

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: P231560

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

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P231560  
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-1-30-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**

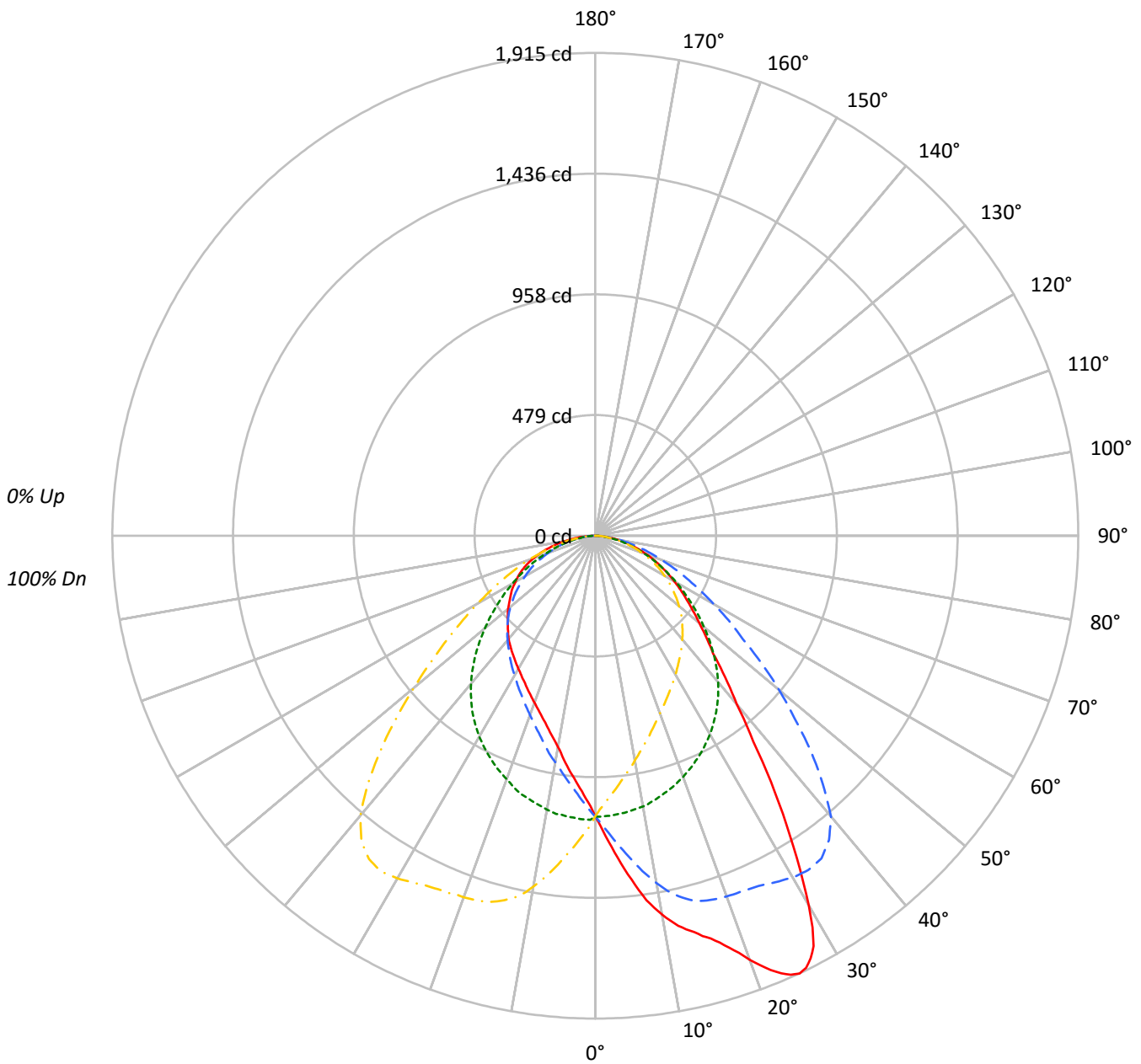
Lumens per Lamp: N/A  
Luminaire Lumens: 3054.5 lumens  
Efficiency: N/A  
Efficacy: 109.5 lumens/watt  
Spacing Criteria (0/90/45): 1.33 / 1.22 / 1.46  
Luminous Opening: Rectangular (W 3.92' x L: 0.22' x H: 0')  
CIE Type: Direct

Input Watts (W): 27.9  
Input Voltage (V): 120  
Input Current (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: P231560  
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### Luminous Intensity Polar Plot



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



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CATALOG NUMBER: S123-DR-1-30-X-0048-1-U-DD-3-W

**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°	13704	13704	13704	13704
5°	16405	13672	11927	13839
10°	19071	13627	10635	13783
15°	20938	13477	9776	13649
20°	23436	13337	9231	13463
25°	26010	13149	8866	13279
30°	24050	12914	8663	13077
35°	18650	12598	8582	12771
40°	14011	12173	8589	12311
45°	11498	11548	8535	11715
50°	10291	10770	8635	10937
55°	9490	9945	8769	10151
60°	8898	9137	8994	9324
65°	8317	8343	9296	8568
70°	7819	7438	9410	7647
75°	7085	6491	9192	6719
80°	6272	5316	8590	5585
85°	5027	3940	7738	4349



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CATALOG NUMBER: S123-DR-1-30-X-0048-1-U-DD-3-W

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	108.3	3.5
10°-20°	324.4	10.6
20°-30°	517.2	16.9
30°-40°	595.7	19.5
40°-50°	542.6	17.8
50°-60°	439.8	14.4
60°-70°	312.4	10.2
70°-80°	169.4	5.5
80°-90°	44.8	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°	949.9	31.1
0°-40°	1545.6	50.6
0°-60°	2528.0	82.8
0°-90°	3054.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3054.5	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1114	1114	1114	1114	1114	
5°	1328	1107	965	1120	1328	133
15°	1643	1058	767	1071	1643	471
25°	1915	968	653	978	1915	857
35°	1241	838	571	850	1241	777
45°	661	664	490	673	661	524
55°	442	464	409	473	442	398
65°	286	286	319	294	286	285
75°	149	136	193	141	149	159
85°	36	28	55	31	36	42
90°	0	0	0	0	0	



TEST NUMBER: P231560

CATALOG NUMBER: S123-DR-1-30-X-0048-1-U-DD-3-W

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1113.5	1113.5	1113.5	1113.5	1113.5	1113.5	1113.5	1113.5	1113.5	1113.5	1113.5
1°	1150.0	1142.3	1137.5	1117.3	1114.4	1093.3	1084.6	1076.9	1074.0	1078.8	1093.3
2°	1193.3	1178.8	1164.4	1130.8	1112.5	1079.8	1062.5	1048.1	1044.2	1050.0	1069.2
3°	1235.6	1216.3	1193.3	1144.2	1112.5	1067.3	1040.4	1020.2	1015.4	1022.1	1048.1
4°	1280.8	1256.7	1222.1	1156.7	1109.6	1053.8	1019.2	995.2	990.4	996.2	1026.0
5°	1327.9	1298.1	1251.9	1170.2	1106.7	1037.5	999.0	970.2	965.4	971.2	1004.8
6°	1371.2	1339.4	1281.7	1183.7	1104.8	1027.9	978.8	948.1	943.3	948.1	985.6
7°	1416.3	1381.7	1312.5	1196.2	1101.0	1013.5	959.6	926.0	920.2	926.9	966.3
8°	1459.6	1421.2	1343.3	1208.7	1097.1	1000.0	941.3	904.8	897.1	904.8	948.1
9°	1494.2	1455.8	1370.2	1220.2	1093.3	986.5	923.1	884.6	871.2	884.6	929.8
10°	1526.0	1488.5	1399.0	1231.7	1090.4	973.1	904.8	864.4	851.0	864.4	912.5
11°	1554.8	1516.3	1425.0	1242.3	1085.6	960.6	887.5	846.2	832.7	845.2	897.1
12°	1581.7	1542.3	1448.1	1256.7	1077.9	948.1	870.2	827.9	815.4	826.9	882.7
13°	1601.9	1562.5	1467.3	1264.4	1072.1	932.7	853.8	811.5	799.0	810.6	863.5
14°	1620.2	1582.7	1483.7	1273.1	1064.4	918.3	837.5	794.2	782.7	795.2	845.2
15°	1643.3	1599.0	1498.1	1280.8	1057.7	904.8	823.1	778.8	767.3	779.8	828.8
16°	1661.5	1615.4	1506.7	1287.5	1050.0	891.3	806.7	764.4	753.8	766.3	813.5
17°	1687.5	1631.7	1512.5	1292.3	1043.3	877.9	791.3	751.0	740.4	751.9	799.0
18°	1718.3	1648.1	1516.3	1295.2	1035.6	864.4	776.9	737.5	727.9	737.5	783.7
19°	1749.0	1668.3	1520.2	1298.1	1026.0	850.0	763.5	725.0	716.3	724.0	770.2
20°	1789.4	1690.4	1522.1	1297.1	1018.3	837.5	750.0	713.5	704.8	711.5	756.7
21°	1824.0	1715.4	1524.0	1293.3	1007.7	823.1	737.5	701.9	694.2	700.0	744.2
22°	1857.7	1742.3	1525.0	1290.4	999.0	809.6	725.0	691.3	682.7	689.4	731.7
23°	1885.6	1769.2	1526.9	1282.7	989.4	796.2	712.5	679.8	673.1	678.8	719.2
24°	1905.8	1798.1	1529.8	1274.0	977.9	782.7	701.0	670.2	662.5	668.3	706.7
25°	1915.4	1822.1	1532.7	1262.5	968.3	770.2	689.4	660.6	652.9	656.7	695.2
26°	1906.7	1837.5	1538.5	1250.0	956.7	756.7	677.9	651.9	643.3	647.1	683.7
27°	1880.8	1844.2	1545.2	1235.6	945.2	743.3	667.3	643.3	635.6	638.5	673.1
28°	1843.3	1838.5	1551.9	1220.2	932.7	730.8	656.7	633.7	626.0	628.8	661.5
29°	1776.9	1819.2	1557.7	1203.8	921.2	718.3	646.2	623.1	617.3	619.2	651.0
30°	1692.3	1784.6	1565.4	1187.5	908.7	704.8	635.6	614.4	609.6	610.6	640.4
32.5°	1461.5	1637.5	1572.1	1141.3	875.0	674.0	609.6	591.3	590.4	589.4	615.4
35°	1241.3	1434.6	1562.5	1092.3	838.5	643.3	584.6	570.2	571.2	569.2	589.4
37.5°	1028.8	1226.0	1521.2	1047.1	800.0	612.5	560.6	551.0	552.9	549.0	564.4
40°	872.1	1039.4	1453.8	993.3	757.7	582.7	536.5	530.8	534.6	529.8	541.3
42.5°	761.5	885.6	1335.6	942.3	711.5	552.9	511.5	509.6	512.5	508.7	516.3
45°	660.6	764.4	1208.7	889.4	663.5	522.1	486.5	484.6	490.4	484.6	492.3
47.5°	596.2	670.2	1071.2	840.4	613.5	492.3	461.5	461.5	471.2	460.6	466.3
50°	537.5	589.4	951.9	784.6	562.5	461.5	432.7	436.5	451.0	436.5	439.4
52.5°	487.5	526.9	829.8	726.9	512.5	429.8	404.8	413.5	428.8	413.5	410.6
55°	442.3	471.2	713.5	666.3	463.5	398.1	375.0	387.5	408.7	390.4	381.7
57.5°	401.0	422.1	627.9	603.8	416.3	366.3	346.2	366.3	390.4	369.2	351.9
60°	361.5	376.9	541.3	541.3	371.2	332.7	316.3	340.4	365.4	342.3	322.1
62.5°	324.0	335.6	466.3	476.9	327.9	299.0	288.5	314.4	344.2	318.3	293.3
65°	285.6	294.2	399.0	415.4	286.5	262.5	257.7	287.5	319.2	291.3	263.5



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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°	251.9	255.8	337.5	354.8	246.2	227.9	225.0	258.7	291.3	262.5	228.8
70°	217.3	218.3	280.8	297.1	206.7	196.2	194.2	226.9	261.5	230.8	199.0
72.5°	182.7	182.7	227.9	241.3	171.2	163.5	164.4	197.1	227.9	200.0	169.2
75°	149.0	148.1	180.8	191.3	136.5	131.7	133.7	166.3	193.3	168.3	138.5
77.5°	117.3	118.3	138.5	145.2	104.8	101.9	107.7	134.6	157.7	136.5	109.6
80°	88.5	85.6	100.0	103.8	75.0	75.0	78.8	102.9	121.2	104.8	82.7
82.5°	59.6	60.6	66.3	68.3	49.0	50.0	53.8	73.1	87.5	75.0	57.7
85°	35.6	35.6	38.5	38.5	27.9	28.8	34.6	45.2	54.8	48.1	35.6
87.5°	15.4	15.4	16.3	16.3	12.5	13.5	16.3	22.1	26.9	24.0	18.3
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-1-30-X-0048-1-U-DD-3-W

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1113.5	1113.5	1113.5	1113.5	1113.5	1113.5
1°	1098.1	1126.9	1127.9	1150.0	1155.8	1150.0
2°	1085.6	1126.0	1143.3	1177.9	1193.3	1193.3
3°	1072.1	1125.0	1155.8	1207.7	1232.7	1235.6
4°	1057.7	1122.1	1170.2	1237.5	1272.1	1280.8
5°	1044.2	1120.2	1181.7	1266.3	1312.5	1327.9
6°	1030.8	1118.3	1196.2	1297.1	1354.8	1371.2
7°	1018.3	1114.4	1209.6	1327.9	1395.2	1416.3
8°	1004.8	1114.4	1222.1	1357.7	1434.6	1459.6
9°	995.2	1108.7	1239.4	1385.6	1471.2	1494.2
10°	977.9	1102.9	1247.1	1412.5	1502.9	1526.0
11°	963.5	1096.2	1256.7	1439.4	1530.8	1554.8
12°	949.0	1090.4	1268.3	1461.5	1554.8	1581.7
13°	936.5	1084.6	1276.0	1476.0	1575.0	1601.9
14°	923.1	1077.9	1286.5	1489.4	1592.3	1620.2
15°	908.7	1071.2	1294.2	1501.0	1607.7	1643.3
16°	896.2	1066.3	1301.0	1510.6	1622.1	1661.5
17°	883.7	1057.7	1307.7	1516.3	1639.4	1687.5
18°	870.2	1048.1	1309.6	1521.2	1656.7	1718.3
19°	853.8	1037.5	1310.6	1523.1	1678.8	1749.0
20°	840.4	1027.9	1309.6	1526.0	1706.7	1789.4
21°	827.9	1018.3	1305.8	1526.0	1736.5	1824.0
22°	813.5	1009.6	1301.0	1530.8	1766.3	1857.7
23°	800.0	1000.0	1296.2	1532.7	1793.3	1885.6
24°	786.5	989.4	1286.5	1534.6	1818.3	1905.8
25°	774.0	977.9	1277.9	1538.5	1839.4	1915.4
26°	760.6	967.3	1265.4	1542.3	1854.8	1906.7
27°	747.1	955.8	1251.0	1549.0	1858.7	1880.8
28°	733.7	944.2	1231.7	1555.8	1850.0	1843.3
29°	721.2	931.7	1215.4	1562.5	1826.9	1776.9
30°	708.7	920.2	1198.1	1569.2	1788.5	1692.3
32.5°	678.8	886.5	1156.7	1579.8	1633.7	1461.5
35°	647.1	850.0	1106.7	1565.4	1425.0	1241.3
37.5°	617.3	809.6	1057.7	1524.0	1215.4	1028.8
40°	588.5	766.3	1008.7	1449.0	1026.9	872.1
42.5°	558.7	721.2	958.7	1334.6	875.0	761.5
45°	529.8	673.1	905.8	1204.8	753.8	660.6
47.5°	500.0	622.1	851.9	1069.2	658.7	596.2
50°	467.3	571.2	796.2	939.4	584.6	537.5
52.5°	435.6	522.1	737.5	820.2	522.1	487.5
55°	407.7	473.1	676.0	714.4	467.3	442.3
57.5°	375.0	426.0	613.5	621.2	419.2	401.0
60°	339.4	378.8	549.0	538.5	375.0	361.5
62.5°	305.8	335.6	484.6	463.5	332.7	324.0
65°	274.0	294.2	422.1	397.1	294.2	285.6





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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	237.5	252.9	361.5	335.6	256.7	251.9
70°	201.0	212.5	303.8	280.8	216.3	217.3
72.5°	171.2	175.0	249.0	226.9	184.6	182.7
75°	138.5	141.3	196.2	180.8	150.0	149.0
77.5°	107.7	108.7	150.0	139.4	118.3	117.3
80°	79.8	78.8	107.7	101.0	85.6	88.5
82.5°	53.8	52.9	71.2	68.3	61.5	59.6
85°	32.7	30.8	41.3	40.4	36.5	35.6
87.5°	16.3	15.4	19.2	19.2	17.3	15.4
90°	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)