

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: P646690

Luminaire Tested: S123RDR-S560D930-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P646690  
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-S560D930-X4F0-XX-UDD-G-W  
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC STANDARD LIGHT ENGINE  
Light Source: 3000K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

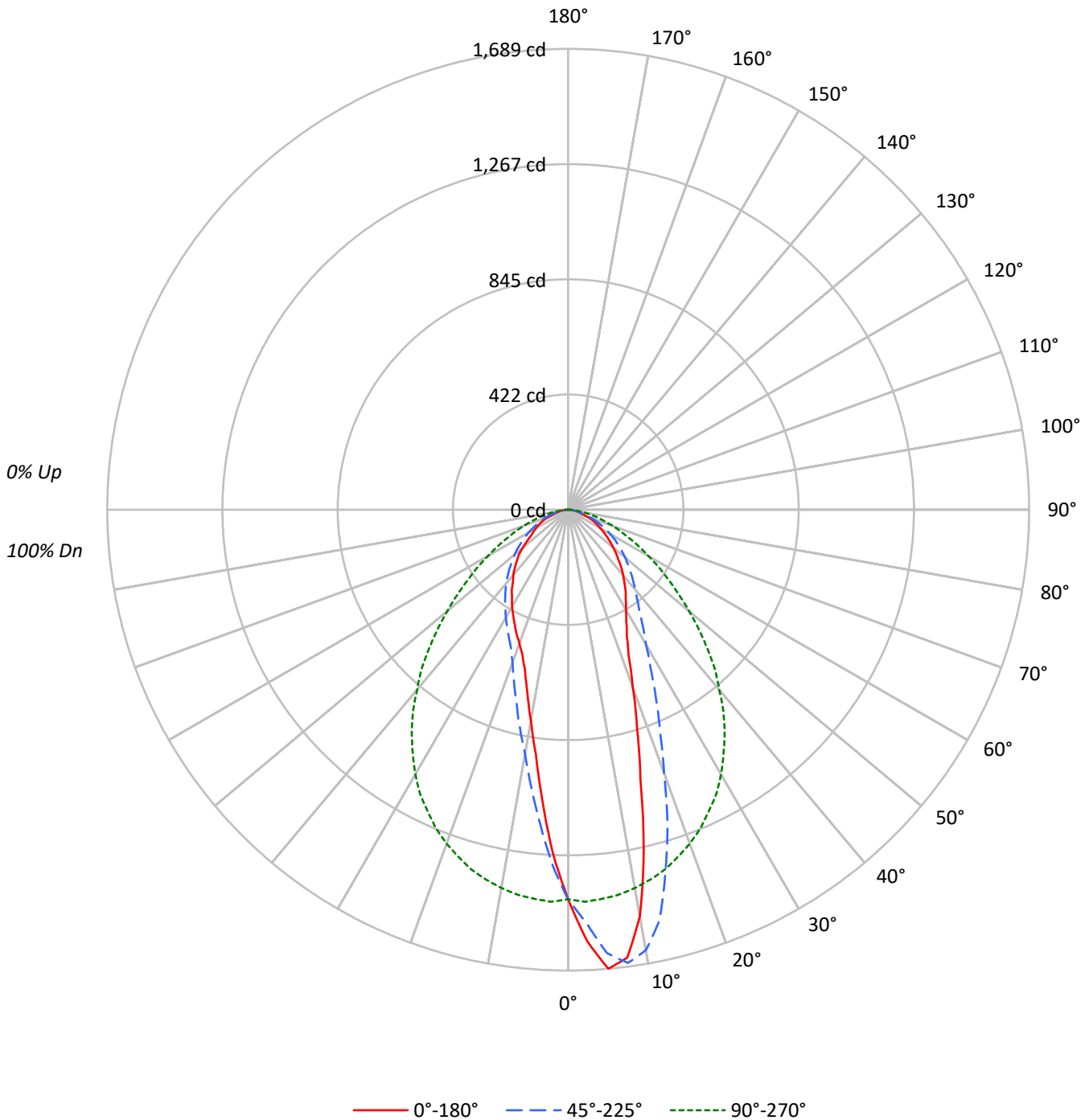
Lumens per Lamp: N/A  
Luminaire Lumens: 1891.6 lumens  
Efficiency: N/A  
Efficacy: 101.7 lumens/watt  
Spacing Criteria (0/90/45): 0.55 / 1.17 / 0.79  
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')  
CIE Type: Direct

Input Watts (W): 18.6  
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°	17204	17204	17204	17204	17204
5°	20428	19733	17312	14041	12993
10°	18508	20054	17226	11116	9619
15°	12742	17176	17044	9129	7609
20°	8865	13174	16701	7649	6688
25°	6755	10109	16204	6834	6163
30°	5881	7950	15581	6353	5710
35°	5398	6691	14699	5925	5295
40°	4926	6004	13544	5562	4917
45°	4449	5497	12300	5167	4539
50°	4038	5102	10831	4806	4071
55°	3653	4685	9420	4390	3493
60°	3273	4261	8181	4020	3301
65°	3022	3789	7042	3572	3122
70°	2455	3238	6148	3238	2537
75°	2151	2616	5205	2700	2235
80°	1950	2193	4267	2276	2109
85°	1783	1866	3235	2018	1935

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 80°

Vertical Angle: 45°

Luminance: 12978 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	130.1	6.9
10°-20°	301.1	15.9
20°-30°	345.4	18.3
30°-40°	340.2	18.0
40°-50°	299.9	15.9
50°-60°	230.8	12.2
60°-70°	151.8	8.0
70°-80°	73.7	3.9
80°-90°	18.6	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°	776.6	41.1
0°-40°	1116.9	59.0
0°-60°	1647.6	87.1
0°-90°	1891.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1891.6	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1428	1428	1428	1428	1428	
5°	1689	1632	1431	1161	1074	154
15°	1022	1377	1366	732	610	288
25°	508	760	1219	514	464	240
35°	367	455	999	403	360	229
45°	261	323	722	303	266	203
55°	174	223	448	209	166	156
65°	106	133	247	125	110	104
75°	46	56	112	58	48	50
85°	13	14	23	15	14	15
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°	1427.8	1427.8	1427.8	1427.8	1427.8	1427.8	1427.8	1427.8	1427.8	1427.8	1427.8
2.5°	1582.4	1572.4	1569.5	1566.0	1560.1	1539.0	1515.0	1517.4	1514.4	1496.3	1486.3
5°	1688.9	1690.1	1687.1	1684.8	1674.8	1649.1	1631.5	1621.0	1598.7	1564.8	1554.3
7.5°	1656.1	1674.8	1678.4	1682.5	1687.7	1681.9	1675.4	1671.3	1653.2	1616.3	1599.3
10°	1512.7	1511.5	1532.6	1549.6	1595.2	1627.4	1639.1	1656.1	1671.3	1645.6	1626.8
12.5°	1278.5	1280.3	1349.4	1349.4	1408.5	1490.4	1543.1	1578.8	1644.4	1646.2	1635.0
15°	1021.5	1050.2	1111.7	1124.6	1200.7	1310.7	1376.9	1450.6	1577.7	1617.5	1615.1
17.5°	838.9	851.2	910.3	927.3	994.6	1119.3	1210.6	1299.6	1477.6	1561.3	1576.5
20°	691.4	702.5	745.2	758.1	826.0	944.8	1027.4	1123.4	1356.4	1484.6	1511.5
22.5°	577.2	598.9	627.6	647.5	686.1	807.3	878.1	970.0	1215.9	1398.5	1430.1
25°	508.1	518.1	542.7	552.0	598.9	679.1	760.4	841.2	1091.2	1290.8	1346.4
27.5°	461.3	464.2	482.4	490.6	518.7	593.0	651.6	726.5	964.2	1180.2	1245.2
30°	422.7	427.9	442.0	443.7	468.3	521.0	571.4	640.4	852.9	1073.0	1139.8
32.5°	392.8	395.7	407.4	411.0	426.8	468.3	509.3	559.6	749.9	961.2	1037.9
35°	367.0	367.6	376.4	381.1	395.1	429.7	454.9	497.0	667.4	868.7	936.1
37.5°	337.8	341.9	348.3	352.4	364.7	392.8	415.6	448.4	591.3	780.9	843.6
40°	313.2	316.7	324.3	326.1	337.2	363.0	381.7	411.0	525.7	696.6	760.4
42.5°	288.6	290.9	298.6	302.1	314.4	334.9	351.8	374.7	473.6	621.7	684.3
45°	261.1	266.9	275.1	276.9	288.6	309.7	322.6	343.6	426.8	556.7	612.3
47.5°	238.3	241.2	248.2	251.1	264.6	283.3	296.8	314.9	386.4	497.6	552.0
50°	215.4	216.6	223.0	227.1	237.7	259.3	272.2	288.6	349.5	449.6	487.6
52.5°	193.8	196.7	203.1	206.1	213.1	235.3	247.0	264.0	314.4	400.4	438.5
55°	173.9	175.6	180.3	183.8	192.0	211.3	223.0	237.7	283.9	355.3	388.7
57.5°	155.1	157.5	161.0	163.9	171.5	188.5	200.2	214.8	255.2	314.4	340.1
60°	135.8	138.7	142.8	144.0	151.0	166.3	176.8	189.7	226.0	276.3	299.1
62.5°	121.8	122.3	125.9	127.6	131.7	144.0	155.1	167.4	199.6	239.4	258.2
65°	106.0	107.7	109.5	110.6	114.2	124.7	132.9	142.3	173.9	208.4	221.3
67.5°	89.6	91.3	94.3	95.4	98.3	105.4	112.4	121.8	148.1	177.4	189.1
70°	69.7	69.7	74.3	76.7	81.4	86.6	91.9	100.1	122.9	148.1	156.9
72.5°	56.8	57.4	58.0	58.0	62.1	70.8	73.8	79.0	97.2	121.2	128.8
75°	46.2	46.8	47.4	48.0	48.6	51.5	56.2	60.9	74.3	91.9	98.9
77.5°	36.9	37.5	38.1	38.1	39.2	40.4	41.6	43.9	53.3	66.2	72.0
80°	28.1	28.7	29.3	29.3	29.9	31.0	31.6	32.8	35.7	44.5	47.4
82.5°	20.5	20.5	20.5	21.1	21.7	21.7	22.8	22.8	24.6	26.9	28.7
85°	12.9	12.9	13.5	13.5	13.5	14.0	13.5	14.0	14.6	15.2	16.4
87.5°	5.9	5.3	5.9	5.9	5.9	6.4	6.4	6.4	6.4	7.0	7.0
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°	1427.8	1427.8	1427.8	1427.8	1427.8	1427.8	1427.8	1427.8	1427.8	1427.8	1427.8
2.5°	1458.8	1438.3	1403.8	1382.1	1373.9	1348.8	1324.8	1304.9	1294.9	1293.7	1275.6
5°	1487.5	1431.3	1359.9	1300.2	1286.1	1242.2	1185.4	1160.9	1128.7	1115.8	1100.6
7.5°	1510.9	1423.1	1317.7	1227.6	1201.3	1135.1	1062.5	1030.3	1005.7	967.1	944.3
10°	1527.3	1407.9	1266.2	1149.7	1112.3	1035.0	947.2	908.5	885.7	841.2	823.1
12.5°	1533.8	1388.6	1214.7	1069.0	1036.2	944.3	858.2	818.4	784.4	744.1	726.5
15°	1531.4	1366.3	1162.0	994.6	953.6	860.5	769.2	731.8	700.1	659.8	636.9
17.5°	1515.6	1334.7	1104.7	922.6	883.4	787.4	694.9	660.3	632.2	593.0	575.5
20°	1489.3	1302.5	1054.3	857.0	812.5	720.6	633.4	596.5	571.9	550.9	538.0
22.5°	1453.0	1264.5	992.8	792.1	753.4	660.9	577.2	547.4	532.7	515.7	506.4
25°	1397.9	1218.8	937.2	737.6	699.0	607.1	533.9	514.0	499.4	488.2	478.3
27.5°	1338.8	1174.9	881.6	682.6	646.3	558.5	499.9	484.7	471.8	457.8	449.0
30°	1270.3	1119.9	828.9	634.0	598.9	519.3	470.7	456.6	446.1	430.9	422.1
32.5°	1189.5	1059.6	779.8	587.2	554.4	485.3	443.7	428.5	419.7	405.1	396.3
35°	1105.8	999.3	725.9	543.8	514.0	455.4	417.4	402.8	393.4	378.8	370.0
37.5°	1023.9	934.9	677.9	505.8	478.9	425.6	389.9	377.6	368.8	353.6	343.0
40°	937.2	861.1	631.1	470.1	444.9	399.2	364.7	353.6	341.9	328.4	317.9
42.5°	846.5	796.2	587.7	438.5	415.1	373.5	339.5	327.8	317.9	302.1	297.4
45°	761.6	721.8	542.1	405.1	386.4	347.7	314.9	303.2	292.1	278.7	274.0
47.5°	686.1	649.2	500.5	375.8	357.1	322.6	290.4	278.1	269.9	259.3	252.3
50°	608.2	577.8	454.9	347.1	329.6	295.6	264.6	256.4	247.0	234.2	228.9
52.5°	535.6	512.2	417.4	319.6	303.2	272.8	241.2	233.0	224.2	213.1	205.5
55°	471.8	448.4	374.7	288.6	276.3	247.6	219.5	209.0	202.0	189.1	179.7
57.5°	406.3	395.1	333.7	262.8	251.1	222.5	197.3	189.1	180.3	166.3	156.9
60°	352.4	339.5	295.6	234.7	223.6	199.6	175.0	166.8	158.6	145.2	141.1
62.5°	301.5	292.1	258.7	208.4	199.0	175.6	154.0	146.4	138.2	129.4	126.4
65°	255.2	247.0	221.9	181.5	173.9	153.4	133.5	125.3	120.0	115.9	113.0
67.5°	211.9	207.2	187.9	156.3	150.4	132.3	114.7	108.3	105.4	100.7	98.3
70°	172.7	174.5	156.9	133.5	127.0	112.4	97.2	91.9	88.4	84.3	79.6
72.5°	141.1	140.5	130.0	108.9	104.2	92.5	80.8	77.3	73.2	65.0	59.7
75°	109.5	111.8	101.9	90.2	85.5	73.8	62.6	58.0	53.9	50.9	49.2
77.5°	83.7	84.9	80.2	69.1	65.0	55.0	46.2	43.9	42.1	40.4	39.8
80°	59.7	61.5	56.8	49.8	46.2	38.1	33.4	32.8	32.2	31.0	30.4
82.5°	38.6	41.0	38.6	31.0	29.3	25.2	24.0	24.0	23.4	22.8	22.2
85°	21.1	23.4	22.2	18.1	17.0	15.8	15.2	14.6	14.6	14.6	14.6
87.5°	8.2	11.1	9.4	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6
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°	1427.8	1427.8	1427.8
2.5°	1271.5	1265.6	1263.3
5°	1096.5	1078.3	1074.2
7.5°	937.2	929.6	904.5
10°	820.2	796.7	786.2
12.5°	714.8	693.1	689.6
15°	630.5	615.3	610.0
17.5°	574.9	564.3	557.9
20°	533.9	526.3	521.6
22.5°	502.9	497.0	493.5
25°	475.3	466.6	463.6
27.5°	447.3	439.6	436.7
30°	420.9	414.5	410.4
32.5°	393.4	385.8	383.4
35°	367.0	362.4	360.0
37.5°	341.3	335.4	331.9
40°	317.3	314.4	312.6
42.5°	295.6	290.4	289.8
45°	272.8	267.5	266.4
47.5°	251.1	246.5	245.9
50°	228.3	221.9	217.2
52.5°	200.8	194.9	190.8
55°	176.2	169.8	166.3
57.5°	155.7	152.8	151.0
60°	139.9	138.2	137.0
62.5°	125.9	124.1	124.1
65°	113.0	111.2	109.5
67.5°	97.2	93.7	93.1
70°	77.9	72.6	72.0
72.5°	59.1	58.5	57.4
75°	49.2	48.0	48.0
77.5°	39.8	38.6	38.6
80°	30.4	29.9	30.4
82.5°	22.2	22.2	21.7
85°	14.6	14.0	14.0
87.5°	7.0	7.0	7.0
90°	0.0	0.0	0.0

(END OF REPORT)