

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: P231563

Luminaire Tested: **S123-DR-2-27-X-0048-1-U-DD-3-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P231563  
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-2-27-X-0048-1-U-DD-3-W  
Description: DEFINE 3 LED LINEAR DIRECT RECESSED LED LUMINAIRE WITH ASYMMETRIC LENS.  
Light Source: 2700K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3474.5 lumens  
Efficiency: N/A  
Efficacy: 81.6 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

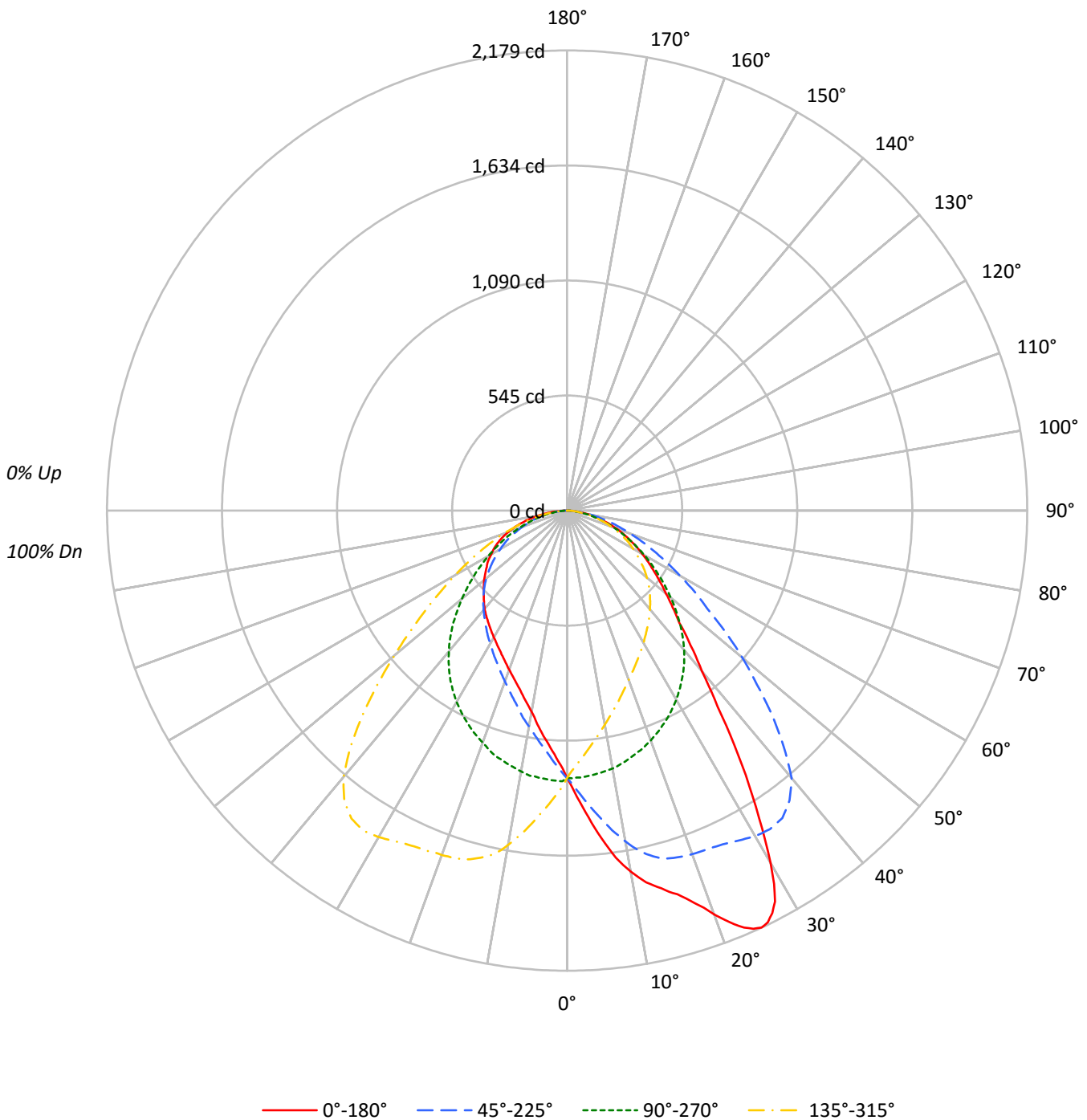
Input Watts (W): 42.6  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P231563

CATALOG NUMBER: S123-DR-2-27-X-0048-1-U-DD-3-W

### 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°	15587	15587	15587	15587
5°	18660	15553	13566	15742
10°	21691	15500	12096	15678
15°	23816	15329	11121	15524
20°	26658	15169	10500	15313
25°	29586	14957	10084	15105
30°	27355	14689	9854	14875
35°	21214	14329	9761	14526
40°	15937	13847	9770	14005
45°	13078	13136	9709	13325
50°	11706	12250	9822	12440
55°	10795	11312	9973	11546
60°	10121	10392	10230	10606
65°	9459	9491	10574	9747
70°	8895	8460	10705	8697
75°	8060	7385	10452	7646
80°	7130	6046	9767	6357
85°	5719	4476	8797	4942



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	123.2	3.5
10°-20°	369.0	10.6
20°-30°	588.3	16.9
30°-40°	677.6	19.5
40°-50°	617.2	17.8
50°-60°	500.3	14.4
60°-70°	355.3	10.2
70°-80°	192.7	5.5
80°-90°	50.9	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°	1080.5	31.1
0°-40°	1758.1	50.6
0°-60°	2875.5	82.8
0°-90°	3474.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3474.5	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1266	1266	1266	1266	1266	
5°	1510	1259	1098	1274	1510	152
15°	1869	1203	873	1218	1869	535
25°	2179	1101	743	1112	2179	975
35°	1412	954	650	967	1412	884
45°	751	755	558	766	751	596
55°	503	527	465	538	503	452
65°	325	326	363	335	325	324
75°	170	155	220	161	170	180
85°	40	32	62	35	40	48
90°	0	0	0	0	0	



TEST NUMBER: P231563

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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1266.5	1266.5	1266.5	1266.5	1266.5	1266.5	1266.5	1266.5	1266.5	1266.5	1266.5
1°	1308.1	1299.3	1293.9	1270.9	1267.6	1243.6	1233.7	1225.0	1221.7	1227.2	1243.6
2°	1357.3	1340.9	1324.5	1286.2	1265.4	1228.2	1208.6	1192.2	1187.8	1194.3	1216.2
3°	1405.4	1383.6	1357.3	1301.5	1265.4	1214.0	1183.4	1160.4	1155.0	1162.6	1192.2
4°	1456.8	1429.5	1390.1	1315.7	1262.2	1198.7	1159.3	1132.0	1126.5	1133.1	1167.0
5°	1510.4	1476.5	1424.0	1331.1	1258.9	1180.1	1136.4	1103.6	1098.1	1104.7	1142.9
6°	1559.6	1523.6	1457.9	1346.4	1256.7	1169.2	1113.4	1078.4	1072.9	1078.4	1121.1
7°	1611.1	1571.7	1492.9	1360.6	1252.3	1152.8	1091.5	1053.3	1046.7	1054.3	1099.2
8°	1660.3	1616.5	1527.9	1374.8	1247.9	1137.5	1070.8	1029.2	1020.4	1029.2	1078.4
9°	1699.6	1655.9	1558.6	1387.9	1243.6	1122.2	1050.0	1006.2	990.9	1006.2	1057.6
10°	1735.7	1693.1	1591.4	1401.1	1240.3	1106.8	1029.2	983.3	967.9	983.3	1037.9
11°	1768.5	1724.8	1620.9	1413.1	1234.8	1092.6	1009.5	962.5	947.2	961.4	1020.4
12°	1799.2	1754.3	1647.1	1429.5	1226.1	1078.4	989.8	941.7	927.5	940.6	1004.0
13°	1822.1	1777.3	1669.0	1438.2	1219.5	1060.9	971.2	923.1	908.9	922.0	982.2
14°	1842.9	1800.3	1687.6	1448.1	1210.7	1044.5	952.6	903.4	890.3	904.5	961.4
15°	1869.2	1818.9	1704.0	1456.8	1203.1	1029.2	936.2	885.9	872.8	887.0	942.8
16°	1889.9	1837.5	1713.9	1464.5	1194.3	1013.9	917.6	869.5	857.5	871.7	925.3
17°	1919.5	1856.0	1720.4	1470.0	1186.7	998.6	900.1	854.2	842.2	855.3	908.9
18°	1954.5	1874.6	1724.8	1473.2	1177.9	983.3	883.7	838.9	827.9	838.9	891.4
19°	1989.5	1897.6	1729.2	1476.5	1167.0	966.8	868.4	824.7	814.8	823.6	876.1
20°	2035.4	1922.8	1731.4	1475.4	1158.2	952.6	853.1	811.5	801.7	809.4	860.8
21°	2074.8	1951.2	1733.5	1471.1	1146.2	936.2	838.9	798.4	789.7	796.2	846.5
22°	2113.1	1981.8	1734.6	1467.8	1136.4	920.9	824.7	786.4	776.5	784.2	832.3
23°	2144.8	2012.4	1736.8	1459.0	1125.4	905.6	810.4	773.3	765.6	772.2	818.1
24°	2167.8	2045.3	1740.1	1449.2	1112.3	890.3	797.3	762.3	753.6	760.1	803.9
25°	2178.7	2072.6	1743.4	1436.1	1101.4	876.1	784.2	751.4	742.6	747.0	790.8
26°	2168.8	2090.1	1750.0	1421.8	1088.3	860.8	771.1	741.5	731.7	736.1	777.6
27°	2139.3	2097.8	1757.6	1405.4	1075.1	845.4	759.0	731.7	722.9	726.2	765.6
28°	2096.7	2091.2	1765.3	1387.9	1060.9	831.2	747.0	720.8	712.0	715.3	752.5
29°	2021.2	2069.3	1771.8	1369.3	1047.8	817.0	735.0	708.7	702.2	704.4	740.4
30°	1924.9	2029.9	1780.6	1350.7	1033.6	801.7	722.9	698.9	693.4	694.5	728.4
32.5°	1662.5	1862.6	1788.2	1298.2	995.3	766.7	693.4	672.6	671.5	670.5	700.0
35°	1412.0	1631.8	1777.3	1242.5	953.7	731.7	665.0	648.6	649.7	647.5	670.5
37.5°	1170.3	1394.5	1730.3	1191.1	910.0	696.7	637.6	626.7	628.9	624.5	642.0
40°	992.0	1182.3	1653.7	1129.8	861.9	662.8	610.3	603.7	608.1	602.6	615.8
42.5°	866.2	1007.3	1519.2	1071.8	809.4	628.9	581.9	579.7	583.0	578.6	587.3
45°	751.4	869.5	1374.8	1011.7	754.7	593.9	553.4	551.2	557.8	551.2	560.0
47.5°	678.1	762.3	1218.4	955.9	697.8	560.0	525.0	525.0	535.9	523.9	530.5
50°	611.4	670.5	1082.8	892.5	639.8	525.0	492.2	496.5	513.0	496.5	499.8
52.5°	554.5	599.4	943.9	826.9	583.0	488.9	460.5	470.3	487.8	470.3	467.0
55°	503.1	535.9	811.5	757.9	527.2	452.8	426.6	440.8	464.8	444.1	434.2
57.5°	456.1	480.1	714.2	686.9	473.6	416.7	393.7	416.7	444.1	420.0	400.3
60°	411.2	428.7	615.8	615.8	422.2	378.4	359.8	387.2	415.6	389.4	366.4
62.5°	368.6	381.7	530.5	542.5	373.0	340.1	328.1	357.6	391.6	362.0	333.6
65°	324.8	334.7	453.9	472.5	325.9	298.6	293.1	327.0	363.1	331.4	299.7



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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°	286.6	290.9	383.9	403.6	280.0	259.2	255.9	294.2	331.4	298.6	260.3
70°	247.2	248.3	319.4	338.0	235.1	223.1	220.9	258.1	297.5	262.5	226.4
72.5°	207.8	207.8	259.2	274.5	194.7	185.9	187.0	224.2	259.2	227.5	192.5
75°	169.5	168.4	205.6	217.7	155.3	149.8	152.0	189.2	219.8	191.4	157.5
77.5°	133.4	134.5	157.5	165.2	119.2	115.9	122.5	153.1	179.4	155.3	124.7
80°	100.6	97.3	113.7	118.1	85.3	85.3	89.7	117.0	137.8	119.2	94.1
82.5°	67.8	68.9	75.5	77.7	55.8	56.9	61.2	83.1	99.5	85.3	65.6
85°	40.5	40.5	43.7	43.7	31.7	32.8	39.4	51.4	62.3	54.7	40.5
87.5°	17.5	17.5	18.6	18.6	14.2	15.3	18.6	25.2	30.6	27.3	20.8
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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CATALOG NUMBER: S123-DR-2-27-X-0048-1-U-DD-3-W

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1266.5	1266.5	1266.5	1266.5	1266.5	1266.5
1°	1249.0	1281.8	1282.9	1308.1	1314.7	1308.1
2°	1234.8	1280.7	1300.4	1339.8	1357.3	1357.3
3°	1219.5	1279.7	1314.7	1373.7	1402.1	1405.4
4°	1203.1	1276.4	1331.1	1407.6	1447.0	1456.8
5°	1187.8	1274.2	1344.2	1440.4	1492.9	1510.4
6°	1172.5	1272.0	1360.6	1475.4	1541.1	1559.6
7°	1158.2	1267.6	1375.9	1510.4	1587.0	1611.1
8°	1142.9	1267.6	1390.1	1544.3	1631.8	1660.3
9°	1132.0	1261.1	1409.8	1576.1	1673.4	1699.6
10°	1112.3	1254.5	1418.6	1606.7	1709.5	1735.7
11°	1095.9	1246.8	1429.5	1637.3	1741.2	1768.5
12°	1079.5	1240.3	1442.6	1662.5	1768.5	1799.2
13°	1065.3	1233.7	1451.4	1678.9	1791.5	1822.1
14°	1050.0	1226.1	1463.4	1694.2	1811.2	1842.9
15°	1033.6	1218.4	1472.1	1707.3	1828.7	1869.2
16°	1019.3	1212.9	1479.8	1718.2	1845.1	1889.9
17°	1005.1	1203.1	1487.5	1724.8	1864.8	1919.5
18°	989.8	1192.2	1489.6	1730.3	1884.5	1954.5
19°	971.2	1180.1	1490.7	1732.5	1909.6	1989.5
20°	955.9	1169.2	1489.6	1735.7	1941.4	2035.4
21°	941.7	1158.2	1485.3	1735.7	1975.3	2074.8
22°	925.3	1148.4	1479.8	1741.2	2009.2	2113.1
23°	910.0	1137.5	1474.3	1743.4	2039.8	2144.8
24°	894.7	1125.4	1463.4	1745.6	2068.2	2167.8
25°	880.4	1112.3	1453.6	1750.0	2092.3	2178.7
26°	865.1	1100.3	1439.3	1754.3	2109.8	2168.8
27°	849.8	1087.2	1422.9	1762.0	2114.2	2139.3
28°	834.5	1074.0	1401.1	1769.6	2104.3	2096.7
29°	820.3	1059.8	1382.5	1777.3	2078.1	2021.2
30°	806.1	1046.7	1362.8	1785.0	2034.3	1924.9
32.5°	772.2	1008.4	1315.7	1797.0	1858.2	1662.5
35°	736.1	966.8	1258.9	1780.6	1620.9	1412.0
37.5°	702.2	920.9	1203.1	1733.5	1382.5	1170.3
40°	669.4	871.7	1147.3	1648.2	1168.1	992.0
42.5°	635.5	820.3	1090.4	1518.1	995.3	866.2
45°	602.6	765.6	1030.3	1370.4	857.5	751.4
47.5°	568.7	707.6	969.0	1216.2	749.2	678.1
50°	531.5	649.7	905.6	1068.6	665.0	611.4
52.5°	495.5	593.9	838.9	932.9	593.9	554.5
55°	463.7	538.1	768.9	812.6	531.5	503.1
57.5°	426.6	484.5	697.8	706.5	476.9	456.1
60°	386.1	430.9	624.5	612.5	426.6	411.2
62.5°	347.8	381.7	551.2	527.2	378.4	368.6
65°	311.7	334.7	480.1	451.7	334.7	324.8





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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	270.1	287.6	411.2	381.7	292.0	286.6
70°	228.6	241.7	345.6	319.4	246.1	247.2
72.5°	194.7	199.1	283.3	258.1	210.0	207.8
75°	157.5	160.8	223.1	205.6	170.6	169.5
77.5°	122.5	123.6	170.6	158.6	134.5	133.4
80°	90.8	89.7	122.5	114.8	97.3	100.6
82.5°	61.2	60.2	80.9	77.7	70.0	67.8
85°	37.2	35.0	47.0	45.9	41.6	40.5
87.5°	18.6	17.5	21.9	21.9	19.7	17.5
90°	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)