

Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



Scaled data based on original data using  
LM-79-2024 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P243394

Luminaire Tested: S123RDRP-H1165D830-X4F0-XX-UDD-F-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P243394  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-64)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S123RDRP-H1165D830-X4F0-XX-UDD-F-W  
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH SATIN FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3000K CCT, 80 CRI LEDS  
Ballast/Driver: -

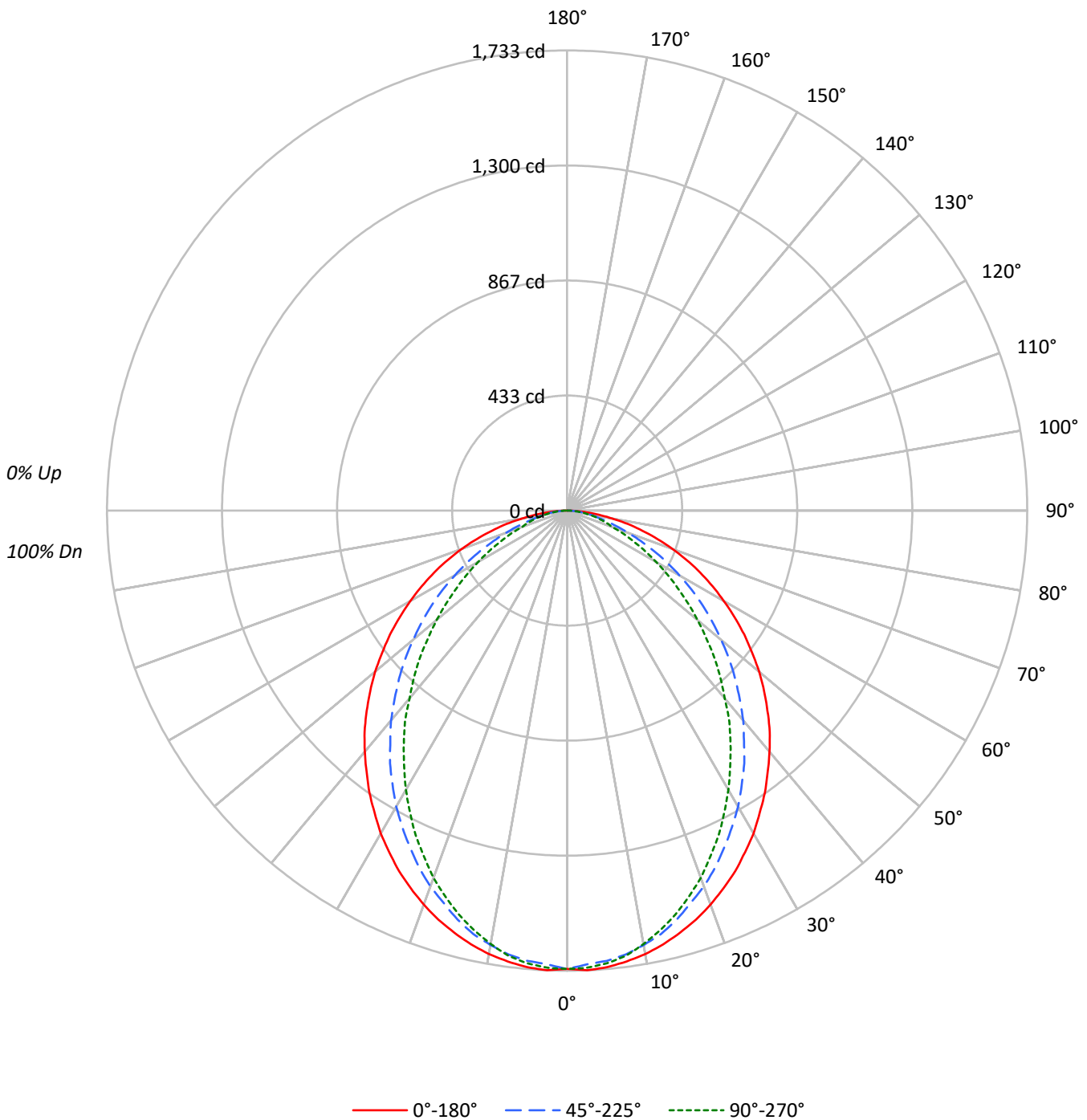
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3897.4 lumens  
Efficiency: N/A  
Efficacy: 103.4 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.07 / 1.22  
Luminous Opening: Rectangular (W 0.23' x L: 3.88' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 37.7  
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: 24 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	110	105	101	98	107	103	99	96	99	96	93	95	93	90	91	89	88					86				
2	101	93	87	81	98	91	85	80	87	83	78	84	80	77	81	78	75					73				
3	92	82	75	69	90	81	74	68	78	72	67	75	70	66	73	68	65					62				
4	85	73	65	59	83	72	64	58	70	63	58	67	62	57	65	60	56					54				
5	78	66	58	51	76	65	57	51	63	56	50	61	55	50	59	54	49					47				
6	73	60	51	45	71	59	51	45	57	50	45	56	49	44	54	48	44					42				
7	67	55	46	40	66	54	46	40	52	45	40	51	44	40	49	44	39					37				
8	63	50	42	36	61	49	41	36	48	41	36	47	40	36	46	40	35					34				
9	59	46	38	33	58	45	38	33	44	37	32	43	37	32	42	36	32					30				
10	55	43	35	30	54	42	35	30	41	34	30	40	34	30	39	34	29					28				

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	20924	20924	20924
5°	21004	20713	20826
10°	20871	20446	20397
15°	20647	20014	19764
20°	20368	19427	18982
25°	20036	18724	18051
30°	19651	18018	16997
35°	19207	17205	15872
40°	18755	16322	14622
45°	18296	15340	13455
50°	17801	14275	12101
55°	17202	13168	10731
60°	16521	11859	9353
65°	15858	10380	7985
70°	14942	8693	6390
75°	13783	6894	6084
80°	12034	6108	5549
85°	10139	5340	5160

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 18296 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	162.4	4.2
10°-20°	452.1	11.6
20°-30°	650.8	16.7
30°-40°	733.1	18.8
40°-50°	700.4	18.0
50°-60°	572.7	14.7
60°-70°	384.5	9.9
70°-80°	191.8	4.9
80°-90°	49.6	1.3
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°	1265.3	32.5
0°-40°	1998.4	51.3
0°-60°	3271.5	83.9
0°-90°	3897.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3897.4	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1726	1726	1726	1726	1726	
5°	1726	1720	1702	1716	1712	164
15°	1645	1633	1595	1586	1575	464
25°	1498	1465	1400	1370	1350	690
35°	1298	1248	1163	1098	1073	811
45°	1067	1004	895	817	785	824
55°	814	741	623	537	508	727
65°	553	476	362	296	278	547
75°	294	224	147	133	130	312
85°	73	42	38	36	37	85
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1726.2	1726.2	1726.2	1726.2	1726.2	1726.2	1726.2	1726.2	1726.2	1726.2	1726.2
2.5°	1732.8	1728.8	1723.5	1724.9	1726.2	1727.5	1727.5	1726.2	1722.2	1716.9	1710.3
5°	1726.2	1722.2	1716.9	1716.9	1719.6	1719.6	1719.6	1718.2	1714.3	1708.9	1702.3
7.5°	1712.9	1710.3	1703.6	1705.0	1706.3	1706.3	1706.3	1705.0	1699.7	1693.0	1686.4
10°	1695.7	1691.7	1686.4	1686.4	1687.7	1687.7	1687.7	1685.1	1678.5	1670.5	1661.2
12.5°	1673.2	1669.2	1663.9	1663.9	1663.9	1663.9	1663.9	1659.9	1649.3	1641.3	1633.4
15°	1645.3	1641.3	1636.0	1636.0	1634.7	1633.4	1630.7	1624.1	1614.8	1605.5	1594.9
17.5°	1614.8	1609.5	1602.9	1601.6	1600.2	1598.9	1594.9	1591.0	1577.7	1564.4	1548.5
20°	1579.0	1573.7	1567.1	1565.8	1561.8	1557.8	1555.2	1547.2	1532.6	1516.7	1506.1
22.5°	1539.2	1533.9	1527.3	1524.7	1516.7	1514.1	1510.1	1498.1	1482.2	1467.7	1455.7
25°	1498.1	1491.5	1483.6	1479.6	1470.3	1465.0	1463.7	1446.4	1430.5	1414.6	1400.0
27.5°	1450.4	1445.1	1438.5	1430.5	1421.3	1414.6	1412.0	1396.1	1376.2	1357.6	1344.4
30°	1404.0	1396.1	1389.4	1380.2	1366.9	1360.3	1355.0	1339.1	1321.8	1299.3	1287.3
32.5°	1349.7	1344.4	1336.4	1327.1	1313.9	1308.6	1300.6	1280.7	1258.2	1242.3	1223.7
35°	1298.0	1292.6	1280.7	1271.4	1252.9	1247.6	1239.6	1222.4	1197.2	1178.6	1162.7
37.5°	1240.9	1234.3	1225.0	1211.8	1195.9	1189.2	1178.6	1161.4	1132.2	1113.7	1093.8
40°	1185.3	1176.0	1165.4	1150.8	1134.9	1128.3	1119.0	1093.8	1069.9	1048.7	1031.5
42.5°	1129.6	1119.0	1105.7	1092.5	1075.2	1065.9	1055.3	1031.5	1005.0	985.1	961.2
45°	1067.3	1059.3	1046.1	1030.1	1010.3	1003.6	991.7	966.5	940.0	918.8	894.9
47.5°	1006.3	997.0	983.7	967.8	947.9	938.7	926.7	901.5	875.0	848.5	827.3
50°	944.0	934.7	918.8	902.9	884.3	872.4	861.8	836.6	807.4	783.5	757.0
52.5°	877.7	869.7	856.5	840.6	816.7	807.4	796.8	769.0	741.1	713.3	689.4
55°	814.0	808.7	792.8	776.9	751.7	741.1	730.5	701.3	673.5	645.7	623.1
57.5°	747.7	743.8	727.9	709.3	686.8	676.2	662.9	633.7	607.2	579.4	555.5
60°	681.5	677.5	661.6	643.0	621.8	608.5	594.0	571.4	540.9	515.7	489.2
62.5°	617.8	612.5	599.3	579.4	555.5	542.3	529.0	502.5	474.6	448.1	424.3
65°	552.9	546.2	530.3	510.4	487.9	476.0	462.7	437.5	409.7	384.5	361.9
67.5°	487.9	481.3	464.0	448.1	421.6	409.7	397.7	372.5	346.0	320.8	299.6
70°	421.6	415.0	401.7	380.5	358.0	346.0	334.1	307.6	283.7	265.2	245.3
72.5°	356.6	351.3	338.1	318.2	297.0	285.0	271.8	249.2	228.0	208.1	193.6
75°	294.3	286.4	274.4	255.9	234.7	224.1	214.8	192.2	172.4	159.1	147.2
77.5°	234.7	225.4	212.1	197.5	177.7	167.1	157.8	139.2	126.0	116.7	114.0
80°	172.4	171.0	157.8	141.9	124.6	116.7	107.4	95.5	91.5	90.2	87.5
82.5°	120.6	115.3	104.7	90.2	76.9	71.6	68.9	66.3	63.6	63.6	61.0
85°	72.9	67.6	58.3	46.4	43.8	42.4	41.1	41.1	39.8	38.4	38.4
87.5°	31.8	26.5	19.9	18.6	17.2	17.2	18.6	18.6	18.6	17.2	17.2
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):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	1726.2	1726.2	1726.2	1726.2	1726.2	1726.2	1726.2	1726.2	1726.2	1726.2
2.5°	1712.9	1719.6	1723.5	1724.9	1724.9	1724.9	1726.2	1726.2	1724.9	1723.5
5°	1703.6	1710.3	1712.9	1715.6	1715.6	1715.6	1715.6	1715.6	1714.3	1711.6
7.5°	1689.1	1693.0	1697.0	1695.7	1695.7	1694.4	1693.0	1694.4	1691.7	1691.7
10°	1662.5	1666.5	1669.2	1665.2	1665.2	1666.5	1666.5	1665.2	1661.2	1657.2
12.5°	1632.1	1636.0	1632.1	1633.4	1630.7	1628.1	1626.8	1625.4	1621.4	1618.8
15°	1592.3	1592.3	1589.6	1589.6	1585.7	1580.3	1579.0	1580.3	1575.0	1575.0
17.5°	1548.5	1545.9	1541.9	1539.2	1537.9	1537.9	1532.6	1532.6	1526.0	1524.7
20°	1500.8	1498.1	1494.2	1487.5	1484.9	1486.2	1480.9	1476.9	1473.0	1471.6
22.5°	1450.4	1443.8	1439.8	1433.2	1427.9	1427.9	1423.9	1417.3	1413.3	1409.3
25°	1393.4	1386.8	1378.8	1373.5	1369.5	1362.9	1360.3	1355.0	1351.0	1349.7
27.5°	1335.1	1324.5	1313.9	1308.6	1305.9	1298.0	1294.0	1291.3	1283.4	1282.0
30°	1272.8	1264.8	1251.6	1242.3	1235.6	1237.0	1227.7	1222.4	1218.4	1214.4
32.5°	1213.1	1199.8	1186.6	1174.7	1166.7	1165.4	1156.1	1150.8	1146.8	1142.8
35°	1145.5	1132.2	1116.3	1105.7	1097.8	1093.8	1084.5	1081.8	1075.2	1072.6
37.5°	1077.9	1063.3	1047.4	1034.1	1028.8	1019.5	1015.6	1008.9	1003.6	1003.6
40°	1011.6	994.3	978.4	962.5	955.9	950.6	940.0	934.7	928.1	924.1
42.5°	942.6	922.8	908.2	893.6	884.3	880.3	868.4	861.8	855.1	853.8
45°	873.7	853.8	835.3	820.7	816.7	808.7	796.8	787.5	786.2	784.9
47.5°	803.4	783.5	766.3	750.4	745.1	735.8	727.9	721.2	713.3	709.3
50°	735.8	715.9	697.4	680.1	673.5	665.5	657.6	648.3	645.7	641.7
52.5°	668.2	645.7	625.8	609.9	604.6	597.9	588.7	580.7	576.7	574.1
55°	599.3	576.7	559.5	543.6	536.9	533.0	522.4	515.7	510.4	507.8
57.5°	531.6	509.1	493.2	481.3	472.0	468.0	457.4	450.8	448.1	446.8
60°	468.0	446.8	429.6	417.6	409.7	405.7	397.7	391.1	387.1	385.8
62.5°	404.4	385.8	369.9	358.0	352.7	347.4	340.7	335.4	331.4	331.4
65°	343.4	324.8	310.2	301.0	295.7	293.0	285.0	282.4	278.4	278.4
67.5°	283.7	270.5	259.9	247.9	243.9	243.9	236.0	233.3	230.7	230.7
70°	232.0	220.1	208.1	201.5	197.5	196.2	189.6	185.6	183.0	180.3
72.5°	181.6	171.0	160.4	159.1	159.1	157.8	157.8	155.1	155.1	156.4
75°	139.2	136.6	133.9	133.9	132.6	131.3	131.3	129.9	129.9	129.9
77.5°	111.4	110.0	108.7	107.4	107.4	106.1	104.7	104.7	104.7	104.7
80°	84.9	83.5	83.5	82.2	80.9	82.2	80.9	80.9	79.5	79.5
82.5°	59.7	59.7	59.7	58.3	58.3	58.3	58.3	57.0	57.0	58.3
85°	37.1	37.1	37.1	37.1	35.8	37.1	35.8	35.8	35.8	37.1
87.5°	15.9	17.2	15.9	17.2	17.2	15.9	15.9	15.9	15.9	15.9
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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**CIE UGR TABLE:**

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	22.09	23.64	22.45	23.96	24.27	19.28	20.84	19.65	21.15	21.47
	3H	23.92	25.31	24.30	25.64	26.00	20.36	21.75	20.73	22.08	22.44
	4H	24.60	25.91	25.00	26.26	26.64	20.75	22.07	21.15	22.41	22.79
	6H	25.10	26.31	25.51	26.68	27.07	21.08	22.29	21.49	22.65	23.05
	8H	25.26	26.41	25.68	26.80	27.20	21.18	22.34	21.61	22.73	23.13
	12H	25.36	26.46	25.79	26.85	27.27	21.26	22.37	21.69	22.75	23.18
4H	2H	22.33	23.64	22.73	23.99	24.37	20.00	21.31	20.40	21.66	22.04
	3H	24.32	25.41	24.73	25.81	26.21	21.22	22.31	21.63	22.71	23.11
	4H	25.11	26.09	25.54	26.51	26.94	21.71	22.69	22.14	23.11	23.54
	6H	25.73	26.58	26.18	27.02	27.48	22.13	22.99	22.59	23.43	23.89
	8H	25.93	26.73	26.39	27.17	27.64	22.28	23.07	22.74	23.52	23.98
	12H	26.07	26.79	26.56	27.27	27.74	22.39	23.10	22.87	23.58	24.05
8H	4H	25.15	25.95	25.61	26.39	26.86	22.03	22.83	22.49	23.27	23.74
	6H	25.81	26.47	26.31	26.96	27.44	22.54	23.20	23.04	23.69	24.17
	8H	26.05	26.65	26.57	27.16	27.64	22.75	23.34	23.26	23.85	24.34
	12H	26.25	26.77	26.75	27.26	27.83	22.92	23.45	23.43	23.94	24.50
12H	4H	25.13	25.85	25.62	26.33	26.80	22.07	22.78	22.55	23.26	23.73
	6H	25.80	26.39	26.31	26.90	27.39	22.60	23.19	23.11	23.70	24.19
	8H	26.07	26.60	26.58	27.09	27.65	22.85	23.38	23.36	23.87	24.43