

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: P231566

Luminaire Tested: **S123-DR-2-40-X-0048-1-U-DD-3-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P231566
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-2-40-X-0048-1-U-DD-3-W
Description: DEFINE 3 LED LINEAR DIRECT RECESSED LED LUMINAIRE WITH ASYMMETRIC LENS.
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

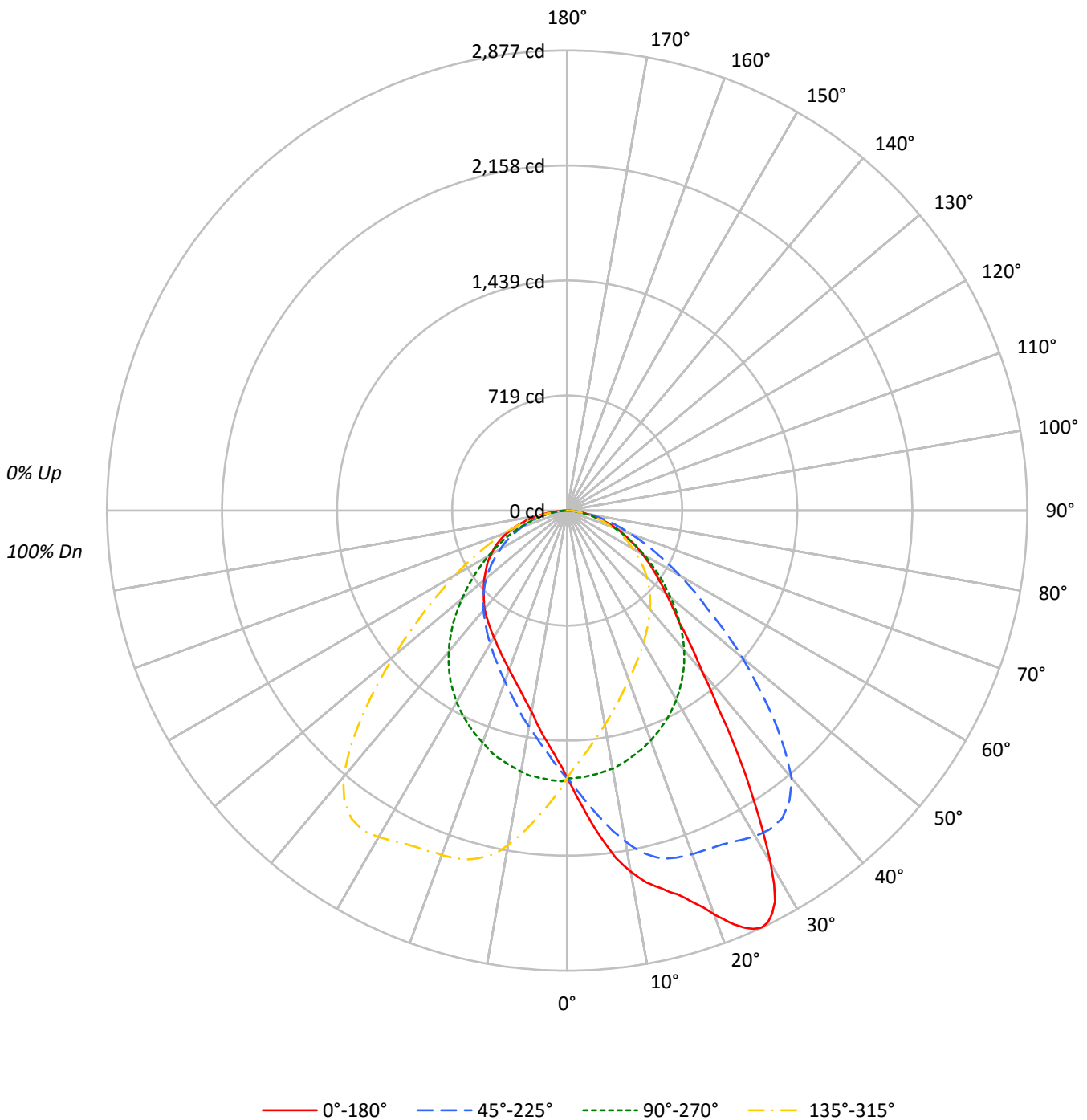
Lumens per Lamp: N/A
Luminaire Lumens: 4588.0 lumens
Efficiency: N/A
Efficacy: 107.7 lumens/watt
Spacing Criteria (0/90/45): 1.33 / 1.22 / 1.46
Luminous Opening: Rectangular (W 3.92' x L: 0.22' x H: 0')
CIE Type: Direct

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

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	20583	20583	20583	20583
5°	24641	20536	17914	20787
10°	28643	20468	15974	20703
15°	31448	20242	14684	20500
20°	35202	20032	13865	20221
25°	39068	19750	13316	19946
30°	36123	19395	13013	19641
35°	28013	18922	12889	19182
40°	21045	18285	12901	18494
45°	17269	17344	12821	17597
50°	15457	16177	12970	16426
55°	14256	14936	13170	15247
60°	13366	13723	13508	14006
65°	12490	12534	13964	12869
70°	11745	11173	14135	11486
75°	10647	9753	13804	10095
80°	9419	7988	12899	8392
85°	7541	5917	11622	6524



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	162.7	3.5
10°-20°	487.2	10.6
20°-30°	776.9	16.9
30°-40°	894.7	19.5
40°-50°	815.0	17.8
50°-60°	660.6	14.4
60°-70°	469.2	10.2
70°-80°	254.5	5.5
80°-90°	67.3	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°	1426.8	31.1
0°-40°	2321.5	50.6
0°-60°	3797.1	82.8
0°-90°	4588.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4588.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1672	1672	1672	1672	1672	
5°	1994	1662	1450	1683	1994	200
15°	2468	1589	1152	1609	2468	707
25°	2877	1454	981	1469	2877	1288
35°	1864	1259	858	1277	1864	1167
45°	992	996	737	1011	992	787
55°	664	696	614	711	664	598
65°	429	430	480	442	429	428
75°	224	205	290	212	224	238
85°	53	42	82	46	53	63
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°	1672.4	1672.4	1672.4	1672.4	1672.4	1672.4	1672.4	1672.4	1672.4	1672.4	1672.4
1°	1727.3	1715.8	1708.6	1678.2	1673.9	1642.1	1629.1	1617.6	1613.2	1620.5	1642.1
2°	1792.3	1770.7	1749.0	1698.4	1671.0	1621.9	1595.9	1574.2	1568.5	1577.1	1606.0
3°	1855.9	1827.0	1792.3	1718.7	1671.0	1603.1	1562.7	1532.4	1525.1	1535.2	1574.2
4°	1923.7	1887.6	1835.6	1737.4	1666.7	1582.9	1530.9	1494.8	1487.6	1496.2	1541.0
5°	1994.5	1949.7	1880.4	1757.7	1662.3	1558.3	1500.6	1457.3	1450.0	1458.7	1509.2
6°	2059.5	2011.8	1925.2	1777.9	1659.4	1543.9	1470.2	1424.0	1416.8	1424.0	1480.4
7°	2127.4	2075.4	1971.4	1796.6	1653.7	1522.2	1441.4	1390.8	1382.1	1392.3	1451.5
8°	2192.4	2134.6	2017.6	1815.4	1647.9	1502.0	1413.9	1359.0	1347.5	1359.0	1424.0
9°	2244.4	2186.6	2058.1	1832.8	1642.1	1481.8	1386.5	1328.7	1308.5	1328.7	1396.6
10°	2292.0	2235.7	2101.4	1850.1	1637.8	1461.6	1359.0	1298.4	1278.2	1298.4	1370.6
11°	2335.4	2277.6	2140.4	1866.0	1630.6	1442.8	1333.0	1270.9	1250.7	1269.5	1347.5
12°	2375.8	2316.6	2175.0	1887.6	1619.0	1424.0	1307.0	1243.5	1224.7	1242.1	1325.8
13°	2406.1	2346.9	2203.9	1899.2	1610.3	1400.9	1282.5	1218.9	1200.2	1217.5	1296.9
14°	2433.6	2377.2	2228.5	1912.2	1598.8	1379.3	1257.9	1193.0	1175.6	1194.4	1269.5
15°	2468.2	2401.8	2250.1	1923.7	1588.7	1359.0	1236.3	1169.8	1152.5	1171.3	1244.9
16°	2495.7	2426.3	2263.1	1933.9	1577.1	1338.8	1211.7	1148.2	1132.3	1151.1	1221.8
17°	2534.7	2450.9	2271.8	1941.1	1567.0	1318.6	1188.6	1128.0	1112.1	1129.4	1200.2
18°	2580.9	2475.4	2277.6	1945.4	1555.5	1298.4	1167.0	1107.7	1093.3	1107.7	1177.1
19°	2627.1	2505.8	2283.4	1949.7	1541.0	1276.7	1146.7	1089.0	1076.0	1087.5	1156.8
20°	2687.8	2539.0	2286.3	1948.3	1529.5	1257.9	1126.5	1071.6	1058.6	1068.7	1136.6
21°	2739.7	2576.5	2289.1	1942.5	1513.6	1236.3	1107.7	1054.3	1042.8	1051.4	1117.9
22°	2790.3	2617.0	2290.6	1938.2	1500.6	1216.1	1089.0	1038.4	1025.4	1035.5	1099.1
23°	2832.2	2657.4	2293.5	1926.6	1486.1	1195.8	1070.2	1021.1	1011.0	1019.6	1080.3
24°	2862.5	2700.8	2297.8	1913.6	1468.8	1175.6	1052.9	1006.6	995.1	1003.8	1061.5
25°	2877.0	2736.9	2302.1	1896.3	1454.4	1156.8	1035.5	992.2	980.6	986.4	1044.2
26°	2864.0	2760.0	2310.8	1877.5	1437.0	1136.6	1018.2	979.2	966.2	972.0	1026.9
27°	2825.0	2770.1	2320.9	1855.9	1419.7	1116.4	1002.3	966.2	954.7	959.0	1011.0
28°	2768.6	2761.4	2331.0	1832.8	1400.9	1097.6	986.4	951.8	940.2	944.5	993.6
29°	2669.0	2732.5	2339.7	1808.2	1383.6	1078.9	970.5	935.9	927.2	930.1	977.8
30°	2541.9	2680.5	2351.2	1783.7	1364.8	1058.6	954.7	922.9	915.7	917.1	961.9
32.5°	2195.3	2459.6	2361.4	1714.3	1314.3	1012.4	915.7	888.2	886.8	885.3	924.3
35°	1864.5	2154.8	2346.9	1640.7	1259.4	966.2	878.1	856.4	857.9	855.0	885.3
37.5°	1545.3	1841.4	2284.8	1572.8	1201.6	920.0	842.0	827.6	830.4	824.7	847.8
40°	1309.9	1561.2	2183.7	1491.9	1138.1	875.2	805.9	797.2	803.0	795.8	813.1
42.5°	1143.8	1330.2	2006.1	1415.4	1068.7	830.4	768.3	765.5	769.8	764.0	775.6
45°	992.2	1148.2	1815.4	1335.9	996.5	784.2	730.8	727.9	736.6	727.9	739.5
47.5°	895.4	1006.6	1608.9	1262.3	921.4	739.5	693.2	693.2	707.7	691.8	700.5
50°	807.3	885.3	1429.8	1178.5	844.9	693.2	649.9	655.7	677.4	655.7	660.0
52.5°	732.2	791.5	1246.4	1091.9	769.8	645.6	608.0	621.0	644.1	621.0	616.7
55°	664.4	707.7	1071.6	1000.9	696.1	597.9	563.3	582.0	613.8	586.4	573.4
57.5°	602.3	634.0	943.1	907.0	625.4	550.3	519.9	550.3	586.4	554.6	528.6
60°	543.0	566.1	813.1	813.1	557.5	499.7	475.2	511.3	548.8	514.2	483.8
62.5°	486.7	504.0	700.5	716.3	492.5	449.2	433.3	472.3	517.0	478.0	440.5
65°	428.9	441.9	599.4	623.9	430.4	394.3	387.1	431.8	479.5	437.6	395.7



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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°	378.4	384.2	506.9	532.9	369.7	342.3	338.0	388.5	437.6	394.3	343.7
70°	326.4	327.8	421.7	446.3	310.5	294.6	291.7	340.8	392.8	346.6	299.0
72.5°	274.4	274.4	342.3	362.5	257.1	245.5	247.0	296.1	342.3	300.4	254.2
75°	223.9	222.4	271.5	287.4	205.1	197.9	200.8	249.9	290.3	252.7	208.0
77.5°	176.2	177.6	208.0	218.1	157.4	153.1	161.8	202.2	236.9	205.1	164.6
80°	132.9	128.5	150.2	156.0	112.7	112.7	118.4	154.5	182.0	157.4	124.2
82.5°	89.5	91.0	99.7	102.5	73.7	75.1	80.9	109.8	131.4	112.7	86.7
85°	53.4	53.4	57.8	57.8	41.9	43.3	52.0	67.9	82.3	72.2	53.4
87.5°	23.1	23.1	24.6	24.6	18.8	20.2	24.6	33.2	40.4	36.1	27.4
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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CATALOG NUMBER: S123-DR-2-40-X-0048-1-U-DD-3-W

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1672.4	1672.4	1672.4	1672.4	1672.4	1672.4
1°	1649.3	1692.7	1694.1	1727.3	1736.0	1727.3
2°	1630.6	1691.2	1717.2	1769.2	1792.3	1792.3
3°	1610.3	1689.8	1736.0	1814.0	1851.5	1855.9
4°	1588.7	1685.4	1757.7	1858.8	1910.7	1923.7
5°	1568.5	1682.6	1775.0	1902.1	1971.4	1994.5
6°	1548.2	1679.7	1796.6	1948.3	2035.0	2059.5
7°	1529.5	1673.9	1816.9	1994.5	2095.6	2127.4
8°	1509.2	1673.9	1835.6	2039.3	2154.8	2192.4
9°	1494.8	1665.2	1861.6	2081.2	2209.7	2244.4
10°	1468.8	1656.6	1873.2	2121.6	2257.4	2292.0
11°	1447.1	1646.4	1887.6	2162.0	2299.2	2335.4
12°	1425.5	1637.8	1905.0	2195.3	2335.4	2375.8
13°	1406.7	1629.1	1916.5	2216.9	2365.7	2406.1
14°	1386.5	1619.0	1932.4	2237.1	2391.7	2433.6
15°	1364.8	1608.9	1944.0	2254.5	2414.8	2468.2
16°	1346.0	1601.7	1954.1	2268.9	2436.5	2495.7
17°	1327.3	1588.7	1964.2	2277.6	2462.4	2534.7
18°	1307.0	1574.2	1967.1	2284.8	2488.4	2580.9
19°	1282.5	1558.3	1968.5	2287.7	2521.7	2627.1
20°	1262.3	1543.9	1967.1	2292.0	2563.5	2687.8
21°	1243.5	1529.5	1961.3	2292.0	2608.3	2739.7
22°	1221.8	1516.5	1954.1	2299.2	2653.1	2790.3
23°	1201.6	1502.0	1946.9	2302.1	2693.5	2832.2
24°	1181.4	1486.1	1932.4	2305.0	2731.1	2862.5
25°	1162.6	1468.8	1919.4	2310.8	2762.9	2877.0
26°	1142.4	1452.9	1900.6	2316.6	2786.0	2864.0
27°	1122.2	1435.6	1879.0	2326.7	2791.7	2825.0
28°	1102.0	1418.3	1850.1	2336.8	2778.7	2768.6
29°	1083.2	1399.5	1825.5	2346.9	2744.1	2669.0
30°	1064.4	1382.1	1799.5	2357.0	2686.3	2541.9
32.5°	1019.6	1331.6	1737.4	2372.9	2453.8	2195.3
35°	972.0	1276.7	1662.3	2351.2	2140.4	1864.5
37.5°	927.2	1216.1	1588.7	2289.1	1825.5	1545.3
40°	883.9	1151.1	1515.0	2176.5	1542.5	1309.9
42.5°	839.1	1083.2	1439.9	2004.6	1314.3	1143.8
45°	795.8	1011.0	1360.5	1809.6	1132.3	992.2
47.5°	751.0	934.4	1279.6	1606.0	989.3	895.4
50°	701.9	857.9	1195.8	1411.0	878.1	807.3
52.5°	654.2	784.2	1107.7	1231.9	784.2	732.2
55°	612.4	710.6	1015.3	1073.1	701.9	664.4
57.5°	563.3	639.8	921.4	933.0	629.7	602.3
60°	509.8	569.0	824.7	808.8	563.3	543.0
62.5°	459.3	504.0	727.9	696.1	499.7	486.7
65°	411.6	441.9	634.0	596.5	441.9	428.9



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	356.7	379.8	543.0	504.0	385.6	378.4
70°	301.8	319.2	456.4	421.7	325.0	326.4
72.5°	257.1	262.9	374.1	340.8	277.3	274.4
75°	208.0	212.3	294.6	271.5	225.3	223.9
77.5°	161.8	163.2	225.3	209.4	177.6	176.2
80°	119.9	118.4	161.8	151.6	128.5	132.9
82.5°	80.9	79.4	106.9	102.5	92.4	89.5
85°	49.1	46.2	62.1	60.7	54.9	53.4
87.5°	24.6	23.1	28.9	28.9	26.0	23.1
90°	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)