

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: P243413

Luminaire Tested: S123RDRP-H1165D935-X4F0-XX-UDD-F-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P243413  
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-H1165D935-X4F0-XX-UDD-F-W  
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH SATIN FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3500K CCT, 90 CRI LEDS  
Ballast/Driver: -

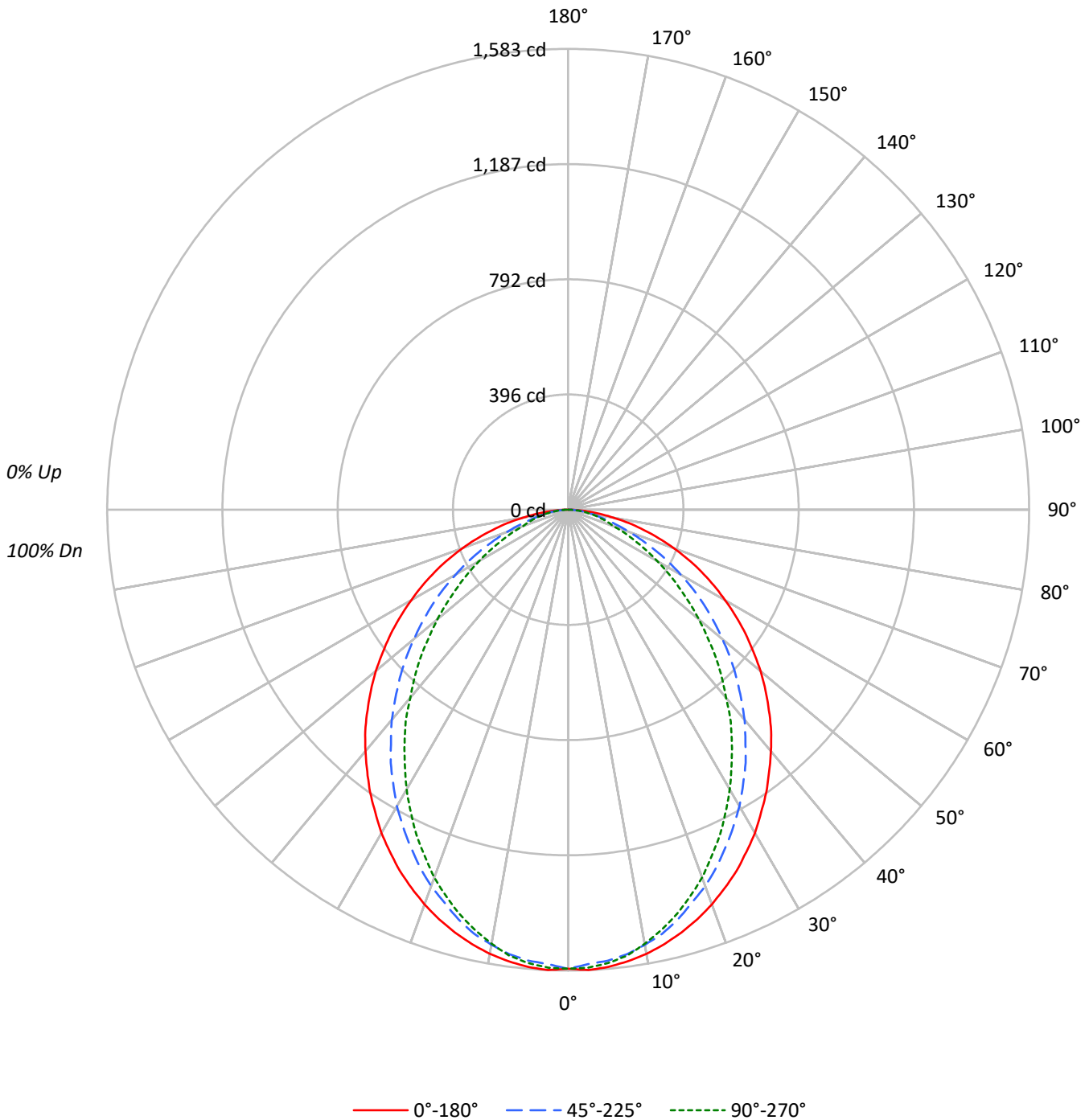
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3560.2 lumens  
Efficiency: N/A  
Efficacy: 94.4 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 (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: 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					86			
2	101	93	87	81	98	91	85	80	87	83	78	84	80	77	81	78	75	73					73			
3	92	82	75	69	90	81	74	68	78	72	67	75	70	66	73	68	65	62					62			
4	85	73	65	59	83	72	64	58	70	63	58	67	62	57	65	60	56	54					54			
5	78	66	58	51	76	65	57	51	63	56	50	61	55	50	59	54	49	47					47			
6	73	60	51	45	71	59	51	45	57	50	45	56	49	44	54	48	44	42					42			
7	67	55	46	40	66	54	46	40	52	45	40	51	44	40	49	44	39	37					37			
8	63	50	42	36	61	49	41	36	48	41	36	47	40	36	46	40	35	34					34			
9	59	46	38	33	58	45	38	33	44	37	32	43	37	32	42	36	32	30					30			
10	55	43	35	30	54	42	35	30	41	34	30	40	34	30	39	34	29	28					28			

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

	0°	45°	90°
0°	19113	19113	19113
5°	19186	18921	19024
10°	19065	18678	18633
15°	18861	18282	18055
20°	18606	17747	17340
25°	18303	17104	16489
30°	17952	16460	15528
35°	17545	15716	14498
40°	17132	14909	13356
45°	16712	14014	12291
50°	16261	13040	11054
55°	15714	12029	9801
60°	15091	10834	8543
65°	14484	9482	7294
70°	13648	7942	5837
75°	12593	6294	5559
80°	10987	5577	5075
85°	9262	4882	4715

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 16712 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	148.3	4.2
10°-20°	413.0	11.6
20°-30°	594.5	16.7
30°-40°	669.7	18.8
40°-50°	639.8	18.0
50°-60°	523.1	14.7
60°-70°	351.3	9.9
70°-80°	175.2	4.9
80°-90°	45.3	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°	1155.8	32.5
0°-40°	1825.5	51.3
0°-60°	2988.4	83.9
0°-90°	3560.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3560.2	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1577	1577	1577	1577	1577	
5°	1577	1571	1555	1567	1564	150
15°	1503	1492	1457	1448	1439	424
25°	1368	1338	1279	1251	1233	630
35°	1186	1140	1062	1003	980	741
45°	975	917	818	746	717	752
55°	744	677	569	490	464	664
65°	505	435	331	270	254	499
75°	269	205	134	121	119	285
85°	67	39	35	33	34	77
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°	1576.8	1576.8	1576.8	1576.8	1576.8	1576.8	1576.8	1576.8	1576.8	1576.8	1576.8
2.5°	1582.9	1579.3	1574.4	1575.6	1576.8	1578.1	1578.1	1576.8	1573.2	1568.4	1562.3
5°	1576.8	1573.2	1568.4	1568.4	1570.8	1570.8	1570.8	1569.6	1565.9	1561.1	1555.0
7.5°	1564.7	1562.3	1556.3	1557.5	1558.7	1558.7	1558.7	1557.5	1552.6	1546.6	1540.5
10°	1549.0	1545.4	1540.5	1540.5	1541.7	1541.7	1541.7	1539.3	1533.2	1526.0	1517.5
12.5°	1528.4	1524.8	1519.9	1519.9	1519.9	1519.9	1519.9	1516.3	1506.6	1499.3	1492.1
15°	1503.0	1499.3	1494.5	1494.5	1493.3	1492.1	1489.6	1483.6	1475.1	1466.6	1456.9
17.5°	1475.1	1470.3	1464.2	1463.0	1461.8	1460.6	1456.9	1453.3	1441.2	1429.1	1414.6
20°	1442.4	1437.6	1431.5	1430.3	1426.7	1423.0	1420.6	1413.3	1400.0	1385.5	1375.8
22.5°	1406.1	1401.2	1395.2	1392.8	1385.5	1383.1	1379.4	1368.5	1354.0	1340.7	1329.8
25°	1368.5	1362.5	1355.2	1351.6	1343.1	1338.3	1337.0	1321.3	1306.8	1292.2	1278.9
27.5°	1324.9	1320.1	1314.0	1306.8	1298.3	1292.2	1289.8	1275.3	1257.1	1240.2	1228.1
30°	1282.6	1275.3	1269.2	1260.8	1248.6	1242.6	1237.7	1223.2	1207.5	1186.9	1176.0
32.5°	1232.9	1228.1	1220.8	1212.3	1200.2	1195.4	1188.1	1169.9	1149.3	1134.8	1117.8
35°	1185.7	1180.8	1169.9	1161.4	1144.5	1139.6	1132.4	1116.6	1093.6	1076.7	1062.1
37.5°	1133.6	1127.5	1119.1	1106.9	1092.4	1086.4	1076.7	1060.9	1034.3	1017.3	999.2
40°	1082.7	1074.2	1064.6	1051.2	1036.7	1030.6	1022.2	999.2	977.4	958.0	942.2
42.5°	1031.9	1022.2	1010.1	997.9	982.2	973.7	964.0	942.2	918.0	899.8	878.0
45°	974.9	967.7	955.6	941.0	922.9	916.8	905.9	882.9	858.7	839.3	817.5
47.5°	919.2	910.7	898.6	884.1	865.9	857.5	846.6	823.5	799.3	775.1	755.7
50°	862.3	853.8	839.3	824.8	807.8	796.9	787.2	764.2	737.6	715.8	691.5
52.5°	801.7	794.5	782.4	767.8	746.0	737.6	727.9	702.4	677.0	651.6	629.8
55°	743.6	738.8	724.2	709.7	686.7	677.0	667.3	640.7	615.2	589.8	569.2
57.5°	683.1	679.4	664.9	647.9	627.3	617.7	605.5	578.9	554.7	529.2	507.4
60°	622.5	618.9	604.3	587.4	568.0	555.9	542.6	522.0	494.1	471.1	446.9
62.5°	564.4	559.5	547.4	529.2	507.4	495.3	483.2	459.0	433.6	409.4	387.6
65°	505.0	499.0	484.4	466.3	445.7	434.8	422.7	399.7	374.2	351.2	330.6
67.5°	445.7	439.6	423.9	409.4	385.1	374.2	363.3	340.3	316.1	293.1	273.7
70°	385.1	379.1	367.0	347.6	327.0	316.1	305.2	281.0	259.2	242.2	224.1
72.5°	325.8	320.9	308.8	290.7	271.3	260.4	248.3	227.7	208.3	190.1	176.8
75°	268.9	261.6	250.7	233.7	214.4	204.7	196.2	175.6	157.4	145.3	134.4
77.5°	214.4	205.9	193.8	180.5	162.3	152.6	144.1	127.2	115.1	106.6	104.2
80°	157.4	156.2	144.1	129.6	113.8	106.6	98.1	87.2	83.6	82.4	79.9
82.5°	110.2	105.4	95.7	82.4	70.2	65.4	63.0	60.6	58.1	58.1	55.7
85°	66.6	61.8	53.3	42.4	40.0	38.8	37.5	37.5	36.3	35.1	35.1
87.5°	29.1	24.2	18.2	17.0	15.7	15.7	17.0	17.0	17.0	15.7	15.7
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°	1576.8	1576.8	1576.8	1576.8	1576.8	1576.8	1576.8	1576.8	1576.8	1576.8
2.5°	1564.7	1570.8	1574.4	1575.6	1575.6	1575.6	1576.8	1576.8	1575.6	1574.4
5°	1556.3	1562.3	1564.7	1567.2	1567.2	1567.2	1567.2	1567.2	1565.9	1563.5
7.5°	1542.9	1546.6	1550.2	1549.0	1549.0	1547.8	1546.6	1547.8	1545.4	1545.4
10°	1518.7	1522.3	1524.8	1521.1	1521.1	1522.3	1522.3	1521.1	1517.5	1513.9
12.5°	1490.9	1494.5	1490.9	1492.1	1489.6	1487.2	1486.0	1484.8	1481.2	1478.7
15°	1454.5	1454.5	1452.1	1452.1	1448.5	1443.6	1442.4	1443.6	1438.8	1438.8
17.5°	1414.6	1412.1	1408.5	1406.1	1404.9	1404.9	1400.0	1400.0	1394.0	1392.8
20°	1371.0	1368.5	1364.9	1358.8	1356.4	1357.6	1352.8	1349.2	1345.5	1344.3
22.5°	1324.9	1318.9	1315.3	1309.2	1304.4	1304.4	1300.7	1294.7	1291.0	1287.4
25°	1272.9	1266.8	1259.5	1254.7	1251.1	1245.0	1242.6	1237.7	1234.1	1232.9
27.5°	1219.6	1209.9	1200.2	1195.4	1192.9	1185.7	1182.0	1179.6	1172.3	1171.1
30°	1162.7	1155.4	1143.3	1134.8	1128.7	1130.0	1121.5	1116.6	1113.0	1109.4
32.5°	1108.2	1096.0	1083.9	1073.0	1065.8	1064.6	1056.1	1051.2	1047.6	1044.0
35°	1046.4	1034.3	1019.7	1010.1	1002.8	999.2	990.7	988.3	982.2	979.8
37.5°	984.6	971.3	956.8	944.7	939.8	931.3	927.7	921.6	916.8	916.8
40°	924.1	908.3	893.8	879.3	873.2	868.4	858.7	853.8	847.8	844.1
42.5°	861.1	842.9	829.6	816.3	807.8	804.2	793.3	787.2	781.2	779.9
45°	798.1	779.9	763.0	749.7	746.0	738.8	727.9	719.4	718.2	717.0
47.5°	733.9	715.8	700.0	685.5	680.6	672.2	664.9	658.8	651.6	647.9
50°	672.2	654.0	637.0	621.3	615.2	608.0	600.7	592.2	589.8	586.2
52.5°	610.4	589.8	571.6	557.1	552.3	546.2	537.7	530.5	526.8	524.4
55°	547.4	526.8	511.1	496.5	490.5	486.9	477.2	471.1	466.3	463.8
57.5°	485.6	465.1	450.5	439.6	431.2	427.5	417.8	411.8	409.4	408.1
60°	427.5	408.1	392.4	381.5	374.2	370.6	363.3	357.3	353.6	352.4
62.5°	369.4	352.4	337.9	327.0	322.2	317.3	311.3	306.4	302.8	302.8
65°	313.7	296.7	283.4	274.9	270.1	267.7	260.4	258.0	254.3	254.3
67.5°	259.2	247.1	237.4	226.5	222.8	222.8	215.6	213.2	210.7	210.7
70°	211.9	201.0	190.1	184.1	180.5	179.2	173.2	169.6	167.1	164.7
72.5°	165.9	156.2	146.5	145.3	145.3	144.1	144.1	141.7	141.7	142.9
75°	127.2	124.7	122.3	122.3	121.1	119.9	119.9	118.7	118.7	118.7
77.5°	101.7	100.5	99.3	98.1	98.1	96.9	95.7	95.7	95.7	95.7
80°	77.5	76.3	76.3	75.1	73.9	75.1	73.9	73.9	72.7	72.7
82.5°	54.5	54.5	54.5	53.3	53.3	53.3	53.3	52.1	52.1	53.3
85°	33.9	33.9	33.9	33.9	32.7	33.9	32.7	32.7	32.7	33.9
87.5°	14.5	15.7	14.5	15.7	15.7	14.5	14.5	14.5	14.5	14.5
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	21.77	23.33	22.14	23.64	23.96	18.97	20.52	19.33	20.84	21.15
	3H	23.60	25.00	23.98	25.33	25.69	20.04	21.44	20.42	21.77	22.13
	4H	24.29	25.60	24.69	25.95	26.33	20.44	21.75	20.84	22.10	22.48
	6H	24.79	26.00	25.20	26.37	26.76	20.76	21.97	21.17	22.34	22.73
	8H	24.94	26.10	25.37	26.49	26.89	20.87	22.03	21.30	22.42	22.82
	12H	25.04	26.15	25.47	26.53	26.96	20.95	22.05	21.38	22.43	22.86
4H	2H	22.02	23.33	22.41	23.67	24.05	19.69	21.00	20.09	21.35	21.72
	3H	24.01	25.10	24.42	25.49	25.90	20.91	22.00	21.32	22.40	22.80
	4H	24.79	25.78	25.23	26.19	26.63	21.40	22.38	21.83	22.79	23.23
	6H	25.41	26.27	25.87	26.71	27.17	21.82	22.67	22.27	23.11	23.57
	8H	25.62	26.41	26.08	26.86	27.32	21.96	22.76	22.42	23.20	23.67
	12H	25.76	26.47	26.24	26.95	27.42	22.07	22.79	22.56	23.27	23.74
8H	4H	24.83	25.63	25.30	26.07	26.54	21.71	22.51	22.18	22.96	23.42
	6H	25.50	26.16	25.99	26.65	27.13	22.23	22.89	22.72	23.38	23.86
	8H	25.74	26.33	26.25	26.84	27.33	22.43	23.03	22.95	23.53	24.02
	12H	25.93	26.46	26.44	26.95	27.51	22.61	23.13	23.12	23.62	24.19
12H	4H	24.82	25.53	25.30	26.01	26.48	21.75	22.47	22.23	22.94	23.41
	6H	25.48	26.08	26.00	26.59	27.07	22.28	22.88	22.80	23.39	23.87
	8H	25.76	26.28	26.27	26.78	27.34	22.54	23.07	23.05	23.56	24.12