8	2428.0	2606.4	2963.4	3131.3	3161.8
20°	1386.6	1408.9	1494.6	1520.4	1656.6	1895.0	2060.5	2253.0	2720.3	2977.5	3031.5
22.5°	1157.6	1201.1	1258.6	1298.5	1376.0	1619.0	1761.1	1945.4	2438.6	2804.9	2868.3
25°	1019.1	1039.1	1088.4	1107.2	1201.1	1361.9	1525.1	1687.1	2188.5	2588.8	2700.4
27.5°	925.2	931.0	967.4	983.9	1040.2	1189.3	1306.7	1457.0	1933.7	2366.9	2497.3
30°	847.7	858.2	886.4	889.9	939.3	1044.9	1145.9	1284.4	1710.6	2152.1	2285.9
32.5°	787.8	793.7	817.2	824.2	855.9	939.3	1021.4	1122.4	1504.0	1927.8	2081.6
35°	736.1	737.3	754.9	764.3	792.5	861.8	912.3	996.8	1338.4	1742.3	1877.3
37.5°	677.4	685.7	698.6	706.8	731.4	787.8	833.6	899.3	1185.8	1566.2	1691.8
40°	628.1	635.2	650.4	654.0	676.3	727.9	765.5	824.2	1054.3	1397.1	1525.1
42.5°	578.8	583.5	598.8	605.8	630.5	671.6	705.6	751.4	949.8	1246.9	1372.5
45°	523.6	535.4	551.8	555.3	578.8	621.1	646.9	689.2	855.9	1116.5	1228.1
47.5°	477.8	483.7	497.8	503.7	530.7	568.3	595.3	631.7	774.9	998.0	1107.2
50°	432.1	434.4	447.3	455.5	476.7	520.1	545.9	578.8	700.9	901.7	978.0
52.5°	388.6	394.5	407.4	413.3	427.4	472.0	495.5	529.5	630.5	803.1	879.4
55°	348.7	352.2	361.6	368.7	385.1	423.8	447.3	476.7	569.4	712.7	779.6
57.5°	311.1	315.8	322.9	328.7	344.0	378.1	401.5	430.9	511.9	630.5	682.1
60°	272.4	278.3	286.5	288.8	302.9	333.4	354.6	380.4	453.2	554.2	600.0
62.5°	244.2	245.4	252.4	255.9	264.2	288.8	311.1	335.8	400.4	480.2	517.8
65°	212.5	216.0	219.6	221.9	228.9	250.1	266.5	285.3	348.7	418.0	443.8
67.5°	179.6	183.2	189.0	191.4	197.2	211.3	225.4	244.2	297.0	355.7	379.2
70°	139.7	139.7	149.1	153.8	163.2	173.8	184.3	200.8	246.6	297.0	314.7
72.5°	113.9	115.1	116.2	116.2	124.5	142.1	147.9	158.5	194.9	243.0	258.3
75°	92.8	93.9	95.1	96.3	97.4	103.3	112.7	122.1	149.1	184.3	198.4
77.5°	74.0	75.1	76.3	76.3	78.7	81.0	83.4	88.1	106.8	132.7	144.4
80°	56.4	57.5	58.7	58.7	59.9	62.2	63.4	65.7	71.6	89.2	95.1
82.5°	41.1	41.1	41.1	42.3	43.4	43.4	45.8	45.8	49.3	54.0	57.5
85°	25.8	25.8	27.0	27.0	27.0	28.2	27.0	28.2	29.4	30.5	32.9
87.5°	11.7	10.6	11.7	11.7	11.7	12.9	12.9	12.9	12.9	14.1	14.1
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°	2863.6	2863.6	2863.6	2863.6	2863.6	2863.6	2863.6	2863.6	2863.6	2863.6	2863.6
2.5°	2925.8	2884.7	2815.4	2772.0	2755.6	2705.1	2656.9	2617.0	2597.1	2594.7	2558.3
5°	2983.3	2870.6	2727.4	2607.6	2579.4	2491.4	2377.5	2328.2	2263.6	2237.8	2207.3
7.5°	3030.3	2854.2	2642.8	2462.0	2409.2	2276.5	2130.9	2066.4	2017.1	1939.6	1893.8
10°	3063.2	2823.6	2539.5	2305.9	2230.7	2075.8	1899.7	1822.2	1776.4	1687.1	1650.7
12.5°	3076.1	2784.9	2436.2	2143.9	2078.1	1893.8	1721.2	1641.4	1573.3	1492.2	1457.0
15°	3071.4	2740.3	2330.5	1994.8	1912.6	1725.9	1542.7	1467.6	1404.2	1323.2	1277.4
17.5°	3039.7	2676.9	2215.5	1850.3	1771.7	1579.1	1393.6	1324.4	1268.0	1189.3	1154.1
20°	2986.8	2612.3	2114.5	1718.8	1629.6	1445.3	1270.3	1196.4	1147.1	1104.8	1079.0
22.5°	2914.1	2536.0	1991.2	1588.5	1511.0	1325.5	1157.6	1097.8	1068.4	1034.4	1015.6
25°	2803.7	2444.4	1879.7	1479.3	1401.8	1217.5	1070.8	1030.8	1001.5	979.2	959.2
27.5°	2685.1	2356.4	1768.2	1369.0	1296.2	1120.1	1002.7	972.1	946.3	918.1	900.5
30°	2547.7	2246.0	1662.5	1271.5	1201.1	1041.4	944.0	915.8	894.6	864.1	846.5
32.5°	2385.7	2125.1	1563.9	1177.6	1111.8	973.3	889.9	859.4	841.8	812.5	794.8
35°	2217.8	2004.1	1455.9	1090.7	1030.8	913.4	837.1	807.8	789.0	759.6	742.0
37.5°	2053.5	1875.0	1359.6	1014.4	960.4	853.6	781.9	757.3	739.7	709.1	688.0
40°	1879.7	1727.1	1265.7	942.8	892.3	800.7	731.4	709.1	685.7	658.7	637.5
42.5°	1697.7	1596.7	1178.8	879.4	832.4	749.1	681.0	657.5	637.5	605.8	596.4
45°	1527.5	1447.6	1087.2	812.5	774.9	697.4	631.7	608.2	585.9	558.9	549.5
47.5°	1376.0	1302.0	1003.8	753.8	716.2	646.9	582.3	557.7	541.2	520.1	506.0
50°	1219.9	1158.8	912.3	696.2	661.0	592.9	530.7	514.2	495.5	469.6	459.1
52.5°	1074.3	1027.3	837.1	641.0	608.2	547.1	483.7	467.3	449.7	427.4	412.1
55°	946.3	899.3	751.4	578.8	554.2	496.6	440.3	419.1	405.1	379.2	360.4
57.5°	814.8	792.5	669.2	527.2	503.7	446.1	395.7	379.2	361.6	333.4	314.7
60°	706.8	681.0	592.9	470.8	448.5	400.4	351.0	334.6	318.2	291.2	283.0
62.5°	604.6	585.9	518.9	418.0	399.2	352.2	308.8	293.5	277.1	259.5	253.6
65°	511.9	495.5	445.0	364.0	348.7	307.6	267.7	251.3	240.7	232.5	226.6
67.5°	425.0	415.6	376.9	313.5	301.7	265.3	230.1	217.2	211.3	201.9	197.2
70°	346.4	349.9	314.7	267.7	254.8	225.4	194.9	184.3	177.3	169.1	159.7
72.5°	283.0	281.8	260.6	218.4	209.0	185.5	162.0	155.0	146.8	130.3	119.8
75°	219.6	224.2	204.3	180.8	171.4	147.9	125.6	116.2	108.0	102.1	98.6
77.5°	167.9	170.2	160.8	138.5	130.3	110.4	92.8	88.1	84.5	81.0	79.8
80°	119.8	123.3	113.9	99.8	92.8	76.3	66.9	65.7	64.6	62.2	61.1
82.5°	77.5	82.2	77.5	62.2	58.7	50.5	48.1	48.1	47.0	45.8	44.6
85°	42.3	47.0	44.6	36.4	34.0	31.7	30.5	29.4	29.4	29.4	29.4
87.5°	16.4	22.3	18.8	15.3	15.3	15.3	15.3	15.3	15.3	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):**

	160°	170°	180°
0°	2863.6	2863.6	2863.6
2.5°	2550.1	2538.3	2533.7
5°	2199.0	2162.6	2154.4
7.5°	1879.7	1864.4	1813.9
10°	1644.9	1597.9	1576.8
12.5°	1433.5	1390.1	1383.1
15°	1264.5	1234.0	1223.4
17.5°	1152.9	1131.8	1118.9
20°	1070.8	1055.5	1046.1
22.5°	1008.5	996.8	989.7
25°	953.3	935.7	929.9
27.5°	897.0	881.7	875.9
30°	844.2	831.2	823.0
32.5°	789.0	773.7	769.0
35°	736.1	726.8	722.1
37.5°	684.5	672.7	665.7
40°	636.3	630.5	627.0
42.5°	592.9	582.3	581.2
45°	547.1	536.6	534.2
47.5°	503.7	494.3	493.1
50°	457.9	445.0	435.6
52.5°	402.7	391.0	382.7
55°	353.4	340.5	333.4
57.5°	312.3	306.4	302.9
60°	280.6	277.1	274.7
62.5°	252.4	248.9	248.9
65°	226.6	223.1	219.6
67.5°	194.9	187.9	186.7
70°	156.2	145.6	144.4
72.5°	118.6	117.4	115.1
75°	98.6	96.3	96.3
77.5°	79.8	77.5	77.5
80°	61.1	59.9	61.1
82.5°	44.6	44.6	43.4
85°	29.4	28.2	28.2
87.5°	14.1	14.1	14.1
90°	0.0	0.0	0.0

(END OF REPORT)