

Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State  
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: NEO-RAY

Report Number: P231564

Luminaire Tested: **S123-DR-2-30-X-0048-1-U-DD-3-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P231564  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P29684)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S123-DR-2-30-X-0048-1-U-DD-3-W  
Description: DEFINE 3 LED LINEAR DIRECT RECESSED LED LUMINAIRE WITH ASYMMETRIC LENS.  
Light Source: 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

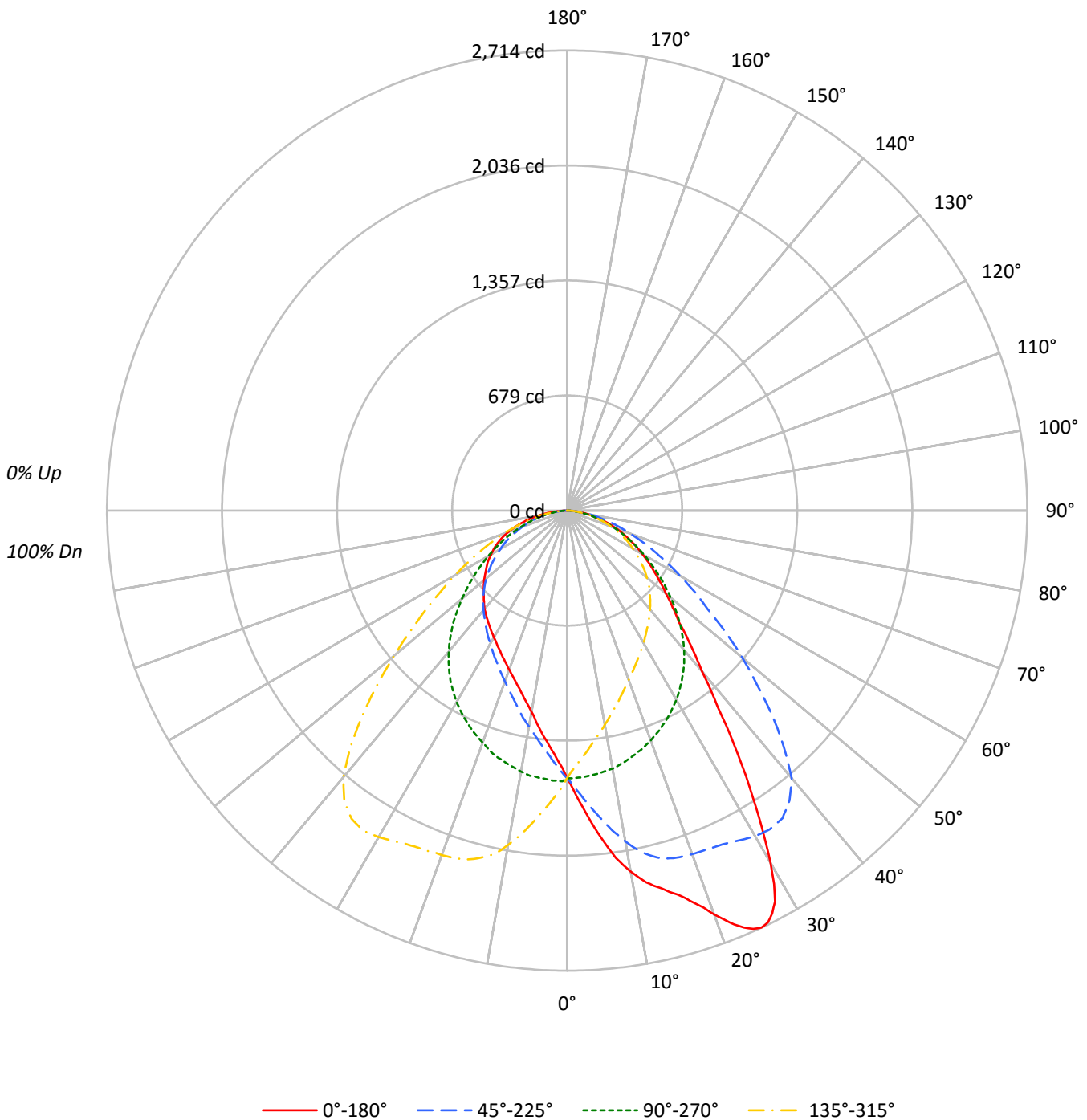
Lumens per Lamp: N/A  
Luminaire Lumens: 4328.3 lumens  
Efficiency: N/A  
Efficacy: 101.6 lumens/watt  
Spacing Criteria (0/90/45): 1.33 / 1.22 / 1.46  
Luminous Opening: Rectangular (W 3.92' x L: 0.22' x H: 0')  
CIE Type: Direct

Input Watts (W): 42.6  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): 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: 25 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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	109	105	101	97	107	103	99	96	98	95	93	95	92	90	91	89	87	85
2	100	92	86	80	98	90	84	79	87	82	78	84	79	76	81	77	74	72
3	92	82	74	68	89	80	73	67	77	71	66	74	69	65	72	67	64	61
4	84	73	64	58	82	71	64	57	69	62	57	67	61	56	65	59	55	53
5	78	65	57	50	76	64	56	50	62	55	49	60	54	49	58	53	48	46
6	72	59	50	44	70	58	50	44	56	49	44	55	48	43	53	47	43	41
7	67	54	45	39	65	53	45	39	51	44	39	50	43	39	49	43	38	36
8	62	49	41	35	61	48	41	35	47	40	35	46	39	35	45	39	34	33
9	58	45	37	32	57	45	37	32	43	36	31	42	36	31	41	35	31	29
10	55	42	34	29	53	41	34	29	40	33	29	39	33	29	38	33	28	27

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°	270°
0°	19418	19418	19418	19418
5°	23246	19374	16901	19610
10°	27023	19309	15069	19530
15°	29668	19097	13854	19339
20°	33209	18898	13080	19076
25°	36856	18631	12562	18817
30°	34078	18298	12276	18530
35°	26428	17850	12159	18097
40°	19854	17250	12172	17446
45°	16291	16363	12095	16601
50°	14582	15262	12235	15495
55°	13449	14091	12426	14385
60°	12610	12945	12745	13213
65°	11785	11823	13175	12141
70°	11079	10540	13336	10835
75°	10043	9201	13024	9525
80°	8888	7534	12169	7917
85°	7117	5578	10972	6157



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	153.5	3.5
10°-20°	459.7	10.6
20°-30°	732.9	16.9
30°-40°	844.1	19.5
40°-50°	768.8	17.8
50°-60°	623.3	14.4
60°-70°	442.6	10.2
70°-80°	240.1	5.5
80°-90°	63.5	1.5
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°	1346.1	31.1
0°-40°	2190.1	50.6
0°-60°	3582.2	82.8
0°-90°	4328.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4328.3	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1578	1578	1578	1578	1578	
5°	1882	1568	1368	1587	1882	189
15°	2328	1499	1087	1518	2328	667
25°	2714	1372	925	1386	2714	1215
35°	1759	1188	809	1204	1759	1101
45°	936	940	695	954	936	742
55°	627	657	579	670	627	564
65°	405	406	452	417	405	403
75°	211	194	274	200	211	225
85°	50	40	78	44	50	60
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1577.8	1577.8	1577.8	1577.8	1577.8	1577.8	1577.8	1577.8	1577.8	1577.8	1577.8
1°	1629.6	1618.7	1611.8	1583.2	1579.1	1549.2	1536.9	1526.0	1521.9	1528.7	1549.2
2°	1690.9	1670.4	1650.0	1602.3	1576.4	1530.1	1505.6	1485.1	1479.7	1487.9	1515.1
3°	1750.8	1723.6	1690.9	1621.4	1576.4	1512.4	1474.2	1445.6	1438.8	1448.3	1485.1
4°	1814.9	1780.8	1731.7	1639.1	1572.3	1493.3	1444.3	1410.2	1403.4	1411.6	1453.8
5°	1881.6	1839.4	1774.0	1658.2	1568.2	1470.1	1415.6	1374.8	1368.0	1376.1	1423.8
6°	1942.9	1898.0	1816.2	1677.2	1565.5	1456.5	1387.0	1343.4	1336.6	1343.4	1396.6
7°	2007.0	1957.9	1859.8	1695.0	1560.1	1436.1	1359.8	1312.1	1303.9	1313.5	1369.3
8°	2068.3	2013.8	1903.4	1712.7	1554.6	1417.0	1333.9	1282.1	1271.2	1282.1	1343.4
9°	2117.3	2062.8	1941.6	1729.0	1549.2	1397.9	1308.0	1253.5	1234.4	1253.5	1317.5
10°	2162.3	2109.2	1982.4	1745.4	1545.1	1378.9	1282.1	1224.9	1205.8	1224.9	1293.0
11°	2203.2	2148.7	2019.2	1760.4	1538.3	1361.1	1257.6	1199.0	1179.9	1197.6	1271.2
12°	2241.3	2185.5	2051.9	1780.8	1527.4	1343.4	1233.1	1173.1	1155.4	1171.8	1250.8
13°	2269.9	2214.1	2079.2	1791.7	1519.2	1321.6	1209.9	1150.0	1132.2	1148.6	1223.5
14°	2295.8	2242.7	2102.3	1804.0	1508.3	1301.2	1186.7	1125.4	1109.1	1126.8	1197.6
15°	2328.5	2265.8	2122.8	1814.9	1498.8	1282.1	1166.3	1103.6	1087.3	1105.0	1174.5
16°	2354.4	2289.0	2135.0	1824.4	1487.9	1263.0	1143.1	1083.2	1068.2	1085.9	1152.7
17°	2391.2	2312.2	2143.2	1831.2	1478.3	1244.0	1121.3	1064.1	1049.1	1065.5	1132.2
18°	2434.8	2335.3	2148.7	1835.3	1467.4	1224.9	1100.9	1045.0	1031.4	1045.0	1110.4
19°	2478.4	2363.9	2154.1	1839.4	1453.8	1204.5	1081.8	1027.3	1015.1	1026.0	1091.4
20°	2535.6	2395.3	2156.8	1838.0	1442.9	1186.7	1062.8	1011.0	998.7	1008.3	1072.3
21°	2584.7	2430.7	2159.6	1832.6	1427.9	1166.3	1045.0	994.6	983.7	991.9	1054.6
22°	2632.4	2468.9	2160.9	1828.5	1415.6	1147.2	1027.3	979.6	967.4	976.9	1036.9
23°	2671.9	2507.0	2163.7	1817.6	1402.0	1128.2	1009.6	963.3	953.8	961.9	1019.2
24°	2700.5	2547.9	2167.7	1805.3	1385.7	1109.1	993.3	949.7	938.8	946.9	1001.4
25°	2714.1	2581.9	2171.8	1789.0	1372.0	1091.4	976.9	936.0	925.1	930.6	985.1
26°	2701.8	2603.7	2180.0	1771.3	1355.7	1072.3	960.6	923.8	911.5	917.0	968.7
27°	2665.1	2613.3	2189.5	1750.8	1339.3	1053.2	945.6	911.5	900.6	904.7	953.8
28°	2611.9	2605.1	2199.1	1729.0	1321.6	1035.5	930.6	897.9	887.0	891.1	937.4
29°	2517.9	2577.9	2207.3	1705.9	1305.3	1017.8	915.6	882.9	874.7	877.5	922.4
30°	2398.0	2528.8	2218.2	1682.7	1287.6	998.7	900.6	870.6	863.8	865.2	907.4
32.5°	2071.0	2320.3	2227.7	1617.3	1239.9	955.1	863.8	837.9	836.6	835.2	872.0
35°	1759.0	2032.9	2214.1	1547.8	1188.1	911.5	828.4	808.0	809.3	806.6	835.2
37.5°	1457.9	1737.2	2155.5	1483.8	1133.6	867.9	794.3	780.7	783.4	778.0	799.8
40°	1235.8	1472.9	2060.1	1407.5	1073.7	825.7	760.3	752.1	757.6	750.7	767.1
42.5°	1079.1	1254.9	1892.5	1335.3	1008.3	783.4	724.9	722.1	726.2	720.8	731.7
45°	936.0	1083.2	1712.7	1260.3	940.1	739.8	689.4	686.7	694.9	686.7	697.6
47.5°	844.8	949.7	1517.8	1190.8	869.3	697.6	654.0	654.0	667.6	652.6	660.8
50°	761.6	835.2	1348.9	1111.8	797.1	654.0	613.1	618.6	639.0	618.6	622.7
52.5°	690.8	746.7	1175.8	1030.1	726.2	609.0	573.6	585.9	607.7	585.9	581.8
55°	626.8	667.6	1011.0	944.2	656.7	564.1	531.4	549.1	579.1	553.2	540.9
57.5°	568.2	598.1	889.7	855.7	590.0	519.1	490.5	519.1	553.2	523.2	498.7
60°	512.3	534.1	767.1	767.1	525.9	471.4	448.3	482.3	517.8	485.1	456.4
62.5°	459.2	475.5	660.8	675.8	464.6	423.7	408.8	445.5	487.8	451.0	415.6
65°	404.7	416.9	565.4	588.6	406.0	372.0	365.2	407.4	452.4	412.8	373.3



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	357.0	362.4	478.2	502.8	348.8	322.9	318.8	366.5	412.8	372.0	324.3
70°	307.9	309.3	397.9	421.0	292.9	278.0	275.2	321.6	370.6	327.0	282.0
72.5°	258.9	258.9	322.9	342.0	242.5	231.6	233.0	279.3	322.9	283.4	239.8
75°	211.2	209.8	256.2	271.1	193.5	186.7	189.4	235.7	273.9	238.4	196.2
77.5°	166.2	167.6	196.2	205.7	148.5	144.4	152.6	190.8	223.5	193.5	155.3
80°	125.4	121.3	141.7	147.2	106.3	106.3	111.7	145.8	171.7	148.5	117.2
82.5°	84.5	85.8	94.0	96.7	69.5	70.9	76.3	103.6	124.0	106.3	81.8
85°	50.4	50.4	54.5	54.5	39.5	40.9	49.1	64.0	77.7	68.1	50.4
87.5°	21.8	21.8	23.2	23.2	17.7	19.1	23.2	31.3	38.2	34.1	25.9
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):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1577.8	1577.8	1577.8	1577.8	1577.8	1577.8
1°	1556.0	1596.9	1598.2	1629.6	1637.7	1629.6
2°	1538.3	1595.5	1620.0	1669.1	1690.9	1690.9
3°	1519.2	1594.1	1637.7	1711.3	1746.7	1750.8
4°	1498.8	1590.0	1658.2	1753.5	1802.6	1814.9
5°	1479.7	1587.3	1674.5	1794.4	1859.8	1881.6
6°	1460.6	1584.6	1695.0	1838.0	1919.8	1942.9
7°	1442.9	1579.1	1714.0	1881.6	1977.0	2007.0
8°	1423.8	1579.1	1731.7	1923.9	2032.9	2068.3
9°	1410.2	1571.0	1756.3	1963.4	2084.6	2117.3
10°	1385.7	1562.8	1767.2	2001.5	2129.6	2162.3
11°	1365.2	1553.3	1780.8	2039.7	2169.1	2203.2
12°	1344.8	1545.1	1797.1	2071.0	2203.2	2241.3
13°	1327.1	1536.9	1808.0	2091.4	2231.8	2269.9
14°	1308.0	1527.4	1823.0	2110.5	2256.3	2295.8
15°	1287.6	1517.8	1833.9	2126.9	2278.1	2328.5
16°	1269.9	1511.0	1843.5	2140.5	2298.5	2354.4
17°	1252.1	1498.8	1853.0	2148.7	2323.1	2391.2
18°	1233.1	1485.1	1855.7	2155.5	2347.6	2434.8
19°	1209.9	1470.1	1857.1	2158.2	2378.9	2478.4
20°	1190.8	1456.5	1855.7	2162.3	2418.4	2535.6
21°	1173.1	1442.9	1850.3	2162.3	2460.7	2584.7
22°	1152.7	1430.6	1843.5	2169.1	2502.9	2632.4
23°	1133.6	1417.0	1836.7	2171.8	2541.1	2671.9
24°	1114.5	1402.0	1823.0	2174.6	2576.5	2700.5
25°	1096.8	1385.7	1810.8	2180.0	2606.5	2714.1
26°	1077.7	1370.7	1793.1	2185.5	2628.3	2701.8
27°	1058.7	1354.3	1772.6	2195.0	2633.7	2665.1
28°	1039.6	1338.0	1745.4	2204.5	2621.5	2611.9
29°	1021.9	1320.3	1722.2	2214.1	2588.8	2517.9
30°	1004.2	1303.9	1697.7	2223.6	2534.3	2398.0
32.5°	961.9	1256.2	1639.1	2238.6	2314.9	2071.0
35°	917.0	1204.5	1568.2	2218.2	2019.2	1759.0
37.5°	874.7	1147.2	1498.8	2159.6	1722.2	1457.9
40°	833.9	1085.9	1429.3	2053.3	1455.2	1235.8
42.5°	791.6	1021.9	1358.4	1891.2	1239.9	1079.1
45°	750.7	953.8	1283.5	1707.2	1068.2	936.0
47.5°	708.5	881.5	1207.2	1515.1	933.3	844.8
50°	662.2	809.3	1128.2	1331.2	828.4	761.6
52.5°	617.2	739.8	1045.0	1162.2	739.8	690.8
55°	577.7	670.4	957.8	1012.3	662.2	626.8
57.5°	531.4	603.6	869.3	880.2	594.1	568.2
60°	481.0	536.8	778.0	763.0	531.4	512.3
62.5°	433.3	475.5	686.7	656.7	471.4	459.2
65°	388.3	416.9	598.1	562.7	416.9	404.7





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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	336.5	358.3	512.3	475.5	363.8	357.0
70°	284.8	301.1	430.6	397.9	306.6	307.9
72.5°	242.5	248.0	352.9	321.6	261.6	258.9
75°	196.2	200.3	278.0	256.2	212.6	211.2
77.5°	152.6	154.0	212.6	197.6	167.6	166.2
80°	113.1	111.7	152.6	143.1	121.3	125.4
82.5°	76.3	74.9	100.8	96.7	87.2	84.5
85°	46.3	43.6	58.6	57.2	51.8	50.4
87.5°	23.2	21.8	27.3	27.3	24.5	21.8
90°	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)