

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: P243418

Luminaire Tested: S123RDRP-H1165D940-X4F0-XX-UDD-F-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243418
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-H1165D940-X4F0-XX-UDD-F-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH SATIN FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

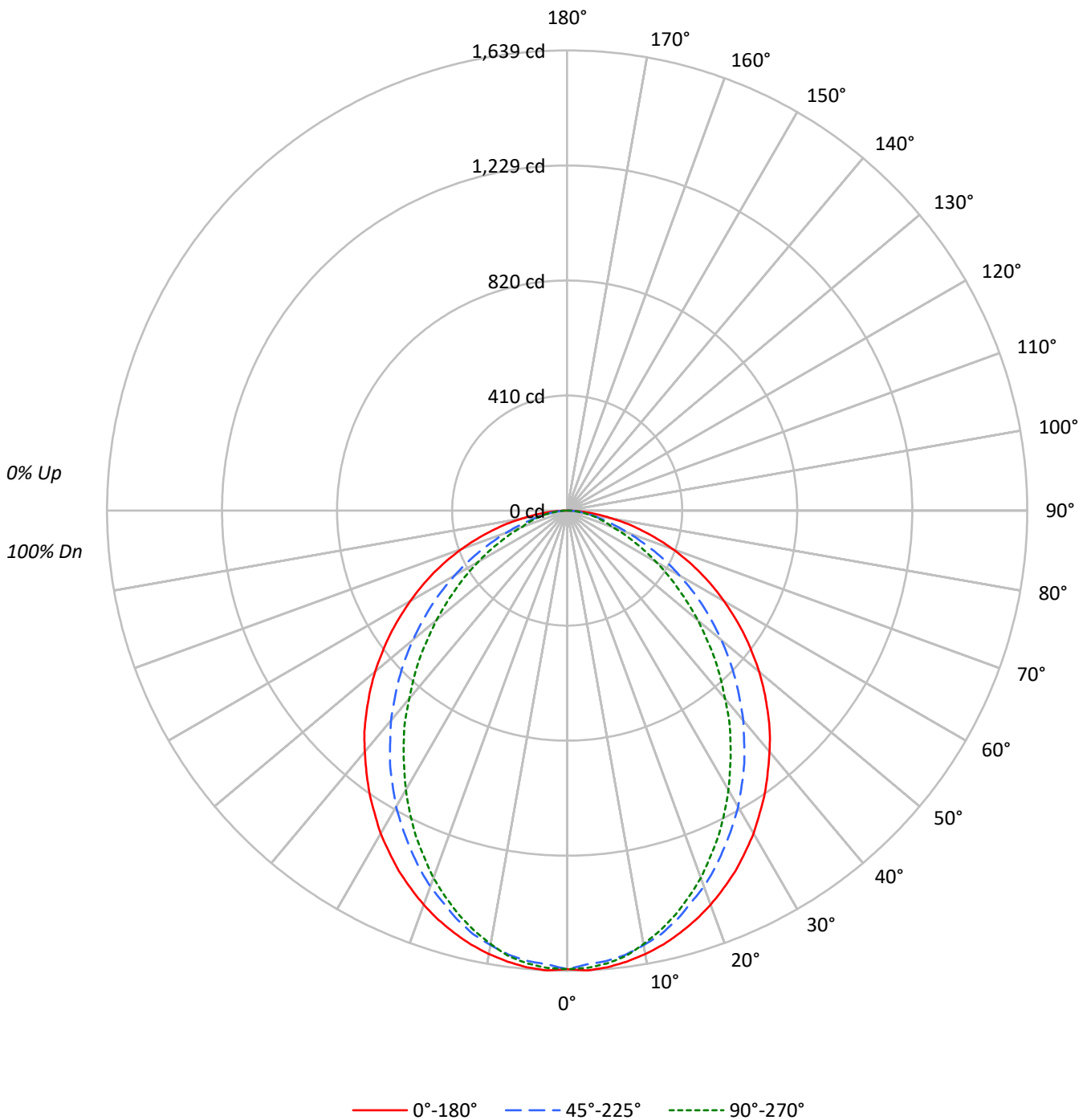
Lumens per Lamp: N/A
Luminaire Lumens: 3687.2 lumens
Efficiency: N/A
Efficacy: 97.8 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.07 / 1.22
Luminous Opening: Rectangular (W 0.23' x L: 3.88' x H: 0')
CIE Type: Direct

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

TEST NUMBER: P243418

CATALOG NUMBER: S123RDRP-H1165D940-X4F0-XX-UDD-F-W

Luminous Intensity Polar Plot





TEST NUMBER: P243418

CATALOG NUMBER: S123RDRP-H1165D940-X4F0-XX-UDD-F-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	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°	19795	19795	19795
5°	19871	19596	19703
10°	19745	19344	19298
15°	19533	18935	18699
20°	19270	18380	17959
25°	18957	17714	17078
30°	18591	17046	16080
35°	18171	16277	15015
40°	17742	15440	13833
45°	17308	14512	12728
50°	16841	13506	11448
55°	16274	12458	10152
60°	15629	11219	8848
65°	15000	9820	7555
70°	14137	8222	6046
75°	13043	6519	5756
80°	11385	5780	5256
85°	9596	5062	4882

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 17308 cd/sqm



TEST NUMBER: P243418

CATALOG NUMBER: S123RDRP-H1165D940-X4F0-XX-UDD-F-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	153.6	4.2
10°-20°	427.7	11.6
20°-30°	615.7	16.7
30°-40°	693.6	18.8
40°-50°	662.6	18.0
50°-60°	541.8	14.7
60°-70°	363.8	9.9
70°-80°	181.5	4.9
80°-90°	46.9	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°	1197.1	32.5
0°-40°	1890.6	51.3
0°-60°	3095.0	83.9
0°-90°	3687.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3687.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1633	1633	1633	1633	1633	
5°	1633	1627	1610	1623	1619	155
15°	1557	1545	1509	1500	1490	439
25°	1417	1386	1324	1296	1277	652
35°	1228	1180	1100	1039	1015	768
45°	1010	950	847	773	742	779
55°	770	701	590	508	480	688
65°	523	450	342	280	263	517
75°	278	212	139	125	123	295
85°	69	40	36	34	35	80
90°	0	0	0	0	0	



TEST NUMBER: P243418

CATALOG NUMBER: S123RDRP-H1165D940-X4F0-XX-UDD-F-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1633.1	1633.1	1633.1	1633.1	1633.1	1633.1	1633.1	1633.1	1633.1	1633.1	1633.1
2.5°	1639.4	1635.6	1630.6	1631.8	1633.1	1634.3	1634.3	1633.1	1629.3	1624.3	1618.0
5°	1633.1	1629.3	1624.3	1624.3	1626.8	1626.8	1626.8	1625.6	1621.8	1616.8	1610.5
7.5°	1620.5	1618.0	1611.8	1613.0	1614.3	1614.3	1614.3	1613.0	1608.0	1601.7	1595.5
10°	1604.2	1600.5	1595.5	1595.5	1596.7	1596.7	1596.7	1594.2	1587.9	1580.4	1571.6
12.5°	1582.9	1579.2	1574.1	1574.1	1574.1	1574.1	1574.1	1570.4	1560.3	1552.8	1545.3
15°	1556.6	1552.8	1547.8	1547.8	1546.5	1545.3	1542.8	1536.5	1527.7	1519.0	1508.9
17.5°	1527.7	1522.7	1516.4	1515.2	1513.9	1512.7	1508.9	1505.2	1492.6	1480.1	1465.0
20°	1493.9	1488.8	1482.6	1481.3	1477.6	1473.8	1471.3	1463.8	1450.0	1434.9	1424.9
22.5°	1456.2	1451.2	1444.9	1442.4	1434.9	1432.4	1428.6	1417.4	1402.3	1388.5	1377.2
25°	1417.4	1411.1	1403.6	1399.8	1391.0	1386.0	1384.7	1368.4	1353.4	1338.3	1324.5
27.5°	1372.2	1367.2	1360.9	1353.4	1344.6	1338.3	1335.8	1320.8	1302.0	1284.4	1271.9
30°	1328.3	1320.8	1314.5	1305.7	1293.2	1286.9	1281.9	1266.8	1250.5	1229.2	1217.9
32.5°	1276.9	1271.9	1264.3	1255.5	1243.0	1238.0	1230.5	1211.6	1190.3	1175.3	1157.7
35°	1228.0	1222.9	1211.6	1202.9	1185.3	1180.3	1172.8	1156.5	1132.6	1115.1	1100.0
37.5°	1174.0	1167.7	1159.0	1146.4	1131.4	1125.1	1115.1	1098.8	1071.2	1053.6	1034.8
40°	1121.3	1112.6	1102.5	1088.7	1073.7	1067.4	1058.6	1034.8	1012.2	992.1	975.8
42.5°	1068.7	1058.6	1046.1	1033.5	1017.2	1008.5	998.4	975.8	950.8	931.9	909.4
45°	1009.7	1002.2	989.6	974.6	955.8	949.5	938.2	914.4	889.3	869.2	846.6
47.5°	952.0	943.2	930.7	915.6	896.8	888.0	876.8	852.9	827.8	802.7	782.7
50°	893.1	884.3	869.2	854.2	836.6	825.3	815.3	791.5	763.9	741.3	716.2
52.5°	830.3	822.8	810.3	795.2	772.6	763.9	753.8	727.5	701.2	674.8	652.2
55°	770.1	765.1	750.1	735.0	711.2	701.2	691.1	663.5	637.2	610.8	589.5
57.5°	707.4	703.7	688.6	671.0	649.7	639.7	627.1	599.6	574.5	548.1	525.5
60°	644.7	640.9	625.9	608.3	588.3	575.7	561.9	540.6	511.8	487.9	462.8
62.5°	584.5	579.5	566.9	548.1	525.5	513.0	500.5	475.4	449.0	424.0	401.4
65°	523.0	516.8	501.7	482.9	461.6	450.3	437.7	413.9	387.6	363.7	342.4
67.5°	461.6	455.3	439.0	424.0	398.9	387.6	376.3	352.5	327.4	303.5	283.5
70°	398.9	392.6	380.1	360.0	338.7	327.4	316.1	291.0	268.4	250.9	232.0
72.5°	337.4	332.4	319.8	301.0	281.0	269.7	257.1	235.8	215.7	196.9	183.1
75°	278.5	270.9	259.6	242.1	222.0	212.0	203.2	181.9	163.1	150.5	139.2
77.5°	222.0	213.2	200.7	186.9	168.1	158.0	149.3	131.7	119.2	110.4	107.9
80°	163.1	161.8	149.3	134.2	117.9	110.4	101.6	90.3	86.5	85.3	82.8
82.5°	114.1	109.1	99.1	85.3	72.7	67.7	65.2	62.7	60.2	60.2	57.7
85°	69.0	64.0	55.2	43.9	41.4	40.1	38.9	38.9	37.6	36.4	36.4
87.5°	30.1	25.1	18.8	17.6	16.3	16.3	17.6	17.6	17.6	16.3	16.3
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: P243418

CATALOG NUMBER: S123RDRP-H1165D940-X4F0-XX-UDD-F-W

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	1633.1	1633.1	1633.1	1633.1	1633.1	1633.1	1633.1	1633.1	1633.1	1633.1
2.5°	1620.5	1626.8	1630.6	1631.8	1631.8	1631.8	1633.1	1633.1	1631.8	1630.6
5°	1611.8	1618.0	1620.5	1623.1	1623.1	1623.1	1623.1	1623.1	1621.8	1619.3
7.5°	1598.0	1601.7	1605.5	1604.2	1604.2	1603.0	1601.7	1603.0	1600.5	1600.5
10°	1572.9	1576.6	1579.2	1575.4	1575.4	1576.6	1576.6	1575.4	1571.6	1567.9
12.5°	1544.0	1547.8	1544.0	1545.3	1542.8	1540.3	1539.0	1537.8	1534.0	1531.5
15°	1506.4	1506.4	1503.9	1503.9	1500.1	1495.1	1493.9	1495.1	1490.1	1490.1
17.5°	1465.0	1462.5	1458.7	1456.2	1455.0	1455.0	1450.0	1450.0	1443.7	1442.4
20°	1419.9	1417.4	1413.6	1407.3	1404.8	1406.1	1401.0	1397.3	1393.5	1392.3
22.5°	1372.2	1365.9	1362.2	1355.9	1350.9	1350.9	1347.1	1340.8	1337.1	1333.3
25°	1318.3	1312.0	1304.5	1299.4	1295.7	1289.4	1286.9	1281.9	1278.1	1276.9
27.5°	1263.1	1253.0	1243.0	1238.0	1235.5	1228.0	1224.2	1221.7	1214.2	1212.9
30°	1204.1	1196.6	1184.1	1175.3	1169.0	1170.3	1161.5	1156.5	1152.7	1148.9
32.5°	1147.7	1135.1	1122.6	1111.3	1103.8	1102.5	1093.7	1088.7	1085.0	1081.2
35°	1083.7	1071.2	1056.1	1046.1	1038.6	1034.8	1026.0	1023.5	1017.2	1014.7
37.5°	1019.7	1005.9	990.9	978.3	973.3	964.6	960.8	954.5	949.5	949.5
40°	957.0	940.7	925.7	910.6	904.3	899.3	889.3	884.3	878.0	874.2
42.5°	891.8	873.0	859.2	845.4	836.6	832.9	821.6	815.3	809.0	807.8
45°	826.6	807.8	790.2	776.4	772.6	765.1	753.8	745.1	743.8	742.5
47.5°	760.1	741.3	725.0	709.9	704.9	696.1	688.6	682.3	674.8	671.0
50°	696.1	677.3	659.8	643.5	637.2	629.7	622.1	613.3	610.8	607.1
52.5°	632.2	610.8	592.0	577.0	572.0	565.7	556.9	549.4	545.6	543.1
55°	566.9	545.6	529.3	514.3	508.0	504.2	494.2	487.9	482.9	480.4
57.5°	503.0	481.6	466.6	455.3	446.5	442.8	432.7	426.5	424.0	422.7
60°	442.8	422.7	406.4	395.1	387.6	383.8	376.3	370.0	366.3	365.0
62.5°	382.6	365.0	349.9	338.7	333.6	328.6	322.4	317.3	313.6	313.6
65°	324.9	307.3	293.5	284.7	279.7	277.2	269.7	267.2	263.4	263.4
67.5°	268.4	255.9	245.8	234.6	230.8	230.8	223.3	220.8	218.2	218.2
70°	219.5	208.2	196.9	190.7	186.9	185.6	179.4	175.6	173.1	170.6
72.5°	171.8	161.8	151.8	150.5	150.5	149.3	149.3	146.8	146.8	148.0
75°	131.7	129.2	126.7	126.7	125.4	124.2	124.2	122.9	122.9	122.9
77.5°	105.4	104.1	102.9	101.6	101.6	100.3	99.1	99.1	99.1	99.1
80°	80.3	79.0	79.0	77.8	76.5	77.8	76.5	76.5	75.3	75.3
82.5°	56.4	56.4	56.4	55.2	55.2	55.2	55.2	53.9	53.9	55.2
85°	35.1	35.1	35.1	35.1	33.9	35.1	33.9	33.9	33.9	35.1
87.5°	15.1	16.3	15.1	16.3	16.3	15.1	15.1	15.1	15.1	15.1
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P243418
 CATALOG NUMBER: S123RDRP-H1165D940-X4F0-XX-UDD-F-W

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	21.90	23.45	22.26	23.76	24.08	19.09	20.64	19.46	20.96	21.27
	3H	23.73	25.12	24.10	25.45	25.81	20.17	21.56	20.54	21.89	22.25
	4H	24.41	25.72	24.81	26.07	26.45	20.56	21.87	20.96	22.22	22.60
	6H	24.91	26.12	25.32	26.49	26.88	20.88	22.10	21.30	22.46	22.85
	8H	25.07	26.22	25.49	26.61	27.01	20.99	22.15	21.42	22.54	22.94
	12H	25.17	26.27	25.60	26.65	27.08	21.07	22.17	21.50	22.56	22.99
4H	2H	22.14	23.45	22.54	23.80	24.17	19.81	21.12	20.21	21.47	21.85
	3H	24.13	25.22	24.54	25.62	26.02	21.03	22.12	21.44	22.52	22.92
	4H	24.92	25.90	25.35	26.31	26.75	21.52	22.50	21.95	22.91	23.35
	6H	25.53	26.39	25.99	26.83	27.29	21.94	22.79	22.40	23.24	23.69
	8H	25.74	26.54	26.20	26.98	27.45	22.08	22.88	22.55	23.33	23.79
	12H	25.88	26.60	26.36	27.07	27.54	22.20	22.91	22.68	23.39	23.86
8H	4H	24.95	25.75	25.42	26.20	26.66	21.84	22.63	22.30	23.08	23.54
	6H	25.62	26.28	26.12	26.77	27.25	22.35	23.01	22.85	23.50	23.98
	8H	25.86	26.45	26.37	26.96	27.45	22.55	23.15	23.07	23.66	24.14
	12H	26.05	26.58	26.56	27.07	27.63	22.73	23.25	23.24	23.74	24.31
12H	4H	24.94	25.66	25.42	26.13	26.60	21.87	22.59	22.36	23.07	23.54
	6H	25.61	26.20	26.12	26.71	27.20	22.41	23.00	22.92	23.51	24.00
	8H	25.88	26.41	26.39	26.90	27.46	22.66	23.19	23.17	23.68	24.24