

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: P646669

Luminaire Tested: S123RDR-S1165D840-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2019
Report Number: P646669
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-S1165D840-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

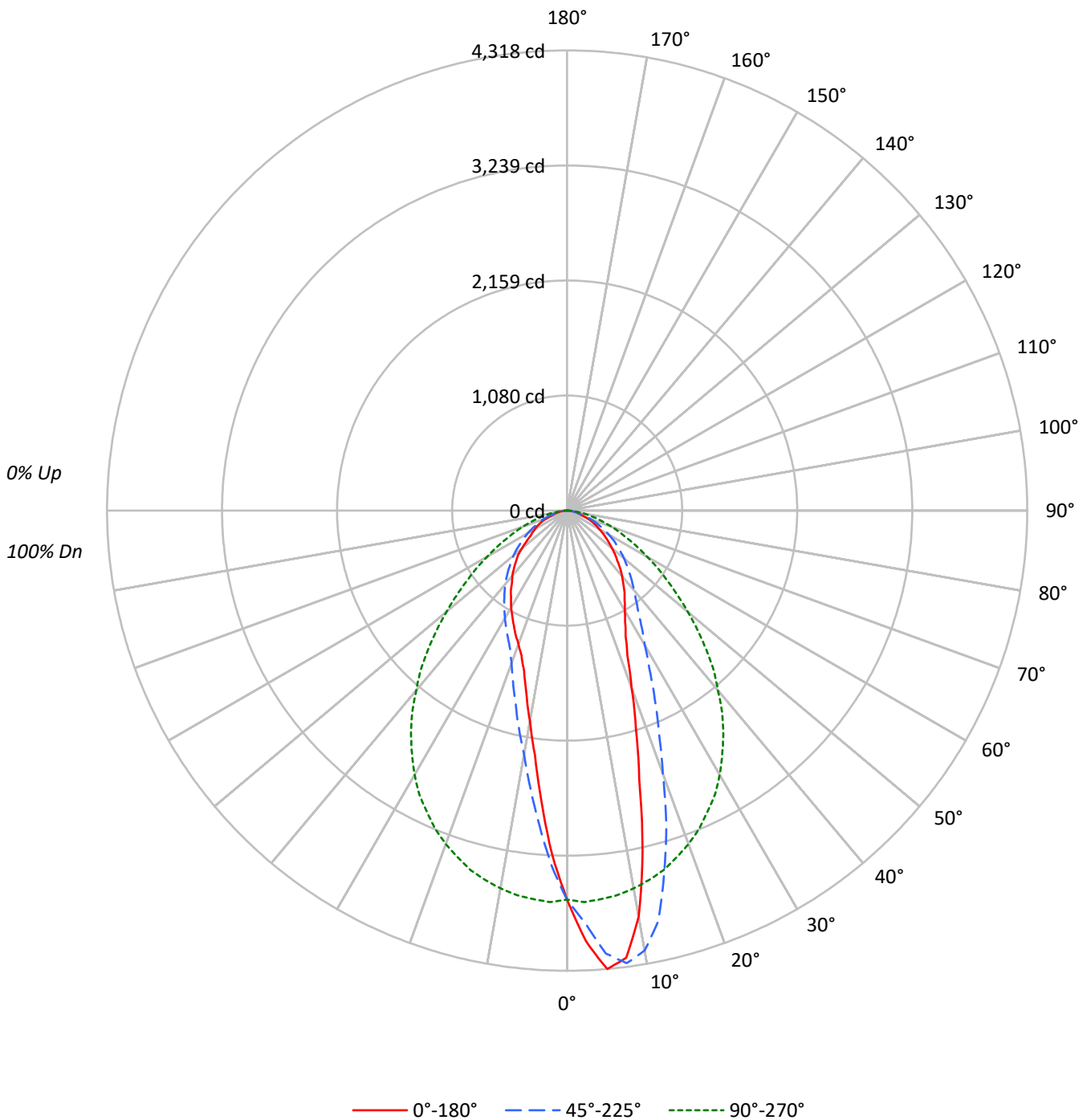
Lumens per Lamp: N/A
Luminaire Lumens: 4836.3 lumens
Efficiency: N/A
Efficacy: 120.6 lumens/watt
Spacing Criteria (0/90/45): 0.55 / 1.17 / 0.79
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

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



TEST NUMBER: P646669
CATALOG NUMBER: S123RDR-S1165D840-X4F0-XX-UDD-G-W

Luminous Intensity Polar Plot





TEST NUMBER: P646669

CATALOG NUMBER: S123RDR-S1165D840-X4F0-XX-UDD-G-W

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°	43986	43986	43986	43986	43986
5°	52227	50453	44261	35899	33218
10°	47319	51275	44041	28421	24594
15°	32579	43912	43576	23338	19455
20°	22665	33681	42701	19556	17100
25°	17271	25848	41428	17471	15760
30°	15035	20324	39836	16242	14598
35°	13803	17105	37581	15146	13540
40°	12594	15348	34629	14219	12571
45°	11374	14053	31446	13211	11604
50°	10325	13047	27690	12289	10409
55°	9338	11978	24085	11224	8930
60°	8367	10892	20920	10280	8439
65°	7724	9688	18007	9132	7980
70°	6274	8279	15712	8279	6486
75°	5503	6690	13310	6899	5712
80°	4982	5607	10908	5815	5398
85°	4548	4756	8281	5171	4963

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°

Vertical Angle: 45°

Luminance: 33181 cd/sqm



TEST NUMBER: P646669

CATALOG NUMBER: S123RDR-S1165D840-X4F0-XX-UDD-G-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	332.7	6.9
10°-20°	769.8	15.9
20°-30°	883.1	18.3
30°-40°	869.9	18.0
40°-50°	766.7	15.9
50°-60°	590.1	12.2
60°-70°	388.0	8.0
70°-80°	188.4	3.9
80°-90°	47.5	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°	1985.6	41.1
0°-40°	2855.5	59.0
0°-60°	4212.3	87.1
0°-90°	4836.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4836.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	3650	3650	3650	3650	3650	
5°	4318	4171	3659	2968	2746	395
15°	2612	3520	3493	1871	1560	737
25°	1299	1944	3116	1314	1185	614
35°	938	1163	2555	1030	920	585
45°	668	825	1845	775	681	518
55°	444	570	1146	534	425	399
65°	271	340	632	320	280	265
75°	118	144	286	148	123	127
85°	33	34	60	37	36	37
90°	0	0	0	0	0	



TEST NUMBER: P646669

CATALOG NUMBER: S123RDR-S1165D840-X4F0-XX-UDD-G-W

CANDELA DISTRIBUTION (FULL):

	0°	10°	20°	22.5°	30°	40°	45°	50°	60°	67.5°	70°
0°	3650.5	3650.5	3650.5	3650.5	3650.5	3650.5	3650.5	3650.5	3650.5	3650.5	3650.5
2.5°	4045.6	4020.1	4012.7	4003.7	3988.7	3934.8	3873.5	3879.4	3872.0	3825.6	3800.1
5°	4318.0	4321.0	4313.5	4307.5	4282.1	4216.2	4171.3	4144.4	4087.5	4000.7	3973.7
7.5°	4234.2	4282.1	4291.0	4301.5	4315.0	4300.0	4283.6	4273.1	4226.7	4132.4	4089.0
10°	3867.5	3864.5	3918.4	3961.8	4078.5	4160.8	4190.8	4234.2	4273.1	4207.2	4159.3
12.5°	3268.8	3273.3	3449.9	3449.9	3601.1	3810.6	3945.3	4036.6	4204.2	4208.7	4180.3
15°	2611.7	2685.1	2842.2	2875.2	3069.7	3351.1	3520.2	3708.8	4033.6	4135.4	4129.4
17.5°	2144.8	2176.2	2327.4	2370.8	2542.9	2861.7	3095.2	3322.7	3777.7	3991.7	4030.6
20°	1767.6	1796.0	1905.3	1938.2	2111.8	2415.7	2626.7	2872.2	3467.9	3795.6	3864.5
22.5°	1475.7	1531.1	1604.5	1655.4	1754.1	2063.9	2245.1	2480.0	3108.6	3575.6	3656.4
25°	1299.1	1324.6	1387.4	1411.4	1531.1	1736.2	1944.2	2150.8	2789.8	3300.2	3442.4
27.5°	1179.4	1186.9	1233.3	1254.2	1326.1	1516.2	1665.8	1857.4	2465.1	3017.3	3183.5
30°	1080.6	1094.1	1130.0	1134.5	1197.4	1332.1	1460.8	1637.4	2180.7	2743.5	2914.1
32.5°	1004.3	1011.8	1041.7	1050.7	1091.1	1197.4	1302.1	1430.8	1917.3	2457.6	2653.6
35°	938.4	939.9	962.4	974.4	1010.3	1098.6	1162.9	1270.7	1706.2	2221.1	2393.2
37.5°	863.6	874.1	890.5	901.0	932.4	1004.3	1062.7	1146.5	1511.7	1996.6	2156.7
40°	800.7	809.7	829.2	833.7	862.1	928.0	975.8	1050.7	1344.0	1781.1	1944.2
42.5°	737.9	743.9	763.3	772.3	803.7	856.1	899.5	957.9	1210.8	1589.5	1749.6
45°	667.5	682.5	703.4	707.9	737.9	791.8	824.7	878.6	1091.1	1423.4	1565.5
47.5°	609.2	616.6	634.6	642.1	676.5	724.4	758.8	805.2	987.8	1272.2	1411.4
50°	550.8	553.8	570.2	580.7	607.7	663.0	696.0	737.9	893.5	1149.5	1246.8
52.5°	495.4	502.9	519.4	526.8	544.8	601.7	631.6	675.0	803.7	1023.7	1121.0
55°	444.5	449.0	461.0	470.0	490.9	540.3	570.2	607.7	725.9	908.5	993.8
57.5°	396.6	402.6	411.6	419.1	438.5	481.9	511.9	549.3	652.6	803.7	869.6
60°	347.2	354.7	365.2	368.2	386.1	425.1	452.0	484.9	577.7	706.4	764.8
62.5°	311.3	312.8	321.8	326.3	336.8	368.2	396.6	428.1	510.4	612.2	660.0
65°	270.9	275.4	279.9	282.9	291.9	318.8	339.8	363.7	444.5	532.8	565.8
67.5°	229.0	233.5	241.0	244.0	251.4	269.4	287.4	311.3	378.7	453.5	483.4
70°	178.1	178.1	190.1	196.1	208.0	221.5	235.0	255.9	314.3	378.7	401.1
72.5°	145.2	146.7	148.2	148.2	158.7	181.1	188.6	202.1	248.5	309.8	329.3
75°	118.2	119.7	121.2	122.7	124.2	131.7	143.7	155.7	190.1	235.0	252.9
77.5°	94.3	95.8	97.3	97.3	100.3	103.3	106.3	112.3	136.2	169.1	184.1
80°	71.8	73.3	74.8	74.8	76.3	79.3	80.8	83.8	91.3	113.7	121.2
82.5°	52.4	52.4	52.4	53.9	55.4	55.4	58.4	58.4	62.9	68.8	73.3
85°	32.9	32.9	34.4	34.4	34.4	35.9	34.4	35.9	37.4	38.9	41.9
87.5°	15.0	13.5	15.0	15.0	15.0	16.5	16.5	16.5	16.5	18.0	18.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P646669

CATALOG NUMBER: S123RDR-S1165D840-X4F0-XX-UDD-G-W

CANDELA DISTRIBUTION (continued):

	80°	90°	100°	110°	112.5°	120°	130°	135°	140°	150°	157.5°
0°	3650.5	3650.5	3650.5	3650.5	3650.5	3650.5	3650.5	3650.5	3650.5	3650.5	3650.5
2.5°	3729.8	3677.4	3589.1	3533.7	3512.8	3448.4	3387.0	3336.1	3310.7	3307.7	3261.3
5°	3803.1	3659.4	3476.8	3324.2	3288.3	3176.0	3030.8	2968.0	2885.6	2852.7	2813.8
7.5°	3863.0	3638.5	3369.1	3138.6	3071.2	2902.1	2716.5	2634.2	2571.3	2472.5	2414.2
10°	3904.9	3599.6	3237.4	2939.5	2843.7	2646.2	2421.7	2322.9	2264.5	2150.8	2104.4
12.5°	3921.4	3550.2	3105.7	2733.0	2649.2	2414.2	2194.2	2092.4	2005.6	1902.3	1857.4
15°	3915.4	3493.3	2970.9	2542.9	2438.1	2200.1	1966.7	1870.9	1790.1	1686.8	1628.4
17.5°	3875.0	3412.5	2824.3	2358.8	2258.5	2013.1	1776.6	1688.3	1616.4	1516.2	1471.3
20°	3807.6	3330.2	2695.6	2191.2	2077.4	1842.4	1619.4	1525.1	1462.3	1408.4	1375.5
22.5°	3714.8	3232.9	2538.4	2025.0	1926.3	1689.8	1475.7	1399.4	1362.0	1318.6	1294.6
25°	3574.1	3116.1	2396.2	1885.8	1787.1	1552.1	1365.0	1314.1	1276.7	1248.2	1222.8
27.5°	3423.0	3003.9	2254.0	1745.2	1652.4	1427.9	1278.2	1239.3	1206.3	1170.4	1148.0
30°	3247.8	2863.2	2119.3	1620.9	1531.1	1327.6	1203.3	1167.4	1140.5	1101.6	1079.1
32.5°	3041.3	2709.0	1993.6	1501.2	1417.4	1240.8	1134.5	1095.6	1073.1	1035.7	1013.3
35°	2827.3	2554.9	1855.9	1390.4	1314.1	1164.4	1067.1	1029.7	1005.8	968.4	945.9
37.5°	2617.7	2390.2	1733.2	1293.1	1224.3	1088.1	996.8	965.4	942.9	904.0	877.1
40°	2396.2	2201.6	1613.4	1201.9	1137.5	1020.7	932.4	904.0	874.1	839.6	812.7
42.5°	2164.2	2035.5	1502.7	1121.0	1061.2	954.9	868.1	838.2	812.7	772.3	760.3
45°	1947.2	1845.4	1385.9	1035.7	987.8	889.0	805.2	775.3	746.9	712.4	700.5
47.5°	1754.1	1659.8	1279.7	960.9	913.0	824.7	742.4	710.9	690.0	663.0	645.1
50°	1555.1	1477.2	1162.9	887.5	842.6	755.8	676.5	655.6	631.6	598.7	585.2
52.5°	1369.5	1309.6	1067.1	817.2	775.3	697.5	616.6	595.7	573.2	544.8	525.3
55°	1206.3	1146.5	957.9	737.9	706.4	633.1	561.3	534.3	516.4	483.4	459.5
57.5°	1038.7	1010.3	853.1	672.0	642.1	568.7	504.4	483.4	461.0	425.1	401.1
60°	901.0	868.1	755.8	600.2	571.7	510.4	447.5	426.6	405.6	371.2	360.7
62.5°	770.8	746.9	661.5	532.8	508.9	449.0	393.6	374.2	353.2	330.8	323.3
65°	652.6	631.6	567.2	464.0	444.5	392.1	341.2	320.3	306.8	296.3	288.9
67.5°	541.8	529.8	480.4	399.6	384.7	338.3	293.4	276.9	269.4	257.4	251.4
70°	441.5	446.0	401.1	341.2	324.8	287.4	248.5	235.0	226.0	215.5	203.6
72.5°	360.7	359.2	332.3	278.4	266.4	236.5	206.5	197.6	187.1	166.1	152.7
75°	279.9	285.9	260.4	230.5	218.5	188.6	160.1	148.2	137.7	130.2	125.7
77.5°	214.0	217.0	205.0	176.6	166.1	140.7	118.2	112.3	107.8	103.3	101.8
80°	152.7	157.2	145.2	127.2	118.2	97.3	85.3	83.8	82.3	79.3	77.8
82.5°	98.8	104.8	98.8	79.3	74.8	64.4	61.4	61.4	59.9	58.4	56.9
85°	53.9	59.9	56.9	46.4	43.4	40.4	38.9	37.4	37.4	37.4	37.4
87.5°	21.0	28.4	23.9	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P646669

CATALOG NUMBER: S123RDR-S1165D840-X4F0-XX-UDD-G-W

CANDELA DISTRIBUTION (continued):

	160°	170°	180°
0°	3650.5	3650.5	3650.5
2.5°	3250.8	3235.9	3229.9
5°	2803.3	2756.9	2746.4
7.5°	2396.2	2376.8	2312.4
10°	2096.9	2037.0	2010.1
12.5°	1827.5	1772.1	1763.1
15°	1611.9	1573.0	1559.6
17.5°	1469.8	1442.8	1426.4
20°	1365.0	1345.5	1333.6
22.5°	1285.7	1270.7	1261.7
25°	1215.3	1192.9	1185.4
27.5°	1143.5	1124.0	1116.5
30°	1076.1	1059.7	1049.2
32.5°	1005.8	986.3	980.3
35°	938.4	926.5	920.5
37.5°	872.6	857.6	848.6
40°	811.2	803.7	799.2
42.5°	755.8	742.4	740.9
45°	697.5	684.0	681.0
47.5°	642.1	630.1	628.6
50°	583.7	567.2	555.3
52.5°	513.4	498.4	487.9
55°	450.5	434.0	425.1
57.5°	398.1	390.6	386.1
60°	357.7	353.2	350.2
62.5°	321.8	317.3	317.3
65°	288.9	284.4	279.9
67.5°	248.5	239.5	238.0
70°	199.1	185.6	184.1
72.5°	151.2	149.7	146.7
75°	125.7	122.7	122.7
77.5°	101.8	98.8	98.8
80°	77.8	76.3	77.8
82.5°	56.9	56.9	55.4
85°	37.4	35.9	35.9
87.5°	18.0	18.0	18.0
90°	0.0	0.0	0.0

(END OF REPORT)