

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: P646685

Luminaire Tested: S123RDR-S560D830-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2019
Report Number: P646685
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-S560D830-X4F0-XX-UDD-G-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC STANDARD LIGHT ENGINE
Light Source: 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

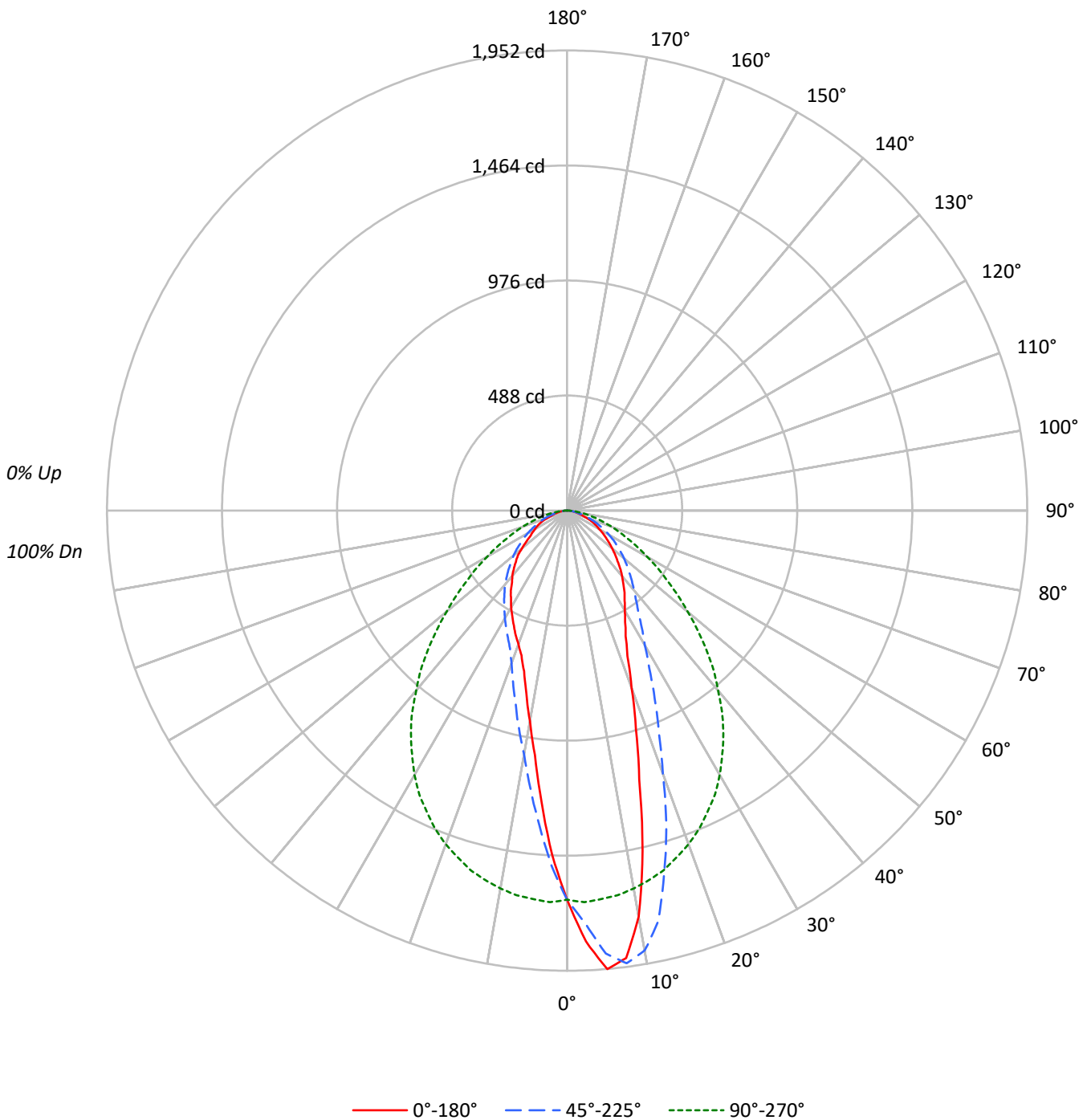
Lumens per Lamp: N/A
Luminaire Lumens: 2186.8 lumens
Efficiency: N/A
Efficacy: 117.6 lumens/watt
Spacing Criteria (0/90/45): 0.55 / 1.17 / 0.79
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

Input Watts (W): 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°	19888	19888	19888	19888	19888
5°	23616	22814	20014	16232	15021
10°	21397	23185	19914	12850	11120
15°	14732	19856	19704	10553	8797
20°	10249	15229	19308	8842	7732
25°	7809	11687	18732	7900	7126
30°	6798	9190	18013	7345	6600
35°	6241	7736	16992	6849	6122
40°	5696	6941	15658	6430	5684
45°	5143	6354	14220	5974	5247
50°	4669	5899	12522	5556	4707
55°	4222	5416	10890	5075	4038
60°	3783	4926	9459	4649	3817
65°	3493	4379	8143	4128	3609
70°	2836	3745	7106	3745	2931
75°	2491	3026	6019	3119	2584
80°	2255	2533	4934	2630	2442
85°	2060	2157	3747	2336	2240

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°

Vertical Angle: 45°

Luminance: 15004 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	150.4	6.9
10°-20°	348.1	15.9
20°-30°	399.3	18.3
30°-40°	393.3	18.0
40°-50°	346.7	15.9
50°-60°	266.8	12.2
60°-70°	175.5	8.0
70°-80°	85.2	3.9
80°-90°	21.5	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°	897.8	41.1
0°-40°	1291.2	59.0
0°-60°	1904.7	87.1
0°-90°	2186.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2186.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1651	1651	1651	1651	1651	
5°	1952	1886	1655	1342	1242	178
15°	1181	1592	1580	846	705	333
25°	587	879	1409	594	536	277
35°	424	526	1155	466	416	265
45°	302	373	834	351	308	234
55°	201	258	518	242	192	180
65°	122	154	286	145	127	120
75°	54	65	129	67	56	58
85°	15	16	27	17	16	17
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°	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6
2.5°	1829.3	1817.8	1814.4	1810.4	1803.6	1779.2	1751.5	1754.2	1750.8	1729.8	1718.3
5°	1952.5	1953.8	1950.5	1947.7	1936.2	1906.5	1886.2	1874.0	1848.3	1809.0	1796.8
7.5°	1914.6	1936.2	1940.3	1945.0	1951.1	1944.4	1936.9	1932.2	1911.2	1868.6	1848.9
10°	1748.8	1747.4	1771.8	1791.4	1844.2	1881.4	1895.0	1914.6	1932.2	1902.4	1880.7
12.5°	1478.1	1480.1	1560.0	1560.0	1628.3	1723.1	1784.0	1825.2	1901.0	1903.1	1890.2
15°	1181.0	1214.1	1285.2	1300.1	1388.1	1515.3	1591.8	1677.0	1823.9	1869.9	1867.2
17.5°	969.8	984.0	1052.4	1072.0	1149.8	1294.0	1399.6	1502.4	1708.2	1804.9	1822.5
20°	799.3	812.1	861.5	876.4	954.9	1092.3	1187.7	1298.7	1568.1	1716.3	1747.4
22.5°	667.3	692.3	725.5	748.5	793.2	933.3	1015.2	1121.4	1405.7	1616.8	1653.4
25°	587.4	598.9	627.4	638.2	692.3	785.1	879.1	972.5	1261.5	1492.3	1556.6
27.5°	533.3	536.7	557.7	567.1	599.6	685.6	753.2	839.9	1114.6	1364.4	1439.5
30°	488.6	494.7	511.0	513.0	541.4	602.3	660.5	740.4	986.1	1240.5	1317.7
32.5°	454.1	457.5	471.0	475.1	493.4	541.4	588.8	647.0	866.9	1111.3	1199.9
35°	424.3	425.0	435.2	440.6	456.8	496.7	525.9	574.6	771.5	1004.3	1082.2
37.5°	390.5	395.2	402.7	407.4	421.6	454.1	480.5	518.4	683.5	902.8	975.2
40°	362.1	366.1	374.9	377.0	389.8	419.6	441.3	475.1	607.7	805.4	879.1
42.5°	333.6	336.4	345.2	349.2	363.4	387.1	406.7	433.1	547.5	718.7	791.1
45°	301.8	308.6	318.1	320.1	333.6	358.0	372.9	397.3	493.4	643.6	707.9
47.5°	275.4	278.8	287.0	290.3	305.9	327.6	343.1	364.1	446.7	575.3	638.2
50°	249.1	250.4	257.8	262.6	274.8	299.8	314.7	333.6	404.0	519.8	563.7
52.5°	224.0	227.4	234.8	238.2	246.3	272.1	285.6	305.2	363.4	462.9	506.9
55°	201.0	203.0	208.4	212.5	222.0	244.3	257.8	274.8	328.2	410.8	449.4
57.5°	179.3	182.1	186.1	189.5	198.3	217.9	231.5	248.4	295.1	363.4	393.2
60°	157.0	160.4	165.1	166.5	174.6	192.2	204.4	219.3	261.2	319.4	345.8
62.5°	140.8	141.4	145.5	147.5	152.3	166.5	179.3	193.6	230.8	276.8	298.5
65°	122.5	124.5	126.6	127.9	132.0	144.2	153.6	164.5	201.0	240.9	255.8
67.5°	103.5	105.6	109.0	110.3	113.7	121.8	129.9	140.8	171.2	205.1	218.6
70°	80.5	80.5	85.9	88.7	94.1	100.2	106.3	115.7	142.1	171.2	181.4
72.5°	65.6	66.3	67.0	67.0	71.7	81.9	85.3	91.4	112.3	140.1	148.9
75°	53.5	54.1	54.8	55.5	56.2	59.6	65.0	70.4	85.9	106.3	114.4
77.5°	42.6	43.3	44.0	44.0	45.3	46.7	48.1	50.8	61.6	76.5	83.2
80°	32.5	33.2	33.8	33.8	34.5	35.9	36.5	37.9	41.3	51.4	54.8
82.5°	23.7	23.7	23.7	24.4	25.0	25.0	26.4	26.4	28.4	31.1	33.2
85°	14.9	14.9	15.6	15.6	15.6	16.2	15.6	16.2	16.9	17.6	18.9
87.5°	6.8	6.1	6.8	6.8	6.8	7.4	7.4	7.4	7.4	8.1	8.1
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°	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6
2.5°	1686.5	1662.8	1622.9	1597.9	1588.4	1559.3	1531.5	1508.5	1497.0	1495.7	1474.7
5°	1719.7	1654.7	1572.1	1503.1	1486.9	1436.1	1370.5	1342.0	1304.8	1289.9	1272.3
7.5°	1746.7	1645.2	1523.4	1419.2	1388.7	1312.3	1228.3	1191.1	1162.7	1118.0	1091.6
10°	1765.7	1627.6	1463.9	1329.2	1285.9	1196.5	1095.0	1050.3	1024.0	972.5	951.5
12.5°	1773.1	1605.3	1404.3	1235.8	1197.9	1091.6	992.1	946.1	906.9	860.2	839.9
15°	1770.4	1579.6	1343.4	1149.8	1102.5	994.9	889.3	846.0	809.4	762.7	736.3
17.5°	1752.2	1543.0	1277.1	1066.6	1021.2	910.3	803.3	763.4	730.9	685.6	665.3
20°	1721.7	1505.8	1218.9	990.8	939.4	833.1	732.3	689.6	661.2	636.8	622.0
22.5°	1679.7	1461.8	1147.8	915.7	871.0	764.1	667.3	632.8	615.9	596.2	585.4
25°	1616.1	1409.0	1083.5	852.7	808.1	701.8	617.2	594.2	577.3	564.4	552.9
27.5°	1547.8	1358.3	1019.2	789.1	747.2	645.6	578.0	560.4	545.5	529.2	519.1
30°	1468.6	1294.7	958.3	732.9	692.3	600.3	544.1	527.9	515.7	498.1	488.0
32.5°	1375.2	1225.0	901.5	678.8	640.9	561.0	513.0	495.4	485.2	468.3	458.2
35°	1278.4	1155.2	839.2	628.7	594.2	526.5	482.5	465.6	454.8	437.9	427.7
37.5°	1183.7	1080.8	783.7	584.7	553.6	492.0	450.7	436.5	426.4	408.8	396.6
40°	1083.5	995.5	729.6	543.4	514.3	461.6	421.6	408.8	395.2	379.7	367.5
42.5°	978.6	920.4	679.5	506.9	479.8	431.8	392.5	379.0	367.5	349.2	343.8
45°	880.5	834.5	626.7	468.3	446.7	402.0	364.1	350.6	337.7	322.1	316.7
47.5°	793.2	750.5	578.6	434.5	412.8	372.9	335.7	321.5	312.0	299.8	291.7
50°	703.2	668.0	525.9	401.3	381.0	341.8	305.9	296.4	285.6	270.7	264.6
52.5°	619.2	592.2	482.5	369.5	350.6	315.4	278.8	269.4	259.2	246.3	237.5
55°	545.5	518.4	433.1	333.6	319.4	286.3	253.8	241.6	233.5	218.6	207.8
57.5°	469.7	456.8	385.8	303.9	290.3	257.2	228.1	218.6	208.4	192.2	181.4
60°	407.4	392.5	341.8	271.4	258.5	230.8	202.4	192.9	183.4	167.8	163.1
62.5°	348.5	337.7	299.1	240.9	230.1	203.0	178.0	169.2	159.7	149.6	146.2
65°	295.1	285.6	256.5	209.8	201.0	177.3	154.3	144.8	138.7	134.0	130.6
67.5°	245.0	239.6	217.2	180.7	173.9	153.0	132.6	125.2	121.8	116.4	113.7
70°	199.6	201.7	181.4	154.3	146.9	129.9	112.3	106.3	102.2	97.5	92.0
72.5°	163.1	162.4	150.2	125.9	120.5	106.9	93.4	89.3	84.6	75.1	69.0
75°	126.6	129.3	117.8	104.2	98.8	85.3	72.4	67.0	62.3	58.9	56.8
77.5°	96.8	98.1	92.7	79.9	75.1	63.6	53.5	50.8	48.7	46.7	46.0
80°	69.0	71.1	65.6	57.5	53.5	44.0	38.6	37.9	37.2	35.9	35.2
82.5°	44.7	47.4	44.7	35.9	33.8	29.1	27.7	27.7	27.1	26.4	25.7
85°	24.4	27.1	25.7	21.0	19.6	18.3	17.6	16.9	16.9	16.9	16.9
87.5°	9.5	12.9	10.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8
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°	1650.6	1650.6	1650.6
2.5°	1469.9	1463.2	1460.5
5°	1267.6	1246.6	1241.9
7.5°	1083.5	1074.7	1045.6
10°	948.2	921.1	908.9
12.5°	826.3	801.3	797.2
15°	728.9	711.3	705.2
17.5°	664.6	652.4	645.0
20°	617.2	608.4	603.0
22.5°	581.3	574.6	570.5
25°	549.5	539.4	536.0
27.5°	517.1	508.3	504.9
30°	486.6	479.2	474.4
32.5°	454.8	446.0	443.3
35°	424.3	418.9	416.2
37.5°	394.6	387.8	383.7
40°	366.8	363.4	361.4
42.5°	341.8	335.7	335.0
45°	315.4	309.3	307.9
47.5°	290.3	284.9	284.2
50°	263.9	256.5	251.1
52.5°	232.1	225.4	220.6
55°	203.7	196.3	192.2
57.5°	180.0	176.6	174.6
60°	161.7	159.7	158.4
62.5°	145.5	143.5	143.5
65°	130.6	128.6	126.6
67.5°	112.3	108.3	107.6
70°	90.0	83.9	83.2
72.5°	68.4	67.7	66.3
75°	56.8	55.5	55.5
77.5°	46.0	44.7	44.7
80°	35.2	34.5	35.2
82.5°	25.7	25.7	25.0
85°	16.9	16.2	16.2
87.5°	8.1	8.1	8.1
90°	0.0	0.0	0.0

(END OF REPORT)