

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: P231565

Luminaire Tested: **S123-DR-2-35-X-0048-1-U-DD-3-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P231565
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-2-35-X-0048-1-U-DD-3-W
Description: DEFINE 3 LED LINEAR DIRECT RECESSED LED LUMINAIRE WITH ASYMMETRIC LENS.
Light Source: 3500K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

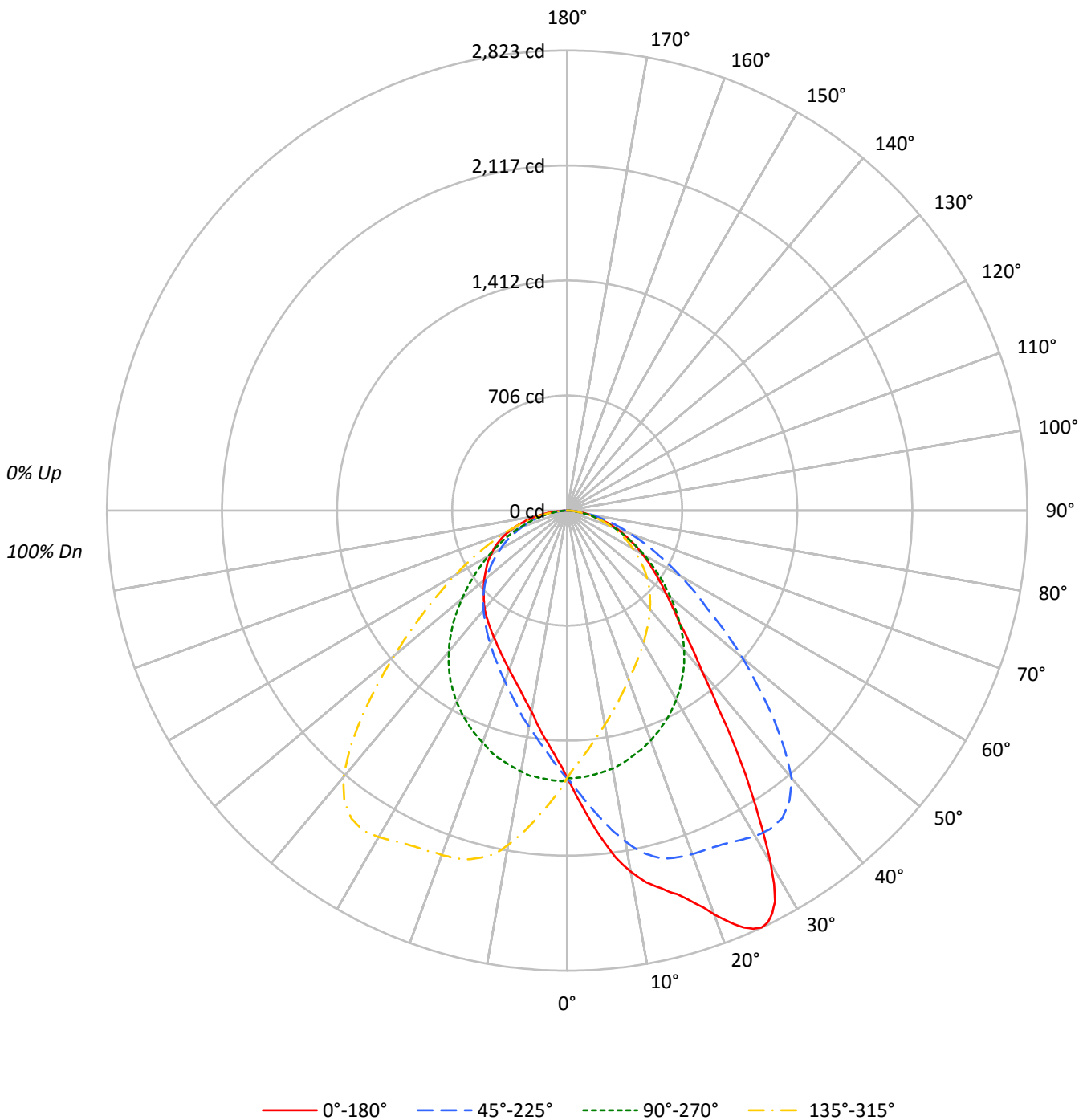
Lumens per Lamp: N/A
Luminaire Lumens: 4501.4 lumens
Efficiency: N/A
Efficacy: 105.7 lumens/watt
Spacing Criteria (0/90/45): 1.33 / 1.22 / 1.46
Luminous Opening: Rectangular (W 3.92' x L: 0.22' x H: 0')
CIE Type: Direct

Input Watts (W): 42.6
Input Voltage (V): 120
Input Current (A_{in}): 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				
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°	20195	20195	20195	20195
5°	24176	20150	17576	20394
10°	28104	20082	15671	20312
15°	30856	19860	14408	20112
20°	34537	19654	13604	19839
25°	38331	19377	13065	19569
30°	35441	19030	12767	19272
35°	27484	18564	12646	18820
40°	20648	17939	12658	18145
45°	16944	17017	12579	17264
50°	15166	15871	12725	16116
55°	13986	14655	12921	14960
60°	13115	13464	13255	13742
65°	12254	12298	13699	12627
70°	11522	10964	13868	11270
75°	10442	9567	13543	9905
80°	9242	7832	12651	8236
85°	7399	5804	11410	6397



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	159.6	3.5
10°-20°	478.1	10.6
20°-30°	762.2	16.9
30°-40°	877.8	19.5
40°-50°	799.6	17.8
50°-60°	648.2	14.4
60°-70°	460.3	10.2
70°-80°	249.7	5.5
80°-90°	66.0	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°	1399.9	31.1
0°-40°	2277.7	50.6
0°-60°	3725.5	82.8
0°-90°	4501.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4501.4	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1641	1641	1641	1641	1641	
5°	1957	1631	1423	1651	1957	196
15°	2422	1559	1131	1578	2422	694
25°	2823	1427	962	1441	2823	1263
35°	1829	1236	842	1253	1829	1145
45°	974	978	723	992	974	772
55°	652	683	602	697	652	586
65°	421	422	470	434	421	420
75°	220	201	285	208	220	234
85°	52	41	81	45	52	62
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°	1640.9	1640.9	1640.9	1640.9	1640.9	1640.9	1640.9	1640.9	1640.9	1640.9	1640.9
1°	1694.7	1683.4	1676.3	1646.6	1642.3	1611.1	1598.4	1587.0	1582.8	1589.9	1611.1
2°	1758.5	1737.2	1716.0	1666.4	1639.5	1591.3	1565.8	1544.5	1538.9	1547.4	1575.7
3°	1820.8	1792.5	1758.5	1686.2	1639.5	1572.9	1533.2	1503.4	1496.4	1506.3	1544.5
4°	1887.4	1852.0	1801.0	1704.7	1635.2	1553.0	1502.0	1466.6	1459.5	1468.0	1511.9
5°	1956.9	1913.0	1844.9	1724.5	1631.0	1528.9	1472.3	1429.8	1422.7	1431.2	1480.8
6°	2020.6	1973.9	1888.9	1744.3	1628.1	1514.8	1442.5	1397.2	1390.1	1397.2	1452.4
7°	2087.2	2036.2	1934.2	1762.8	1622.5	1493.5	1414.2	1364.6	1356.1	1366.0	1424.1
8°	2151.0	2094.3	1979.6	1781.2	1616.8	1473.7	1387.2	1333.4	1322.1	1333.4	1397.2
9°	2202.0	2145.3	2019.2	1798.2	1611.1	1453.8	1360.3	1303.6	1283.8	1303.6	1370.2
10°	2248.8	2193.5	2061.7	1815.2	1606.9	1434.0	1333.4	1273.9	1254.0	1273.9	1344.7
11°	2291.3	2234.6	2100.0	1830.8	1599.8	1415.6	1307.9	1247.0	1227.1	1245.5	1322.1
12°	2331.0	2272.9	2134.0	1852.0	1588.5	1397.2	1282.4	1220.0	1201.6	1218.6	1300.8
13°	2360.7	2302.6	2162.3	1863.4	1580.0	1374.5	1258.3	1195.9	1177.5	1194.5	1272.5
14°	2387.6	2332.4	2186.4	1876.1	1568.6	1353.2	1234.2	1170.4	1153.4	1171.9	1245.5
15°	2421.7	2356.5	2207.7	1887.4	1558.7	1333.4	1213.0	1147.8	1130.8	1149.2	1221.5
16°	2448.6	2380.6	2220.4	1897.4	1547.4	1313.6	1188.9	1126.5	1110.9	1129.4	1198.8
17°	2486.8	2404.7	2228.9	1904.5	1537.4	1293.7	1166.2	1106.7	1091.1	1108.1	1177.5
18°	2532.2	2428.7	2234.6	1908.7	1526.1	1273.9	1144.9	1086.8	1072.7	1086.8	1154.9
19°	2577.5	2458.5	2240.3	1913.0	1511.9	1252.6	1125.1	1068.4	1055.7	1067.0	1135.0
20°	2637.0	2491.1	2243.1	1911.5	1500.6	1234.2	1105.3	1051.4	1038.7	1048.6	1115.2
21°	2688.1	2527.9	2245.9	1905.9	1485.0	1213.0	1086.8	1034.4	1023.1	1031.6	1096.8
22°	2737.6	2567.6	2247.4	1901.6	1472.3	1193.1	1068.4	1018.8	1006.1	1016.0	1078.3
23°	2778.7	2607.3	2250.2	1890.3	1458.1	1173.3	1050.0	1001.8	991.9	1000.4	1059.9
24°	2808.5	2649.8	2254.5	1877.5	1441.1	1153.4	1033.0	987.7	976.3	984.8	1041.5
25°	2822.7	2685.2	2258.7	1860.5	1426.9	1135.0	1016.0	973.5	962.1	967.8	1024.5
26°	2809.9	2707.9	2267.2	1842.1	1409.9	1115.2	999.0	960.7	948.0	953.6	1007.5
27°	2771.7	2717.8	2277.1	1820.8	1392.9	1095.3	983.4	948.0	936.6	940.9	991.9
28°	2716.4	2709.3	2287.0	1798.2	1374.5	1076.9	967.8	933.8	922.5	926.7	974.9
29°	2618.6	2681.0	2295.5	1774.1	1357.5	1058.5	952.2	918.2	909.7	912.5	959.3
30°	2493.9	2630.0	2306.9	1750.0	1339.1	1038.7	936.6	905.5	898.4	899.8	943.7
32.5°	2153.8	2413.2	2316.8	1682.0	1289.5	993.3	898.4	871.5	870.0	868.6	906.9
35°	1829.3	2114.2	2302.6	1609.7	1235.6	948.0	861.5	840.3	841.7	838.9	868.6
37.5°	1516.2	1806.7	2241.7	1543.1	1178.9	902.6	826.1	811.9	814.8	809.1	831.8
40°	1285.2	1531.8	2142.5	1463.8	1116.6	858.7	790.7	782.2	787.9	780.8	797.8
42.5°	1122.3	1305.1	1968.2	1388.7	1048.6	814.8	753.8	751.0	755.3	749.6	760.9
45°	973.5	1126.5	1781.2	1310.7	977.7	769.4	717.0	714.2	722.7	714.2	725.5
47.5°	878.5	987.7	1578.5	1238.5	904.0	725.5	680.2	680.2	694.3	678.7	687.2
50°	792.1	868.6	1402.8	1156.3	828.9	680.2	637.7	643.3	664.6	643.3	647.6
52.5°	718.4	776.5	1222.9	1071.3	755.3	633.4	596.6	609.3	632.0	609.3	605.1
55°	651.8	694.3	1051.4	982.0	683.0	586.6	552.6	571.1	602.2	575.3	562.5
57.5°	590.9	622.1	925.3	889.9	613.6	539.9	510.1	539.9	575.3	544.1	518.6
60°	532.8	555.5	797.8	797.8	547.0	490.3	466.2	501.6	538.5	504.5	474.7
62.5°	477.5	494.5	687.2	702.8	483.2	440.7	425.1	463.4	507.3	469.0	432.2
65°	420.8	433.6	588.1	612.1	422.3	386.8	379.8	423.7	470.4	429.4	388.3



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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°	371.3	376.9	497.4	522.9	362.8	335.8	331.6	381.2	429.4	386.8	337.2
70°	320.2	321.7	413.8	437.9	304.7	289.1	286.2	334.4	385.4	340.1	293.3
72.5°	269.2	269.2	335.8	355.7	252.2	240.9	242.3	290.5	335.8	294.7	249.4
75°	219.6	218.2	266.4	282.0	201.2	194.1	197.0	245.1	284.8	248.0	204.0
77.5°	172.9	174.3	204.0	214.0	154.5	150.2	158.7	198.4	232.4	201.2	161.5
80°	130.4	126.1	147.4	153.0	110.5	110.5	116.2	151.6	178.5	154.5	121.9
82.5°	87.9	89.3	97.8	100.6	72.3	73.7	79.4	107.7	128.9	110.5	85.0
85°	52.4	52.4	56.7	56.7	41.1	42.5	51.0	66.6	80.8	70.9	52.4
87.5°	22.7	22.7	24.1	24.1	18.4	19.8	24.1	32.6	39.7	35.4	26.9
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°	1640.9	1640.9	1640.9	1640.9	1640.9	1640.9
1°	1618.2	1660.7	1662.1	1694.7	1703.2	1694.7
2°	1599.8	1659.3	1684.8	1735.8	1758.5	1758.5
3°	1580.0	1657.9	1703.2	1779.8	1816.6	1820.8
4°	1558.7	1653.6	1724.5	1823.7	1874.7	1887.4
5°	1538.9	1650.8	1741.5	1866.2	1934.2	1956.9
6°	1519.0	1648.0	1762.8	1911.5	1996.6	2020.6
7°	1500.6	1642.3	1782.6	1956.9	2056.1	2087.2
8°	1480.8	1642.3	1801.0	2000.8	2114.2	2151.0
9°	1466.6	1633.8	1826.5	2041.9	2168.0	2202.0
10°	1441.1	1625.3	1837.9	2081.6	2214.8	2248.8
11°	1419.8	1615.4	1852.0	2121.3	2255.9	2291.3
12°	1398.6	1606.9	1869.0	2153.8	2291.3	2331.0
13°	1380.2	1598.4	1880.4	2175.1	2321.0	2360.7
14°	1360.3	1588.5	1895.9	2194.9	2346.6	2387.6
15°	1339.1	1578.5	1907.3	2211.9	2369.2	2421.7
16°	1320.6	1571.5	1917.2	2226.1	2390.5	2448.6
17°	1302.2	1558.7	1927.1	2234.6	2416.0	2486.8
18°	1282.4	1544.5	1930.0	2241.7	2441.5	2532.2
19°	1258.3	1528.9	1931.4	2244.5	2474.1	2577.5
20°	1238.5	1514.8	1930.0	2248.8	2515.2	2637.0
21°	1220.0	1500.6	1924.3	2248.8	2559.1	2688.1
22°	1198.8	1487.9	1917.2	2255.9	2603.0	2737.6
23°	1178.9	1473.7	1910.1	2258.7	2642.7	2778.7
24°	1159.1	1458.1	1895.9	2261.5	2679.6	2808.5
25°	1140.7	1441.1	1883.2	2267.2	2710.7	2822.7
26°	1120.8	1425.5	1864.8	2272.9	2733.4	2809.9
27°	1101.0	1408.5	1843.5	2282.8	2739.1	2771.7
28°	1081.2	1391.5	1815.2	2292.7	2726.3	2716.4
29°	1062.8	1373.1	1791.1	2302.6	2692.3	2618.6
30°	1044.3	1356.1	1765.6	2312.5	2635.6	2493.9
32.5°	1000.4	1306.5	1704.7	2328.1	2407.5	2153.8
35°	953.6	1252.6	1631.0	2306.9	2100.0	1829.3
37.5°	909.7	1193.1	1558.7	2245.9	1791.1	1516.2
40°	867.2	1129.4	1486.4	2135.4	1513.4	1285.2
42.5°	823.3	1062.8	1412.8	1966.8	1289.5	1122.3
45°	780.8	991.9	1334.8	1775.5	1110.9	973.5
47.5°	736.8	916.8	1255.5	1575.7	970.6	878.5
50°	688.7	841.7	1173.3	1384.4	861.5	792.1
52.5°	641.9	769.4	1086.8	1208.7	769.4	718.4
55°	600.8	697.2	996.2	1052.8	688.7	651.8
57.5°	552.6	627.7	904.0	915.4	617.8	590.9
60°	500.2	558.3	809.1	793.5	552.6	532.8
62.5°	450.6	494.5	714.2	683.0	490.3	477.5
65°	403.8	433.6	622.1	585.2	433.6	420.8



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	350.0	372.7	532.8	494.5	378.3	371.3
70°	296.2	313.2	447.8	413.8	318.8	320.2
72.5°	252.2	257.9	367.0	334.4	272.1	269.2
75°	204.0	208.3	289.1	266.4	221.1	219.6
77.5°	158.7	160.1	221.1	205.5	174.3	172.9
80°	117.6	116.2	158.7	148.8	126.1	130.4
82.5°	79.4	77.9	104.9	100.6	90.7	87.9
85°	48.2	45.3	60.9	59.5	53.8	52.4
87.5°	24.1	22.7	28.3	28.3	25.5	22.7
90°	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)