

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: P646691

Luminaire Tested: S123RDR-S560D935-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2019
Report Number: P646691
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-S560D935-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

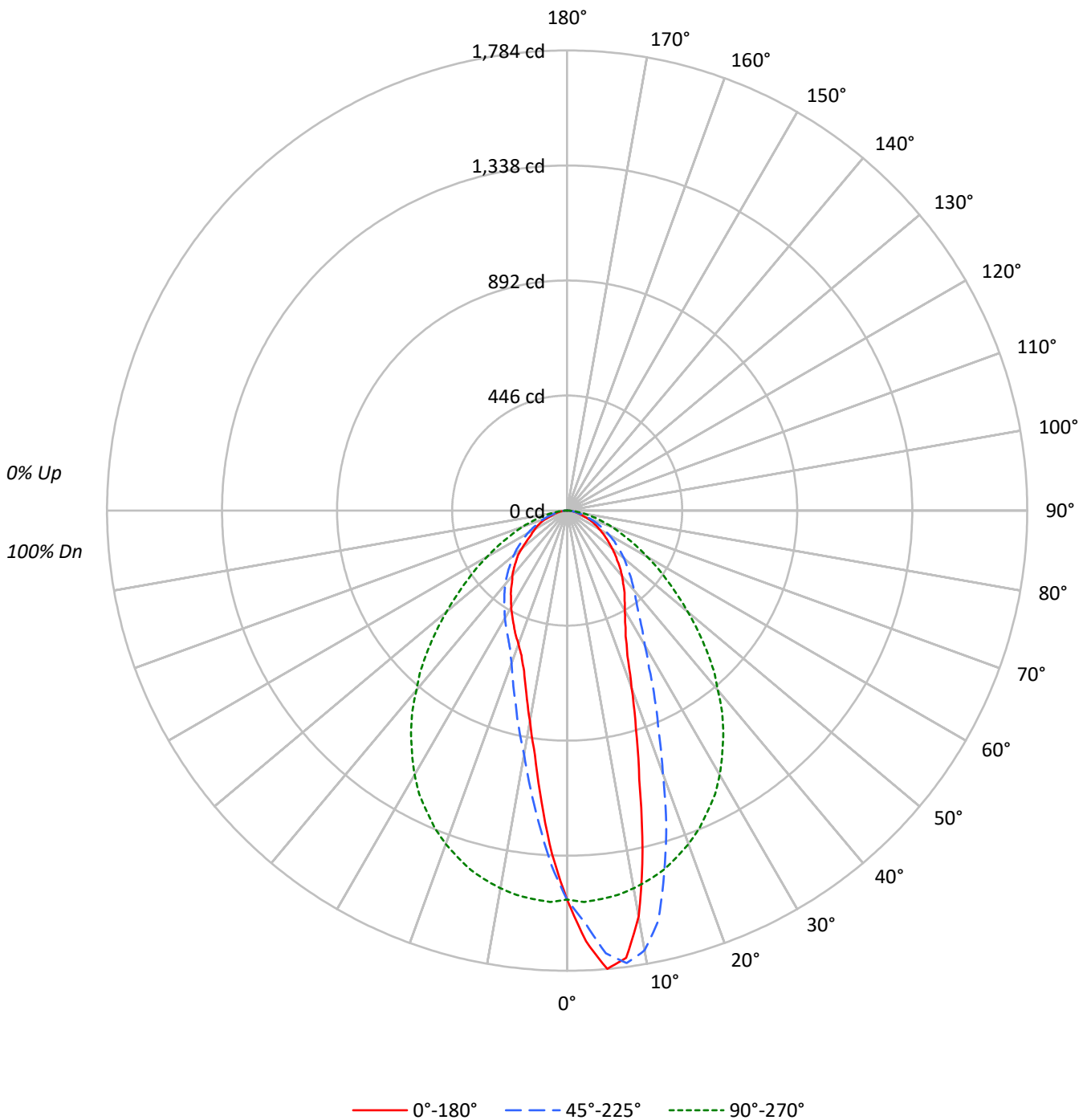
Lumens per Lamp: N/A
Luminaire Lumens: 1997.6 lumens
Efficiency: N/A
Efficacy: 107.4 lumens/watt
Spacing Criteria (0/90/45): 0.55 / 1.17 / 0.79
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

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				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°	18168	18168	18168	18168	18168
5°	21573	20840	18282	14828	13721
10°	19545	21179	18191	11740	10159
15°	13457	18139	17999	9640	8036
20°	9362	13912	17637	8078	7063
25°	7134	10677	17112	7216	6509
30°	6211	8395	16455	6709	6030
35°	5701	7066	15523	6256	5592
40°	5202	6340	14304	5873	5192
45°	4698	5804	12990	5456	4793
50°	4265	5389	11438	5076	4300
55°	3857	4947	9949	4636	3689
60°	3456	4499	8642	4246	3487
65°	3190	4000	7438	3772	3296
70°	2593	3421	6489	3421	2677
75°	2272	2761	5498	2849	2360
80°	2061	2318	4503	2401	2227
85°	1880	1963	3415	2143	2046

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°

Vertical Angle: 45°

Luminance: 13705 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	137.4	6.9
10°-20°	318.0	15.9
20°-30°	364.8	18.3
30°-40°	359.3	18.0
40°-50°	316.7	15.9
50°-60°	243.7	12.2
60°-70°	160.3	8.0
70°-80°	77.8	3.9
80°-90°	19.6	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°	820.2	41.1
0°-40°	1179.5	59.0
0°-60°	1739.9	87.1
0°-90°	1997.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1997.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1508	1508	1508	1508	1508	
5°	1784	1723	1512	1226	1134	163
15°	1079	1454	1443	773	644	305
25°	537	803	1287	543	490	253
35°	388	480	1055	425	380	242
45°	276	341	762	320	281	214
55°	184	236	474	221	176	165
65°	112	140	261	132	116	110
75°	49	59	118	61	51	53
85°	14	14	25	16	15	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°	1507.8	1507.8	1507.8	1507.8	1507.8	1507.8	1507.8	1507.8	1507.8	1507.8	1507.8
2.5°	1671.0	1660.5	1657.4	1653.7	1647.6	1625.3	1600.0	1602.4	1599.3	1580.2	1569.7
5°	1783.6	1784.8	1781.7	1779.2	1768.7	1741.5	1723.0	1711.8	1688.4	1652.5	1641.4
7.5°	1748.9	1768.7	1772.4	1776.8	1782.3	1776.1	1769.3	1765.0	1745.9	1706.9	1689.0
10°	1597.5	1596.2	1618.5	1636.4	1684.6	1718.6	1731.0	1748.9	1765.0	1737.8	1718.0
12.5°	1350.2	1352.0	1425.0	1425.0	1487.4	1574.0	1629.6	1667.3	1736.6	1738.4	1726.7
15°	1078.8	1109.1	1174.0	1187.6	1268.0	1384.2	1454.1	1531.9	1666.1	1708.1	1705.7
17.5°	885.9	898.9	961.3	979.3	1050.4	1182.0	1278.5	1372.4	1560.4	1648.8	1664.9
20°	730.1	741.9	787.0	800.6	872.3	997.8	1085.0	1186.4	1432.4	1567.8	1596.2
22.5°	609.6	632.4	662.7	683.8	724.6	852.5	927.3	1024.4	1284.0	1476.9	1510.3
25°	536.6	547.1	573.1	583.0	632.4	717.1	803.1	888.4	1152.4	1363.2	1421.9
27.5°	487.2	490.2	509.4	518.1	547.7	626.3	688.1	767.2	1018.2	1246.3	1315.0
30°	446.4	451.9	466.8	468.6	494.6	550.2	603.4	676.3	900.7	1133.2	1203.7
32.5°	414.8	417.9	430.3	434.0	450.7	494.6	537.9	591.0	791.9	1015.1	1096.1
35°	387.6	388.2	397.5	402.5	417.3	453.8	480.4	524.9	704.8	917.4	988.5
37.5°	356.7	361.0	367.8	372.2	385.2	414.8	438.9	473.6	624.4	824.7	890.9
40°	330.7	334.5	342.5	344.3	356.1	383.3	403.1	434.0	555.2	735.7	803.1
42.5°	304.8	307.3	315.3	319.0	332.0	353.6	371.5	395.7	500.1	656.5	722.7
45°	275.7	281.9	290.6	292.4	304.8	327.0	340.6	362.9	450.7	587.9	646.7
47.5°	251.6	254.7	262.1	265.2	279.4	299.2	313.4	332.6	408.0	525.5	583.0
50°	227.5	228.7	235.5	239.9	251.0	273.9	287.5	304.8	369.1	474.8	515.0
52.5°	204.6	207.7	214.5	217.6	225.0	248.5	260.9	278.8	332.0	422.9	463.0
55°	183.6	185.5	190.4	194.1	202.8	223.2	235.5	251.0	299.8	375.3	410.5
57.5°	163.8	166.3	170.0	173.1	181.1	199.1	211.4	226.9	269.5	332.0	359.2
60°	143.4	146.5	150.8	152.1	159.5	175.6	186.7	200.3	238.6	291.8	315.9
62.5°	128.6	129.2	132.9	134.8	139.1	152.1	163.8	176.8	210.8	252.9	272.6
65°	111.9	113.8	115.6	116.8	120.6	131.7	140.3	150.2	183.6	220.1	233.7
67.5°	94.6	96.4	99.5	100.8	103.9	111.3	118.7	128.6	156.4	187.3	199.7
70°	73.6	73.6	78.5	81.0	85.9	91.5	97.1	105.7	129.8	156.4	165.7
72.5°	60.0	60.6	61.2	61.2	65.5	74.8	77.9	83.5	102.6	128.0	136.0
75°	48.8	49.5	50.1	50.7	51.3	54.4	59.3	64.3	78.5	97.1	104.5
77.5°	38.9	39.6	40.2	40.2	41.4	42.7	43.9	46.4	56.3	69.9	76.0
80°	29.7	30.3	30.9	30.9	31.5	32.8	33.4	34.6	37.7	47.0	50.1
82.5°	21.6	21.6	21.6	22.3	22.9	22.9	24.1	24.1	26.0	28.4	30.3
85°	13.6	13.6	14.2	14.2	14.2	14.8	14.2	14.8	15.5	16.1	17.3
87.5°	6.2	5.6	6.2	6.2	6.2	6.8	6.8	6.8	6.8	7.4	7.4
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):

	80°	90°	100°	110°	112.5°	120°	130°	135°	140°	150°	157.5°
0°	1507.8	1507.8	1507.8	1507.8	1507.8	1507.8	1507.8	1507.8	1507.8	1507.8	1507.8
2.5°	1540.6	1519.0	1482.5	1459.6	1451.0	1424.4	1399.0	1378.0	1367.5	1366.3	1347.1
5°	1570.9	1511.5	1436.1	1373.1	1358.2	1311.9	1251.9	1225.9	1191.9	1178.3	1162.3
7.5°	1595.6	1502.9	1391.6	1296.4	1268.6	1198.7	1122.1	1088.1	1062.1	1021.3	997.2
10°	1612.9	1486.8	1337.2	1214.2	1174.6	1093.0	1000.3	959.5	935.4	888.4	869.2
12.5°	1619.7	1466.4	1282.8	1128.9	1094.2	997.2	906.3	864.3	828.4	785.8	767.2
15°	1617.3	1442.9	1227.2	1050.4	1007.1	908.8	812.3	772.8	739.4	696.7	672.6
17.5°	1600.6	1409.5	1166.6	974.3	932.9	831.5	733.8	697.4	667.7	626.3	607.7
20°	1572.8	1375.5	1113.4	905.1	858.1	761.0	668.9	630.0	604.0	581.7	568.1
22.5°	1534.4	1335.4	1048.5	836.5	795.6	698.0	609.6	578.0	562.6	544.7	534.8
25°	1476.3	1287.1	989.8	779.0	738.2	641.1	563.8	542.8	527.3	515.6	505.1
27.5°	1413.9	1240.8	931.0	720.8	682.5	589.8	528.0	511.9	498.3	483.4	474.2
30°	1341.5	1182.7	875.4	669.5	632.4	548.4	497.0	482.2	471.1	455.0	445.7
32.5°	1256.2	1119.0	823.5	620.1	585.5	512.5	468.6	452.5	443.3	427.8	418.5
35°	1167.8	1055.3	766.6	574.3	542.8	481.0	440.8	425.3	415.4	400.0	390.7
37.5°	1081.3	987.3	715.9	534.1	505.7	449.4	411.7	398.8	389.5	373.4	362.3
40°	989.8	909.4	666.4	496.4	469.8	421.6	385.2	373.4	361.0	346.8	335.7
42.5°	893.9	840.8	620.7	463.0	438.3	394.4	358.6	346.2	335.7	319.0	314.1
45°	804.3	762.3	572.5	427.8	408.0	367.2	332.6	320.2	308.5	294.3	289.3
47.5°	724.6	685.6	528.6	396.9	377.1	340.6	306.6	293.7	285.0	273.9	266.5
50°	642.3	610.2	480.4	366.6	348.1	312.2	279.4	270.8	260.9	247.3	241.7
52.5°	565.7	540.9	440.8	337.5	320.2	288.1	254.7	246.1	236.8	225.0	217.0
55°	498.3	473.6	395.7	304.8	291.8	261.5	231.8	220.7	213.3	199.7	189.8
57.5°	429.0	417.3	352.4	277.6	265.2	234.9	208.3	199.7	190.4	175.6	165.7
60°	372.2	358.6	312.2	247.9	236.2	210.8	184.8	176.2	167.5	153.3	149.0
62.5°	318.4	308.5	273.3	220.1	210.2	185.5	162.6	154.6	145.9	136.6	133.5
65°	269.5	260.9	234.3	191.6	183.6	162.0	141.0	132.3	126.7	122.4	119.3
67.5°	223.8	218.8	198.4	165.1	158.9	139.7	121.2	114.4	111.3	106.3	103.9
70°	182.4	184.2	165.7	141.0	134.2	118.7	102.6	97.1	93.4	89.0	84.1
72.5°	149.0	148.4	137.2	115.0	110.0	97.7	85.3	81.6	77.3	68.6	63.1
75°	115.6	118.1	107.6	95.2	90.3	77.9	66.1	61.2	56.9	53.8	51.9
77.5°	88.4	89.6	84.7	72.9	68.6	58.1	48.8	46.4	44.5	42.7	42.0
80°	63.1	64.9	60.0	52.5	48.8	40.2	35.2	34.6	34.0	32.8	32.1
82.5°	40.8	43.3	40.8	32.8	30.9	26.6	25.3	25.3	24.7	24.1	23.5
85°	22.3	24.7	23.5	19.2	17.9	16.7	16.1	15.5	15.5	15.5	15.5
87.5°	8.7	11.7	9.9	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
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):

	160°	170°	180°
0°	1507.8	1507.8	1507.8
2.5°	1342.8	1336.6	1334.1
5°	1157.9	1138.8	1134.4
7.5°	989.8	981.7	955.1
10°	866.1	841.4	830.3
12.5°	754.8	732.0	728.3
15°	665.8	649.7	644.2
17.5°	607.1	596.0	589.2
20°	563.8	555.8	550.8
22.5°	531.1	524.9	521.2
25°	502.0	492.7	489.6
27.5°	472.3	464.3	461.2
30°	444.5	437.7	433.4
32.5°	415.4	407.4	404.9
35°	387.6	382.7	380.2
37.5°	360.4	354.2	350.5
40°	335.1	332.0	330.1
42.5°	312.2	306.6	306.0
45°	288.1	282.5	281.3
47.5°	265.2	260.3	259.7
50°	241.1	234.3	229.4
52.5°	212.0	205.9	201.5
55°	186.1	179.3	175.6
57.5°	164.4	161.4	159.5
60°	147.8	145.9	144.7
62.5°	132.9	131.1	131.1
65°	119.3	117.5	115.6
67.5°	102.6	98.9	98.3
70°	82.2	76.7	76.0
72.5°	62.4	61.8	60.6
75°	51.9	50.7	50.7
77.5°	42.0	40.8	40.8
80°	32.1	31.5	32.1
82.5°	23.5	23.5	22.9
85°	15.5	14.8	14.8
87.5°	7.4	7.4	7.4
90°	0.0	0.0	0.0

(END OF REPORT)