

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: P231562

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

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P231562  
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-1-40-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: 3237.8 lumens  
Efficiency: N/A  
Efficacy: 116.1 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

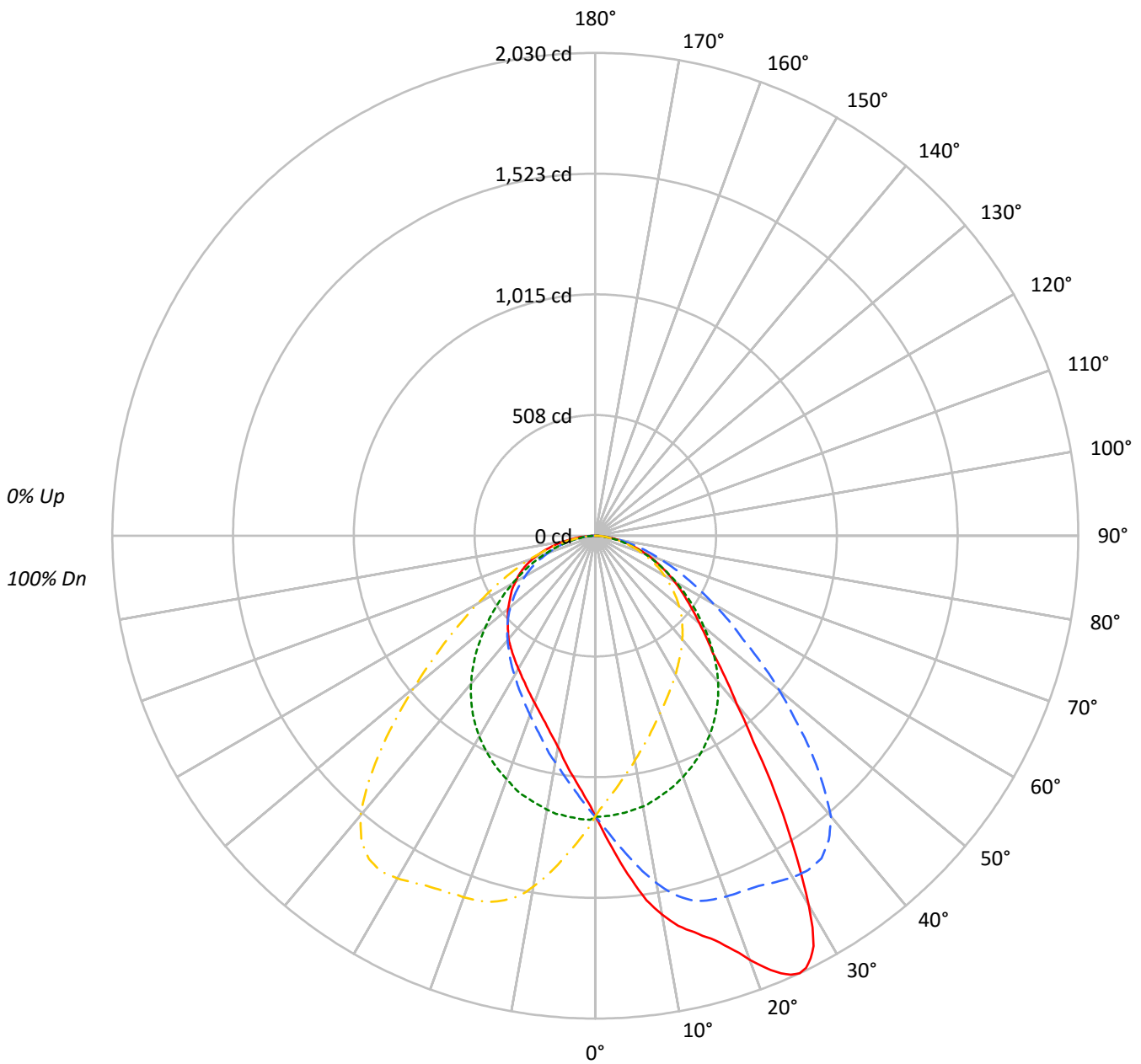
Input Watts (W): 27.9  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot



— 0°-180°    - - 45°-225°    - - - 90°-270°    - · - 135°-315°



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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°	14526	14526	14526	14526
5°	17390	14493	12642	14669
10°	20214	14444	11272	14610
15°	22194	14286	10363	14467
20°	24843	14137	9785	14271
25°	27571	13938	9398	14077
30°	25492	13688	9183	13862
35°	19769	13354	9096	13537
40°	14851	12904	9105	13050
45°	12187	12241	9047	12419
50°	10908	11415	9152	11591
55°	10059	10542	9295	10761
60°	9432	9683	9533	9885
65°	8815	8844	9855	9083
70°	8287	7884	9975	8104
75°	7513	6881	9743	7123
80°	6648	5635	9100	5925
85°	5324	4180	8204	4603



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	114.8	3.5
10°-20°	343.9	10.6
20°-30°	548.3	16.9
30°-40°	631.4	19.5
40°-50°	575.1	17.8
50°-60°	466.2	14.4
60°-70°	331.1	10.2
70°-80°	179.6	5.5
80°-90°	47.5	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°	1006.9	31.1
0°-40°	1638.3	50.6
0°-60°	2679.7	82.8
0°-90°	3237.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3237.8	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1180	1180	1180	1180	1180	
5°	1408	1173	1023	1187	1408	141
15°	1742	1121	813	1135	1742	499
25°	2030	1026	692	1037	2030	909
35°	1316	889	605	901	1316	824
45°	700	703	520	714	700	555
55°	469	491	433	502	469	422
65°	303	304	338	312	303	302
75°	158	145	205	150	158	168
85°	38	30	58	33	38	45
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°	1180.3	1180.3	1180.3	1180.3	1180.3	1180.3	1180.3	1180.3	1180.3	1180.3	1180.3
1°	1219.0	1210.8	1205.7	1184.3	1181.3	1158.9	1149.7	1141.5	1138.5	1143.6	1158.9
2°	1264.9	1249.6	1234.3	1198.6	1179.2	1144.6	1126.2	1111.0	1106.9	1113.0	1133.4
3°	1309.7	1289.3	1264.9	1212.9	1179.2	1131.3	1102.8	1081.4	1076.3	1083.4	1111.0
4°	1357.6	1332.1	1295.4	1226.1	1176.2	1117.1	1080.4	1054.9	1049.8	1055.9	1087.5
5°	1407.6	1376.0	1327.0	1240.4	1173.1	1099.7	1059.0	1028.4	1023.3	1029.4	1065.1
6°	1453.4	1419.8	1358.6	1254.7	1171.1	1089.6	1037.6	1005.0	999.9	1005.0	1044.7
7°	1501.3	1464.6	1391.2	1267.9	1167.0	1074.3	1017.2	981.5	975.4	982.5	1024.3
8°	1547.2	1506.4	1423.9	1281.2	1162.9	1060.0	997.8	959.1	950.9	959.1	1005.0
9°	1583.9	1543.1	1452.4	1293.4	1158.9	1045.7	978.5	937.7	923.4	937.7	985.6
10°	1617.5	1577.8	1483.0	1305.6	1155.8	1031.5	959.1	916.3	902.0	916.3	967.2
11°	1648.1	1607.3	1510.5	1316.8	1150.7	1018.2	940.7	896.9	882.7	895.9	950.9
12°	1676.6	1634.8	1535.0	1332.1	1142.6	1005.0	922.4	877.6	864.3	876.5	935.7
13°	1698.0	1656.2	1555.3	1340.3	1136.4	988.7	905.1	860.2	847.0	859.2	915.3
14°	1717.4	1677.7	1572.7	1349.5	1128.3	973.4	887.7	841.9	829.7	842.9	895.9
15°	1741.9	1695.0	1588.0	1357.6	1121.2	959.1	872.5	825.6	813.3	826.6	878.6
16°	1761.2	1712.3	1597.1	1364.7	1113.0	944.8	855.1	810.3	799.1	812.3	862.3
17°	1788.7	1729.6	1603.2	1369.8	1105.9	930.6	838.8	796.0	784.8	797.0	847.0
18°	1821.4	1747.0	1607.3	1372.9	1097.7	916.3	823.5	781.7	771.6	781.7	830.7
19°	1854.0	1768.4	1611.4	1376.0	1087.5	901.0	809.3	768.5	759.3	767.5	816.4
20°	1896.8	1791.8	1613.4	1374.9	1079.4	887.7	795.0	756.3	747.1	754.2	802.1
21°	1933.5	1818.3	1615.5	1370.9	1068.2	872.5	781.7	744.0	735.9	742.0	788.9
22°	1969.2	1846.8	1616.5	1367.8	1059.0	858.2	768.5	732.8	723.7	730.8	775.6
23°	1998.7	1875.4	1618.5	1359.7	1048.8	843.9	755.2	720.6	713.5	719.6	762.4
24°	2020.1	1906.0	1621.6	1350.5	1036.6	829.7	743.0	710.4	702.2	708.4	749.1
25°	2030.3	1931.4	1624.7	1338.2	1026.4	816.4	730.8	700.2	692.1	696.1	736.9
26°	2021.1	1947.7	1630.8	1325.0	1014.1	802.1	718.6	691.0	681.9	685.9	724.7
27°	1993.6	1954.9	1637.9	1309.7	1001.9	787.9	707.3	681.9	673.7	676.8	713.5
28°	1953.9	1948.8	1645.0	1293.4	988.7	774.6	696.1	671.7	663.5	666.6	701.2
29°	1883.5	1928.4	1651.2	1276.1	976.4	761.4	684.9	660.5	654.3	656.4	690.0
30°	1793.8	1891.7	1659.3	1258.7	963.2	747.1	673.7	651.3	646.2	647.2	678.8
32.5°	1549.2	1735.7	1666.4	1209.8	927.5	714.5	646.2	626.8	625.8	624.8	652.3
35°	1315.8	1520.7	1656.2	1157.8	888.8	681.9	619.7	604.4	605.4	603.4	624.8
37.5°	1090.6	1299.5	1612.4	1109.9	848.0	649.2	594.2	584.0	586.1	582.0	598.3
40°	924.4	1101.8	1541.1	1052.9	803.2	617.7	568.7	562.6	566.7	561.6	573.8
42.5°	807.2	938.7	1415.7	998.8	754.2	586.1	542.2	540.2	543.2	539.2	547.3
45°	700.2	810.3	1281.2	942.8	703.3	553.4	515.7	513.7	519.8	513.7	521.8
47.5°	631.9	710.4	1135.4	890.8	650.3	521.8	489.2	489.2	499.4	488.2	494.3
50°	569.7	624.8	1009.0	831.7	596.2	489.2	458.7	462.7	478.0	462.7	465.8
52.5°	516.7	558.5	879.6	770.5	543.2	455.6	429.1	438.3	454.6	438.3	435.2
55°	468.8	499.4	756.3	706.3	491.3	422.0	397.5	410.7	433.2	413.8	404.6
57.5°	425.0	447.4	665.6	640.1	441.3	388.3	366.9	388.3	413.8	391.4	373.0
60°	383.2	399.5	573.8	573.8	393.4	352.7	335.3	360.8	387.3	362.8	341.4
62.5°	343.5	355.7	494.3	505.5	347.6	317.0	305.8	333.3	364.9	337.4	310.9
65°	302.7	311.9	423.0	440.3	303.7	278.2	273.2	304.7	338.4	308.8	279.3



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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°	267.0	271.1	357.7	376.1	260.9	241.6	238.5	274.2	308.8	278.2	242.6
70°	230.3	231.4	297.6	314.9	219.1	207.9	205.9	240.5	277.2	244.6	211.0
72.5°	193.7	193.7	241.6	255.8	181.4	173.3	174.3	208.9	241.6	212.0	179.4
75°	158.0	157.0	191.6	202.8	144.7	139.6	141.7	176.3	204.9	178.4	146.8
77.5°	124.3	125.4	146.8	153.9	111.1	108.0	114.2	142.7	167.2	144.7	116.2
80°	93.8	90.7	106.0	110.1	79.5	79.5	83.6	109.1	128.4	111.1	87.7
82.5°	63.2	64.2	70.3	72.4	52.0	53.0	57.1	77.5	92.7	79.5	61.2
85°	37.7	37.7	40.8	40.8	29.6	30.6	36.7	47.9	58.1	51.0	37.7
87.5°	16.3	16.3	17.3	17.3	13.2	14.3	17.3	23.4	28.5	25.5	19.4
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-1-40-X-0048-1-U-DD-3-W

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1180.3	1180.3	1180.3	1180.3	1180.3	1180.3
1°	1164.0	1194.5	1195.6	1219.0	1225.1	1219.0
2°	1150.7	1193.5	1211.9	1248.6	1264.9	1264.9
3°	1136.4	1192.5	1225.1	1280.2	1306.7	1309.7
4°	1121.2	1189.4	1240.4	1311.7	1348.4	1357.6
5°	1106.9	1187.4	1252.6	1342.3	1391.2	1407.6
6°	1092.6	1185.4	1267.9	1374.9	1436.1	1453.4
7°	1079.4	1181.3	1282.2	1407.6	1478.9	1501.3
8°	1065.1	1181.3	1295.4	1439.2	1520.7	1547.2
9°	1054.9	1175.2	1313.8	1468.7	1559.4	1583.9
10°	1036.6	1169.1	1321.9	1497.2	1593.1	1617.5
11°	1021.3	1161.9	1332.1	1525.8	1622.6	1648.1
12°	1006.0	1155.8	1344.4	1549.2	1648.1	1676.6
13°	992.7	1149.7	1352.5	1564.5	1669.5	1698.0
14°	978.5	1142.6	1363.7	1578.8	1687.8	1717.4
15°	963.2	1135.4	1371.9	1591.0	1704.2	1741.9
16°	949.9	1130.3	1379.0	1601.2	1719.4	1761.2
17°	936.7	1121.2	1386.2	1607.3	1737.8	1788.7
18°	922.4	1111.0	1388.2	1612.4	1756.1	1821.4
19°	905.1	1099.7	1389.2	1614.5	1779.6	1854.0
20°	890.8	1089.6	1388.2	1617.5	1809.1	1896.8
21°	877.6	1079.4	1384.1	1617.5	1840.7	1933.5
22°	862.3	1070.2	1379.0	1622.6	1872.3	1969.2
23°	848.0	1060.0	1373.9	1624.7	1900.9	1998.7
24°	833.7	1048.8	1363.7	1626.7	1927.4	2020.1
25°	820.5	1036.6	1354.6	1630.8	1949.8	2030.3
26°	806.2	1025.3	1341.3	1634.8	1966.1	2021.1
27°	791.9	1013.1	1326.0	1642.0	1970.2	1993.6
28°	777.7	1000.9	1305.6	1649.1	1961.0	1953.9
29°	764.4	987.6	1288.3	1656.2	1936.5	1883.5
30°	751.2	975.4	1270.0	1663.4	1895.8	1793.8
32.5°	719.6	939.7	1226.1	1674.6	1731.7	1549.2
35°	685.9	901.0	1173.1	1659.3	1510.5	1315.8
37.5°	654.3	858.2	1121.2	1615.5	1288.3	1090.6
40°	623.8	812.3	1069.2	1536.0	1088.5	924.4
42.5°	592.2	764.4	1016.2	1414.7	927.5	807.2
45°	561.6	713.5	960.1	1277.1	799.1	700.2
47.5°	530.0	659.4	903.0	1133.4	698.2	631.9
50°	495.3	605.4	843.9	995.8	619.7	569.7
52.5°	461.7	553.4	781.7	869.4	553.4	516.7
55°	432.2	501.5	716.5	757.3	495.3	468.8
57.5°	397.5	451.5	650.3	658.4	444.4	425.0
60°	359.8	401.6	582.0	570.8	397.5	383.2
62.5°	324.1	355.7	513.7	491.3	352.7	343.5
65°	290.5	311.9	447.4	420.9	311.9	302.7





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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	251.7	268.1	383.2	355.7	272.1	267.0
70°	213.0	225.2	322.1	297.6	229.3	230.3
72.5°	181.4	185.5	264.0	240.5	195.7	193.7
75°	146.8	149.8	207.9	191.6	159.0	158.0
77.5°	114.2	115.2	159.0	147.8	125.4	124.3
80°	84.6	83.6	114.2	107.0	90.7	93.8
82.5°	57.1	56.1	75.4	72.4	65.2	63.2
85°	34.7	32.6	43.8	42.8	38.7	37.7
87.5°	17.3	16.3	20.4	20.4	18.3	16.3
90°	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)