

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: P243402

Luminaire Tested: S123RDRP-H1000D840-X4F0-XX-UDD-F-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243402
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-H1000D840-X4F0-XX-UDD-F-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH SATIN FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

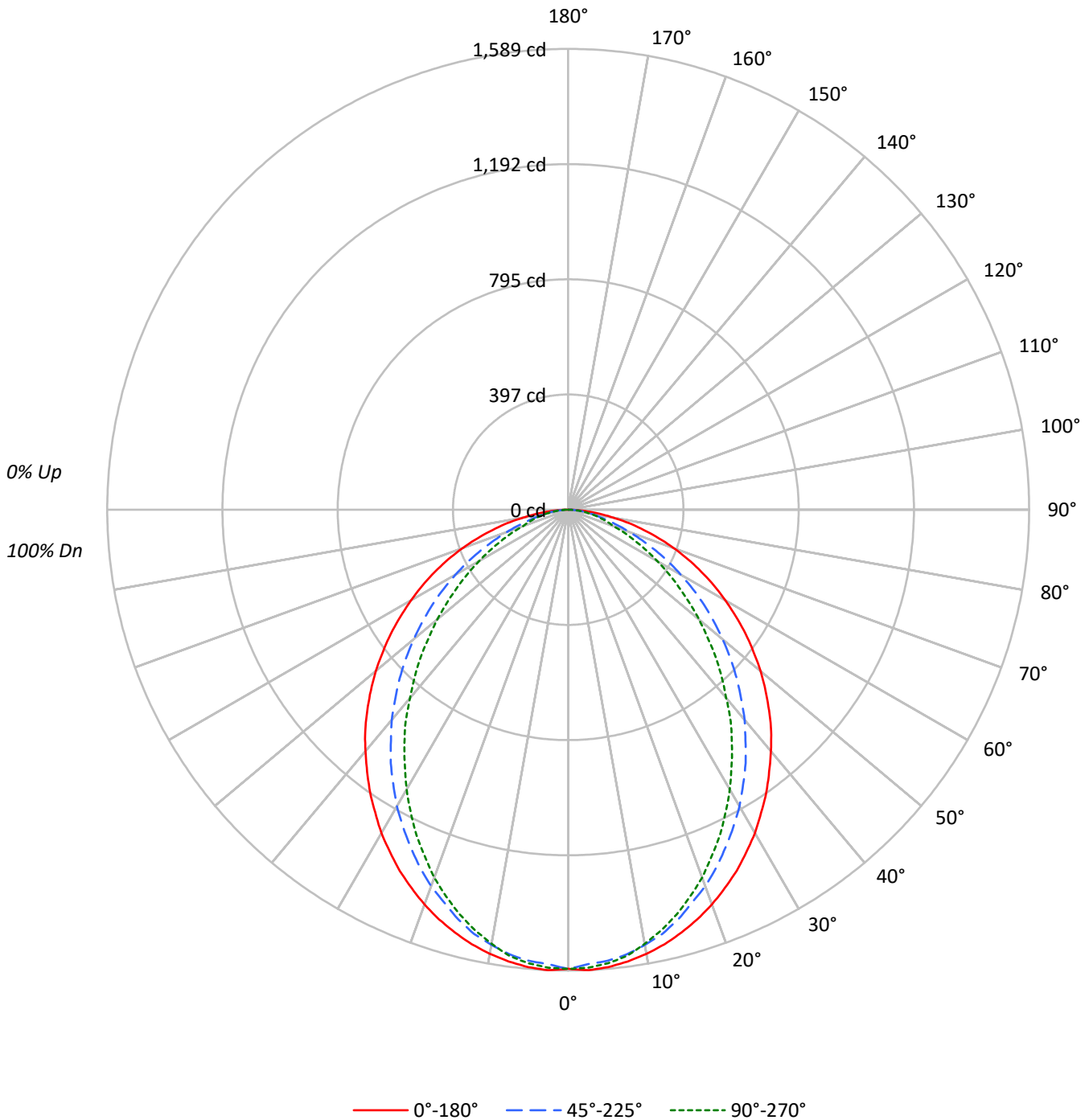
Lumens per Lamp: N/A
Luminaire Lumens: 3574.6 lumens
Efficiency: N/A
Efficacy: 113.5 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.07 / 1.22
Luminous Opening: Rectangular (W 0.23' x L: 3.88' x H: 0')
CIE Type: Direct

Input Watts (W): 31.5
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

TEST NUMBER: P243402

CATALOG NUMBER: S123RDRP-H1000D840-X4F0-XX-UDD-F-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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102
1	110	105	101	98	107	103	99	96	99	96	93	95	93	90	91	89	88
2	101	93	87	81	98	91	85	80	87	83	78	84	80	77	81	78	75
3	92	82	75	69	90	81	74	68	78	72	67	75	70	66	73	68	65
4	85	73	65	59	83	72	64	58	70	63	58	67	62	57	65	60	56
5	78	66	58	51	76	65	57	51	63	56	50	61	55	50	59	54	49
6	73	60	51	45	71	59	51	45	57	50	45	56	49	44	54	48	44
7	67	55	46	40	66	54	46	40	52	45	40	51	44	40	49	44	39
8	63	50	42	36	61	49	41	36	48	41	36	47	40	36	46	40	35
9	59	46	38	33	58	45	38	33	44	37	32	43	37	32	42	36	32
10	55	43	35	30	54	42	35	30	41	34	30	40	34	30	39	34	29

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	19190	19190	19190
5°	19264	18997	19101
10°	19142	18753	18708
15°	18936	18356	18128
20°	18681	17818	17410
25°	18378	17174	16556
30°	18023	16526	15589
35°	17615	15780	14556
40°	17201	14969	13410
45°	16780	14070	12341
50°	16327	13093	11098
55°	15778	12077	9842
60°	15152	10878	8577
65°	14544	9522	7325
70°	13705	7974	5862
75°	12640	6322	5582
80°	11036	5605	5096
85°	9304	4909	4729

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 16780 cd/sqm



TEST NUMBER: P243402

CATALOG NUMBER: S123RDRP-H1000D840-X4F0-XX-UDD-F-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	148.9	4.2
10°-20°	414.6	11.6
20°-30°	596.9	16.7
30°-40°	672.4	18.8
40°-50°	642.3	18.0
50°-60°	525.2	14.7
60°-70°	352.7	9.9
70°-80°	175.9	4.9
80°-90°	45.5	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°	1160.5	32.5
0°-40°	1832.9	51.3
0°-60°	3000.5	83.9
0°-90°	3574.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3574.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1583	1583	1583	1583	1583	
5°	1583	1577	1561	1574	1570	150
15°	1509	1498	1463	1454	1445	426
25°	1374	1344	1284	1256	1238	632
35°	1190	1144	1066	1007	984	744
45°	979	920	821	749	720	755
55°	747	680	572	492	466	667
65°	507	436	332	271	255	502
75°	270	206	135	122	119	286
85°	67	39	35	33	34	78
90°	0	0	0	0	0	



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CATALOG NUMBER: S123RDRP-H1000D840-X4F0-XX-UDD-F-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1583.2	1583.2	1583.2	1583.2	1583.2	1583.2	1583.2	1583.2	1583.2	1583.2	1583.2
2.5°	1589.3	1585.6	1580.8	1582.0	1583.2	1584.4	1584.4	1583.2	1579.6	1574.7	1568.6
5°	1583.2	1579.6	1574.7	1574.7	1577.1	1577.1	1577.1	1575.9	1572.3	1567.4	1561.3
7.5°	1571.0	1568.6	1562.5	1563.7	1565.0	1565.0	1565.0	1563.7	1558.9	1552.8	1546.7
10°	1555.2	1551.6	1546.7	1546.7	1547.9	1547.9	1547.9	1545.5	1539.4	1532.1	1523.6
12.5°	1534.6	1530.9	1526.1	1526.1	1526.1	1526.1	1526.1	1522.4	1512.7	1505.4	1498.1
15°	1509.0	1505.4	1500.5	1500.5	1499.3	1498.1	1495.7	1489.6	1481.1	1472.5	1462.8
17.5°	1481.1	1476.2	1470.1	1468.9	1467.7	1466.5	1462.8	1459.2	1447.0	1434.9	1420.3
20°	1448.2	1443.4	1437.3	1436.1	1432.4	1428.8	1426.3	1419.0	1405.7	1391.1	1381.3
22.5°	1411.7	1406.9	1400.8	1398.4	1391.1	1388.6	1385.0	1374.1	1359.5	1346.1	1335.1
25°	1374.1	1368.0	1360.7	1357.0	1348.5	1343.7	1342.4	1326.6	1312.0	1297.4	1284.1
27.5°	1330.3	1325.4	1319.3	1312.0	1303.5	1297.4	1295.0	1280.4	1262.2	1245.2	1233.0
30°	1287.7	1280.4	1274.3	1265.8	1253.7	1247.6	1242.7	1228.1	1212.3	1191.7	1180.7
32.5°	1237.9	1233.0	1225.7	1217.2	1205.0	1200.2	1192.9	1174.6	1154.0	1139.4	1122.3
35°	1190.4	1185.6	1174.6	1166.1	1149.1	1144.2	1136.9	1121.1	1098.0	1081.0	1066.4
37.5°	1138.2	1132.1	1123.6	1111.4	1096.8	1090.7	1081.0	1065.2	1038.4	1021.4	1003.2
40°	1087.1	1078.6	1068.8	1055.5	1040.9	1034.8	1026.3	1003.2	981.3	961.8	946.0
42.5°	1036.0	1026.3	1014.1	1002.0	986.2	977.6	967.9	946.0	921.7	903.5	881.6
45°	978.9	971.6	959.4	944.8	926.6	920.5	909.6	886.4	862.1	842.7	820.8
47.5°	922.9	914.4	902.3	887.7	869.4	860.9	850.0	826.9	802.5	778.2	758.8
50°	865.8	857.3	842.7	828.1	811.1	800.1	790.4	767.3	740.5	718.6	694.3
52.5°	805.0	797.7	785.5	770.9	749.0	740.5	730.8	705.3	679.7	654.2	632.3
55°	746.6	741.7	727.2	712.6	689.5	679.7	670.0	643.3	617.7	592.2	571.5
57.5°	685.8	682.2	667.6	650.5	629.9	620.1	608.0	581.2	556.9	531.4	509.5
60°	625.0	621.4	606.8	589.7	570.3	558.1	544.8	524.1	496.1	473.0	448.7
62.5°	566.6	561.8	549.6	531.4	509.5	497.3	485.2	460.9	435.3	411.0	389.1
65°	507.1	501.0	486.4	468.2	447.5	436.5	424.4	401.3	375.7	352.6	332.0
67.5°	447.5	441.4	425.6	411.0	386.7	375.7	364.8	341.7	317.4	294.3	274.8
70°	386.7	380.6	368.4	349.0	328.3	317.4	306.4	282.1	260.2	243.2	225.0
72.5°	327.1	322.2	310.1	291.8	272.4	261.4	249.3	228.6	209.1	190.9	177.5
75°	269.9	262.7	251.7	234.7	215.2	205.5	197.0	176.3	158.1	145.9	135.0
77.5°	215.2	206.7	194.6	181.2	162.9	153.2	144.7	127.7	115.5	107.0	104.6
80°	158.1	156.9	144.7	130.1	114.3	107.0	98.5	87.6	83.9	82.7	80.3
82.5°	110.7	105.8	96.1	82.7	70.5	65.7	63.2	60.8	58.4	58.4	55.9
85°	66.9	62.0	53.5	42.6	40.1	38.9	37.7	37.7	36.5	35.3	35.3
87.5°	29.2	24.3	18.2	17.0	15.8	15.8	17.0	17.0	17.0	15.8	15.8
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P243402

CATALOG NUMBER: S123RDRP-H1000D840-X4F0-XX-UDD-F-W

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	1583.2	1583.2	1583.2	1583.2	1583.2	1583.2	1583.2	1583.2	1583.2	1583.2
2.5°	1571.0	1577.1	1580.8	1582.0	1582.0	1582.0	1583.2	1583.2	1582.0	1580.8
5°	1562.5	1568.6	1571.0	1573.5	1573.5	1573.5	1573.5	1573.5	1572.3	1569.8
7.5°	1549.2	1552.8	1556.4	1555.2	1555.2	1554.0	1552.8	1554.0	1551.6	1551.6
10°	1524.8	1528.5	1530.9	1527.3	1527.3	1528.5	1528.5	1527.3	1523.6	1520.0
12.5°	1496.9	1500.5	1496.9	1498.1	1495.7	1493.2	1492.0	1490.8	1487.1	1484.7
15°	1460.4	1460.4	1458.0	1458.0	1454.3	1449.4	1448.2	1449.4	1444.6	1444.6
17.5°	1420.3	1417.8	1414.2	1411.7	1410.5	1410.5	1405.7	1405.7	1399.6	1398.4
20°	1376.5	1374.1	1370.4	1364.3	1361.9	1363.1	1358.2	1354.6	1350.9	1349.7
22.5°	1330.3	1324.2	1320.6	1314.5	1309.6	1309.6	1306.0	1299.9	1296.2	1292.6
25°	1278.0	1271.9	1264.6	1259.8	1256.1	1250.0	1247.6	1242.7	1239.1	1237.9
27.5°	1224.5	1214.8	1205.0	1200.2	1197.7	1190.4	1186.8	1184.4	1177.1	1175.8
30°	1167.3	1160.0	1147.9	1139.4	1133.3	1134.5	1126.0	1121.1	1117.5	1113.8
32.5°	1112.6	1100.5	1088.3	1077.4	1070.1	1068.8	1060.3	1055.5	1051.8	1048.2
35°	1050.6	1038.4	1023.9	1014.1	1006.8	1003.2	994.7	992.2	986.2	983.7
37.5°	988.6	975.2	960.6	948.5	943.6	935.1	931.4	925.4	920.5	920.5
40°	927.8	912.0	897.4	882.8	876.7	871.9	862.1	857.3	851.2	847.5
42.5°	864.6	846.3	832.9	819.6	811.1	807.4	796.5	790.4	784.3	783.1
45°	801.3	783.1	766.1	752.7	749.0	741.7	730.8	722.3	721.1	719.9
47.5°	736.9	718.6	702.8	688.2	683.4	674.9	667.6	661.5	654.2	650.5
50°	674.9	656.6	639.6	623.8	617.7	610.4	603.1	594.6	592.2	588.5
52.5°	612.9	592.2	573.9	559.3	554.5	548.4	539.9	532.6	528.9	526.5
55°	549.6	528.9	513.1	498.6	492.5	488.8	479.1	473.0	468.2	465.7
57.5°	487.6	466.9	452.3	441.4	432.9	429.2	419.5	413.4	411.0	409.8
60°	429.2	409.8	394.0	383.0	375.7	372.1	364.8	358.7	355.1	353.8
62.5°	370.9	353.8	339.3	328.3	323.4	318.6	312.5	307.6	304.0	304.0
65°	314.9	297.9	284.5	276.0	271.2	268.7	261.4	259.0	255.4	255.4
67.5°	260.2	248.1	238.3	227.4	223.7	223.7	216.4	214.0	211.6	211.6
70°	212.8	201.9	190.9	184.8	181.2	180.0	173.9	170.2	167.8	165.4
72.5°	166.6	156.9	147.1	145.9	145.9	144.7	144.7	142.3	142.3	143.5
75°	127.7	125.2	122.8	122.8	121.6	120.4	120.4	119.2	119.2	119.2
77.5°	102.1	100.9	99.7	98.5	98.5	97.3	96.1	96.1	96.1	96.1
80°	77.8	76.6	76.6	75.4	74.2	75.4	74.2	74.2	73.0	73.0
82.5°	54.7	54.7	54.7	53.5	53.5	53.5	53.5	52.3	52.3	53.5
85°	34.0	34.0	34.0	34.0	32.8	34.0	32.8	32.8	32.8	34.0
87.5°	14.6	15.8	14.6	15.8	15.8	14.6	14.6	14.6	14.6	14.6
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	21.79	23.34	22.15	23.66	23.97	18.98	20.54	19.35	20.85	21.16
	3H	23.62	25.01	23.99	25.34	25.70	20.06	21.45	20.43	21.78	22.14
	4H	24.30	25.61	24.70	25.96	26.34	20.45	21.77	20.85	22.11	22.49
	6H	24.80	26.01	25.21	26.38	26.77	20.78	21.99	21.19	22.35	22.75
	8H	24.96	26.11	25.38	26.50	26.90	20.88	22.04	21.31	22.43	22.83
	12H	25.06	26.16	25.49	26.55	26.97	20.96	22.07	21.39	22.45	22.88
4H	2H	22.03	23.34	22.43	23.69	24.07	19.70	21.01	20.10	21.36	21.74
	3H	24.02	25.11	24.43	25.51	25.91	20.92	22.01	21.33	22.41	22.81
	4H	24.81	25.79	25.24	26.21	26.64	21.41	22.39	21.84	22.81	23.24
	6H	25.43	26.28	25.88	26.72	27.18	21.83	22.69	22.29	23.13	23.59
	8H	25.63	26.43	26.09	26.87	27.34	21.98	22.77	22.44	23.22	23.69
	12H	25.77	26.49	26.26	26.97	27.44	22.09	22.80	22.57	23.28	23.75
8H	4H	24.85	25.65	25.31	26.09	26.56	21.73	22.53	22.19	22.97	23.44
	6H	25.51	26.17	26.01	26.66	27.14	22.24	22.90	22.74	23.39	23.87
	8H	25.75	26.35	26.27	26.86	27.34	22.45	23.04	22.96	23.55	24.04
	12H	25.95	26.47	26.45	26.96	27.53	22.62	23.15	23.13	23.64	24.20
12H	4H	24.83	25.55	25.32	26.03	26.50	21.77	22.48	22.25	22.96	23.43
	6H	25.50	26.09	26.01	26.60	27.09	22.30	22.89	22.81	23.40	23.89
	8H	25.77	26.30	26.28	26.79	27.35	22.55	23.08	23.06	23.57	24.13