

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: P646687

Luminaire Tested: S123RDR-S560D840-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2019
Report Number: P646687
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-S560D840-X4F0-XX-UDD-G-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

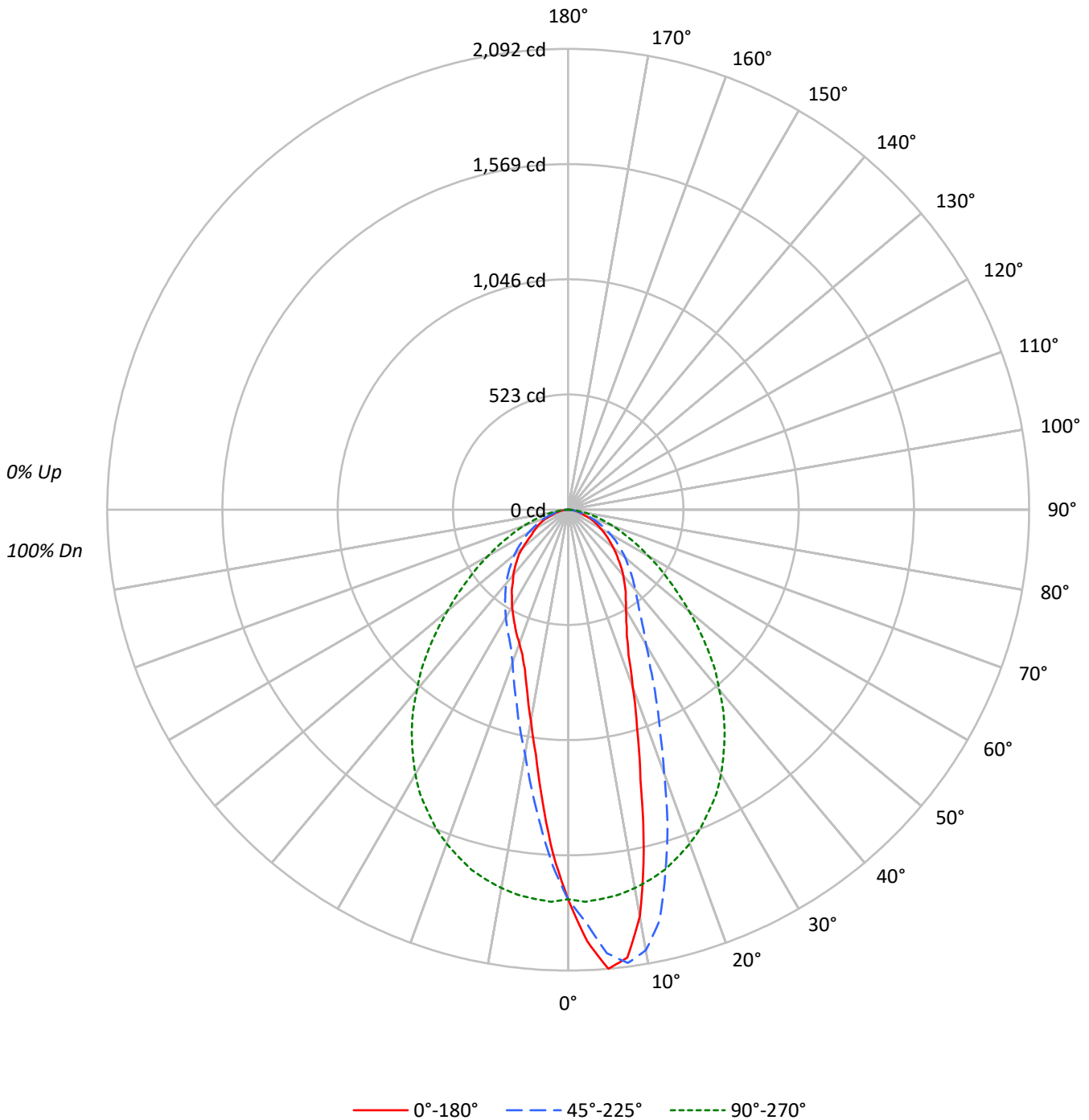
Lumens per Lamp: N/A
Luminaire Lumens: 2343.0 lumens
Efficiency: N/A
Efficacy: 126.0 lumens/watt
Spacing Criteria (0/90/45): 0.55 / 1.17 / 0.79
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

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	0	
RCR																						
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	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°	21309	21309	21309	21309	21309
5°	25302	24443	21444	17392	16094
10°	22925	24841	21337	13769	11914
15°	15784	21275	21111	11307	9426
20°	10981	16318	20688	9475	8285
25°	8368	12522	20071	8463	7635
30°	7284	9846	19299	7869	7072
35°	6687	8287	18207	7338	6559
40°	6101	7437	16777	6889	6090
45°	5511	6808	15236	6400	5622
50°	5001	6321	13416	5953	5042
55°	4525	5804	11667	5439	4325
60°	4053	5278	10136	4981	4089
65°	3741	4693	8724	4425	3866
70°	3040	4009	7613	4009	3142
75°	2668	3240	6448	3343	2770
80°	2415	2720	5280	2817	2616
85°	2212	2309	4009	2502	2406

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°

Vertical Angle: 45°

Luminance: 16076 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	161.2	6.9
10°-20°	372.9	15.9
20°-30°	427.8	18.3
30°-40°	421.4	18.0
40°-50°	371.5	15.9
50°-60°	285.9	12.2
60°-70°	188.0	8.0
70°-80°	91.3	3.9
80°-90°	23.0	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°	962.0	41.1
0°-40°	1383.4	59.0
0°-60°	2040.7	87.1
0°-90°	2343.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2343.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1768	1768	1768	1768	1768	
5°	2092	2021	1773	1438	1331	191
15°	1265	1706	1692	906	756	357
25°	629	942	1510	637	574	297
35°	455	563	1238	499	446	283
45°	323	400	894	376	330	251
55°	215	276	555	259	206	193
65°	131	165	306	155	136	129
75°	57	70	138	72	60	62
85°	16	17	29	18	17	18
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°	1768.5	1768.5	1768.5	1768.5	1768.5	1768.5	1768.5	1768.5	1768.5	1768.5	1768.5
2.5°	1960.0	1947.6	1944.0	1939.7	1932.4	1906.3	1876.6	1879.5	1875.9	1853.4	1841.1
5°	2091.9	2093.4	2089.8	2086.9	2074.5	2042.6	2020.9	2007.8	1980.3	1938.2	1925.2
7.5°	2051.3	2074.5	2078.9	2084.0	2090.5	2083.2	2075.3	2070.2	2047.7	2002.0	1981.0
10°	1873.7	1872.2	1898.3	1919.4	1975.9	2015.8	2030.3	2051.3	2070.2	2038.3	2015.1
12.5°	1583.6	1585.8	1671.4	1671.4	1744.6	1846.1	1911.4	1955.6	2036.8	2039.0	2025.2
15°	1265.3	1300.8	1377.0	1392.9	1487.2	1623.5	1705.5	1796.8	1954.2	2003.5	2000.6
17.5°	1039.1	1054.3	1127.5	1148.6	1232.0	1386.4	1499.5	1609.7	1830.2	1933.9	1952.7
20°	856.4	870.1	923.1	939.0	1023.1	1170.3	1272.6	1391.5	1680.1	1838.9	1872.2
22.5°	715.0	741.8	777.3	802.0	849.8	999.9	1087.7	1201.5	1506.1	1732.3	1771.4
25°	629.4	641.7	672.2	683.8	741.8	841.1	941.9	1042.0	1351.6	1598.9	1667.8
27.5°	571.4	575.0	597.5	607.6	642.4	734.5	807.0	899.9	1194.3	1461.8	1542.3
30°	523.5	530.1	547.5	549.6	580.1	645.3	707.7	793.3	1056.5	1329.1	1411.8
32.5°	486.5	490.2	504.7	509.0	528.6	580.1	630.8	693.2	928.9	1190.6	1285.6
35°	454.6	455.4	466.2	472.0	489.4	532.2	563.4	615.6	826.6	1076.1	1159.5
37.5°	418.4	423.5	431.4	436.5	451.7	486.5	514.8	555.4	732.4	967.3	1044.9
40°	387.9	392.3	401.7	403.9	417.7	449.6	472.8	509.0	651.1	862.9	941.9
42.5°	357.5	360.4	369.8	374.2	389.4	414.8	435.8	464.1	586.6	770.1	847.7
45°	323.4	330.7	340.8	343.0	357.5	383.6	399.5	425.6	528.6	689.6	758.5
47.5°	295.1	298.7	307.4	311.1	327.7	351.0	367.6	390.1	478.6	616.3	683.8
50°	266.8	268.3	276.3	281.3	294.4	321.2	337.2	357.5	432.9	556.9	604.0
52.5°	240.0	243.6	251.6	255.2	263.9	291.5	306.0	327.0	389.4	496.0	543.1
55°	215.4	217.5	223.3	227.7	237.8	261.8	276.3	294.4	351.7	440.1	481.5
57.5°	192.2	195.1	199.4	203.0	212.5	233.5	248.0	266.1	316.1	389.4	421.3
60°	168.2	171.9	176.9	178.4	187.1	205.9	219.0	234.9	279.9	342.3	370.5
62.5°	150.8	151.5	155.9	158.1	163.1	178.4	192.2	207.4	247.3	296.6	319.8
65°	131.2	133.4	135.6	137.0	141.4	154.4	164.6	176.2	215.4	258.1	274.1
67.5°	110.9	113.1	116.7	118.2	121.8	130.5	139.2	150.8	183.5	219.7	234.2
70°	86.3	86.3	92.1	95.0	100.8	107.3	113.8	124.0	152.3	183.5	194.3
72.5°	70.3	71.1	71.8	71.8	76.9	87.7	91.4	97.9	120.4	150.1	159.5
75°	57.3	58.0	58.7	59.5	60.2	63.8	69.6	75.4	92.1	113.8	122.5
77.5°	45.7	46.4	47.1	47.1	48.6	50.0	51.5	54.4	66.0	81.9	89.2
80°	34.8	35.5	36.3	36.3	37.0	38.4	39.2	40.6	44.2	55.1	58.7
82.5°	25.4	25.4	25.4	26.1	26.8	26.8	28.3	28.3	30.5	33.4	35.5
85°	16.0	16.0	16.7	16.7	16.7	17.4	16.7	17.4	18.1	18.9	20.3
87.5°	7.3	6.5	7.3	7.3	7.3	8.0	8.0	8.0	8.0	8.7	8.7
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°	1768.5	1768.5	1768.5	1768.5	1768.5	1768.5	1768.5	1768.5	1768.5	1768.5	1768.5
2.5°	1807.0	1781.6	1738.8	1712.0	1701.8	1670.7	1640.9	1616.3	1603.9	1602.5	1580.0
5°	1842.5	1772.9	1684.4	1610.5	1593.1	1538.7	1468.3	1437.9	1398.0	1382.1	1363.2
7.5°	1871.5	1762.7	1632.2	1520.6	1487.9	1406.0	1316.1	1276.2	1245.7	1197.9	1169.6
10°	1891.8	1743.9	1568.4	1424.1	1377.7	1282.0	1173.2	1125.4	1097.1	1042.0	1019.5
12.5°	1899.8	1720.0	1504.6	1324.1	1283.4	1169.6	1063.0	1013.7	971.6	921.6	899.9
15°	1896.9	1692.4	1439.3	1232.0	1181.2	1065.9	952.8	906.4	867.2	817.2	788.9
17.5°	1877.3	1653.3	1368.3	1142.8	1094.2	975.3	860.7	817.9	783.1	734.5	712.8
20°	1844.7	1613.4	1305.9	1061.6	1006.5	892.6	784.6	738.9	708.4	682.3	666.4
22.5°	1799.7	1566.2	1229.8	981.1	933.2	818.6	715.0	678.0	659.9	638.8	627.2
25°	1731.6	1509.7	1160.9	913.6	865.8	751.9	661.3	636.6	618.5	604.7	592.4
27.5°	1658.3	1455.3	1092.0	845.5	800.5	691.8	619.2	600.4	584.4	567.0	556.2
30°	1573.5	1387.1	1026.8	785.3	741.8	643.2	583.0	565.6	552.5	533.7	522.8
32.5°	1473.4	1312.4	965.8	727.3	686.7	601.1	549.6	530.8	519.9	501.8	490.9
35°	1369.7	1237.8	899.1	673.6	636.6	564.1	517.0	498.9	487.3	469.1	458.3
37.5°	1268.2	1158.0	839.7	626.5	593.1	527.2	482.9	467.7	456.8	438.0	424.9
40°	1160.9	1066.6	781.7	582.3	551.1	494.5	451.7	438.0	423.5	406.8	393.7
42.5°	1048.5	986.2	728.0	543.1	514.1	462.6	420.6	406.1	393.7	374.2	368.4
45°	943.4	894.1	671.5	501.8	478.6	430.7	390.1	375.6	361.8	345.2	339.4
47.5°	849.8	804.1	620.0	465.5	442.3	399.5	359.7	344.4	334.3	321.2	312.5
50°	753.4	715.7	563.4	430.0	408.2	366.2	327.7	317.6	306.0	290.0	283.5
52.5°	663.5	634.5	517.0	395.9	375.6	337.9	298.7	288.6	277.7	263.9	254.5
55°	584.4	555.4	464.1	357.5	342.3	306.7	271.9	258.9	250.2	234.2	222.6
57.5°	503.2	489.4	413.3	325.6	311.1	275.5	244.4	234.2	223.3	205.9	194.3
60°	436.5	420.6	366.2	290.8	277.0	247.3	216.8	206.7	196.5	179.8	174.8
62.5°	373.4	361.8	320.5	258.1	246.5	217.5	190.7	181.3	171.1	160.2	156.6
65°	316.1	306.0	274.8	224.8	215.4	190.0	165.3	155.2	148.6	143.6	139.9
67.5°	262.5	256.7	232.8	193.6	186.4	163.9	142.1	134.1	130.5	124.7	121.8
70°	213.9	216.1	194.3	165.3	157.3	139.2	120.4	113.8	109.5	104.4	98.6
72.5°	174.8	174.0	161.0	134.9	129.1	114.6	100.1	95.7	90.6	80.5	74.0
75°	135.6	138.5	126.2	111.7	105.9	91.4	77.6	71.8	66.7	63.1	60.9
77.5°	103.7	105.1	99.3	85.6	80.5	68.2	57.3	54.4	52.2	50.0	49.3
80°	74.0	76.1	70.3	61.6	57.3	47.1	41.3	40.6	39.9	38.4	37.7
82.5°	47.9	50.8	47.9	38.4	36.3	31.2	29.7	29.7	29.0	28.3	27.6
85°	26.1	29.0	27.6	22.5	21.0	19.6	18.9	18.1	18.1	18.1	18.1
87.5°	10.2	13.8	11.6	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4
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°	1768.5	1768.5	1768.5
2.5°	1574.9	1567.7	1564.8
5°	1358.1	1335.7	1330.6
7.5°	1160.9	1151.5	1120.3
10°	1015.9	986.9	973.8
12.5°	885.4	858.5	854.2
15°	780.9	762.1	755.6
17.5°	712.1	699.0	691.0
20°	661.3	651.9	646.1
22.5°	622.9	615.6	611.3
25°	588.8	577.9	574.3
27.5°	554.0	544.6	540.9
30°	521.4	513.4	508.3
32.5°	487.3	477.8	474.9
35°	454.6	448.8	445.9
37.5°	422.7	415.5	411.1
40°	393.0	389.4	387.2
42.5°	366.2	359.7	358.9
45°	337.9	331.4	329.9
47.5°	311.1	305.3	304.5
50°	282.8	274.8	269.0
52.5°	248.7	241.5	236.4
55°	218.3	210.3	205.9
57.5°	192.9	189.3	187.1
60°	173.3	171.1	169.7
62.5°	155.9	153.7	153.7
65°	139.9	137.8	135.6
67.5°	120.4	116.0	115.3
70°	96.4	89.9	89.2
72.5°	73.2	72.5	71.1
75°	60.9	59.5	59.5
77.5°	49.3	47.9	47.9
80°	37.7	37.0	37.7
82.5°	27.6	27.6	26.8
85°	18.1	17.4	17.4
87.5°	8.7	8.7	8.7
90°	0.0	0.0	0.0

(END OF REPORT)