

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: P243397

Luminaire Tested: S123RDRP-H1000D835-X4F0-XX-UDD-F-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243397
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-H1000D835-X4F0-XX-UDD-F-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH SATIN FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3500K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

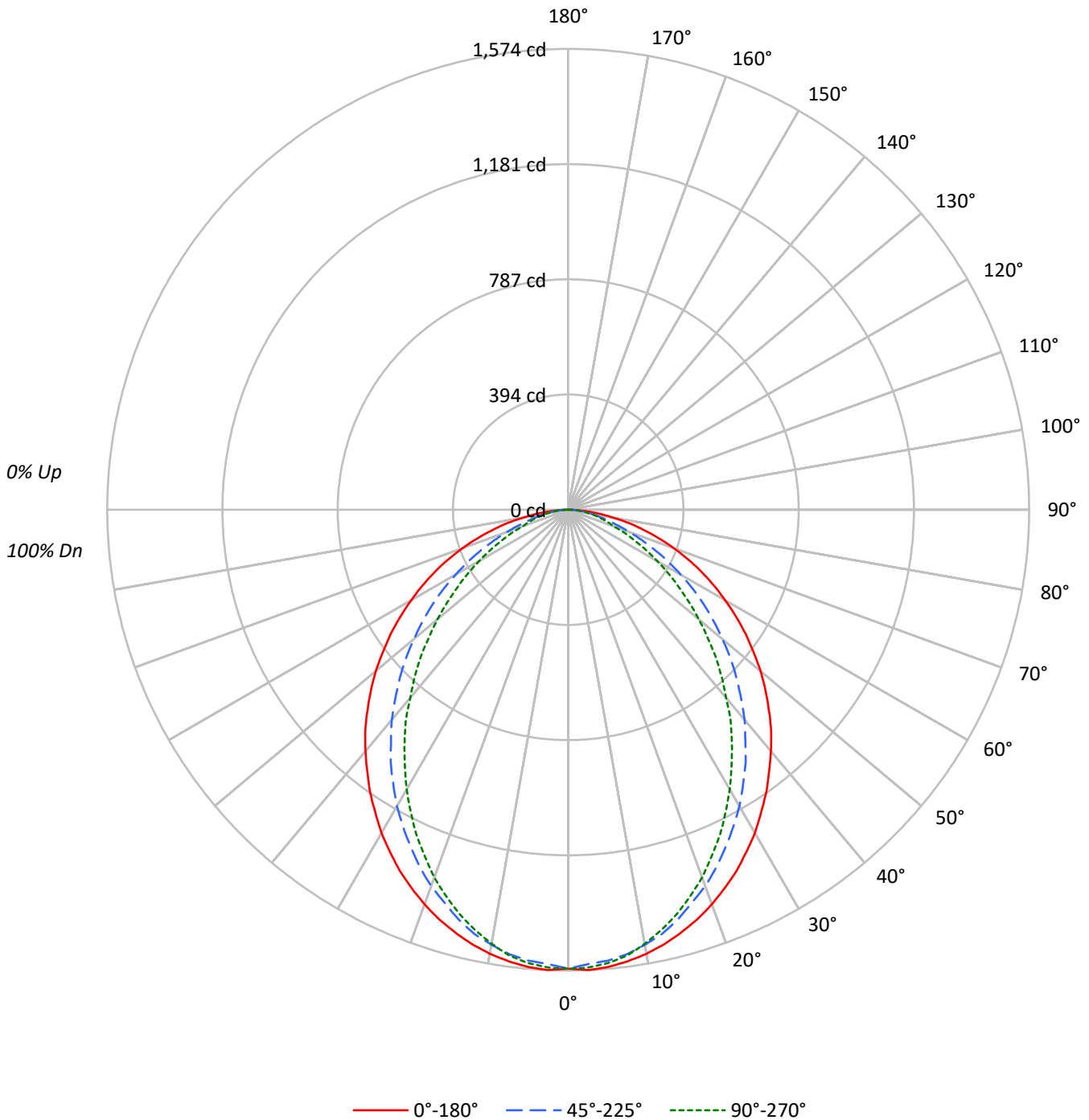
Lumens per Lamp: N/A
Luminaire Lumens: 3539.6 lumens
Efficiency: N/A
Efficacy: 112.4 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.07 / 1.22
Luminous Opening: Rectangular (W 0.23' x L: 3.88' x H: 0')
CIE Type: Direct

Input Watts (W): 31.5
Input Voltage (V): 120
Input Current (A_{in}): 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°	19002	19002	19002
5°	19075	18812	18914
10°	18955	18569	18525
15°	18752	18177	17951
20°	18499	17645	17240
25°	18197	17005	16394
30°	17847	16365	15438
35°	17443	15626	14414
40°	17034	14823	13280
45°	16616	13933	12219
50°	16166	12964	10990
55°	15623	11959	9746
60°	15004	10771	8495
65°	14401	9428	7253
70°	13570	7896	5805
75°	12518	6262	5526
80°	10924	5549	5040
85°	9207	4854	4687

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 16616 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	147.5	4.2
10°-20°	410.6	11.6
20°-30°	591.1	16.7
30°-40°	665.8	18.8
40°-50°	636.1	18.0
50°-60°	520.1	14.7
60°-70°	349.3	9.9
70°-80°	174.2	4.9
80°-90°	45.0	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°	1149.2	32.5
0°-40°	1815.0	51.3
0°-60°	2971.2	83.9
0°-90°	3539.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3539.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1568	1568	1568	1568	1568	
5°	1568	1562	1546	1558	1554	149
15°	1494	1483	1448	1440	1430	421
25°	1361	1330	1272	1244	1226	626
35°	1179	1133	1056	997	974	737
45°	969	912	813	742	713	748
55°	739	673	566	488	461	660
65°	502	432	329	268	253	497
75°	267	204	134	120	118	283
85°	66	38	35	32	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°	1567.7	1567.7	1567.7	1567.7	1567.7	1567.7	1567.7	1567.7	1567.7	1567.7	1567.7
2.5°	1573.8	1570.1	1565.3	1566.5	1567.7	1568.9	1568.9	1567.7	1564.1	1559.3	1553.3
5°	1567.7	1564.1	1559.3	1559.3	1561.7	1561.7	1561.7	1560.5	1556.9	1552.1	1546.1
7.5°	1555.7	1553.3	1547.3	1548.5	1549.7	1549.7	1549.7	1548.5	1543.7	1537.6	1531.6
10°	1540.0	1536.4	1531.6	1531.6	1532.8	1532.8	1532.8	1530.4	1524.4	1517.2	1508.7
12.5°	1519.6	1516.0	1511.1	1511.1	1511.1	1511.1	1511.1	1507.5	1497.9	1490.7	1483.4
15°	1494.3	1490.7	1485.9	1485.9	1484.7	1483.4	1481.0	1475.0	1466.6	1458.2	1448.5
17.5°	1466.6	1461.8	1455.8	1454.6	1453.3	1452.1	1448.5	1444.9	1432.9	1420.8	1406.4
20°	1434.1	1429.3	1423.2	1422.0	1418.4	1414.8	1412.4	1405.2	1391.9	1377.5	1367.9
22.5°	1398.0	1393.1	1387.1	1384.7	1377.5	1375.1	1371.5	1360.6	1346.2	1332.9	1322.1
25°	1360.6	1354.6	1347.4	1343.8	1335.3	1330.5	1329.3	1313.7	1299.2	1284.8	1271.5
27.5°	1317.3	1312.5	1306.4	1299.2	1290.8	1284.8	1282.4	1267.9	1249.9	1233.0	1221.0
30°	1275.1	1267.9	1261.9	1253.5	1241.4	1235.4	1230.6	1216.1	1200.5	1180.0	1169.2
32.5°	1225.8	1221.0	1213.7	1205.3	1193.3	1188.4	1181.2	1163.2	1142.7	1128.2	1111.4
35°	1178.8	1174.0	1163.2	1154.7	1137.9	1133.1	1125.8	1110.2	1087.3	1070.4	1056.0
37.5°	1127.0	1121.0	1112.6	1100.5	1086.1	1080.1	1070.4	1054.8	1028.3	1011.4	993.4
40°	1076.5	1068.0	1058.4	1045.2	1030.7	1024.7	1016.3	993.4	971.7	952.4	936.8
42.5°	1025.9	1016.3	1004.2	992.2	976.5	968.1	958.5	936.8	912.7	894.6	873.0
45°	969.3	962.1	950.0	935.6	917.5	911.5	900.7	877.8	853.7	834.4	812.8
47.5°	913.9	905.5	893.4	879.0	860.9	852.5	841.7	818.8	794.7	770.6	751.4
50°	857.3	848.9	834.4	820.0	803.1	792.3	782.7	759.8	733.3	711.6	687.5
52.5°	797.1	789.9	777.8	763.4	741.7	733.3	723.7	698.4	673.1	647.8	626.1
55°	739.3	734.5	720.1	705.6	682.7	673.1	663.5	637.0	611.7	586.4	565.9
57.5°	679.1	675.5	661.0	644.2	623.7	614.1	602.0	575.6	551.5	526.2	504.5
60°	618.9	615.3	600.8	584.0	564.7	552.7	539.4	519.0	491.3	468.4	444.3
62.5°	561.1	556.3	544.3	526.2	504.5	492.5	480.4	456.4	431.1	407.0	385.3
65°	502.1	496.1	481.6	463.6	443.1	432.3	420.2	397.4	372.1	349.2	328.7
67.5°	443.1	437.1	421.4	407.0	382.9	372.1	361.2	338.4	314.3	291.4	272.1
70°	382.9	376.9	364.8	345.6	325.1	314.3	303.4	279.4	257.7	240.8	222.8
72.5°	323.9	319.1	307.0	289.0	269.7	258.9	246.8	226.4	207.1	189.0	175.8
75°	267.3	260.1	249.2	232.4	213.1	203.5	195.1	174.6	156.5	144.5	133.7
77.5°	213.1	204.7	192.7	179.4	161.3	151.7	143.3	126.4	114.4	106.0	103.6
80°	156.5	155.3	143.3	128.8	113.2	106.0	97.5	86.7	83.1	81.9	79.5
82.5°	109.6	104.8	95.1	81.9	69.8	65.0	62.6	60.2	57.8	57.8	55.4
85°	66.2	61.4	53.0	42.1	39.7	38.5	37.3	37.3	36.1	34.9	34.9
87.5°	28.9	24.1	18.1	16.9	15.7	15.7	16.9	16.9	16.9	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°	1567.7	1567.7	1567.7	1567.7	1567.7	1567.7	1567.7	1567.7	1567.7	1567.7
2.5°	1555.7	1561.7	1565.3	1566.5	1566.5	1566.5	1567.7	1567.7	1566.5	1565.3
5°	1547.3	1553.3	1555.7	1558.1	1558.1	1558.1	1558.1	1558.1	1556.9	1554.5
7.5°	1534.0	1537.6	1541.2	1540.0	1540.0	1538.8	1537.6	1538.8	1536.4	1536.4
10°	1509.9	1513.6	1516.0	1512.3	1512.3	1513.6	1513.6	1512.3	1508.7	1505.1
12.5°	1482.2	1485.9	1482.2	1483.4	1481.0	1478.6	1477.4	1476.2	1472.6	1470.2
15°	1446.1	1446.1	1443.7	1443.7	1440.1	1435.3	1434.1	1435.3	1430.5	1430.5
17.5°	1406.4	1404.0	1400.4	1398.0	1396.8	1396.8	1391.9	1391.9	1385.9	1384.7
20°	1363.0	1360.6	1357.0	1351.0	1348.6	1349.8	1345.0	1341.4	1337.8	1336.5
22.5°	1317.3	1311.3	1307.7	1301.6	1296.8	1296.8	1293.2	1287.2	1283.6	1280.0
25°	1265.5	1259.5	1252.3	1247.4	1243.8	1237.8	1235.4	1230.6	1227.0	1225.8
27.5°	1212.5	1202.9	1193.3	1188.4	1186.0	1178.8	1175.2	1172.8	1165.6	1164.4
30°	1155.9	1148.7	1136.7	1128.2	1122.2	1123.4	1115.0	1110.2	1106.6	1103.0
32.5°	1101.7	1089.7	1077.7	1066.8	1059.6	1058.4	1050.0	1045.2	1041.5	1037.9
35°	1040.3	1028.3	1013.9	1004.2	997.0	993.4	985.0	982.5	976.5	974.1
37.5°	978.9	965.7	951.2	939.2	934.4	926.0	922.3	916.3	911.5	911.5
40°	918.7	903.1	888.6	874.2	868.2	863.3	853.7	848.9	842.9	839.3
42.5°	856.1	838.1	824.8	811.6	803.1	799.5	788.7	782.7	776.6	775.4
45°	793.5	775.4	758.6	745.3	741.7	734.5	723.7	715.2	714.0	712.8
47.5°	729.7	711.6	696.0	681.5	676.7	668.3	661.0	655.0	647.8	644.2
50°	668.3	650.2	633.4	617.7	611.7	604.5	597.2	588.8	586.4	582.8
52.5°	606.9	586.4	568.3	553.9	549.1	543.0	534.6	527.4	523.8	521.4
55°	544.3	523.8	508.1	493.7	487.7	484.0	474.4	468.4	463.6	461.2
57.5°	482.8	462.4	447.9	437.1	428.7	425.0	415.4	409.4	407.0	405.8
60°	425.0	405.8	390.1	379.3	372.1	368.5	361.2	355.2	351.6	350.4
62.5°	367.2	350.4	335.9	325.1	320.3	315.5	309.5	304.6	301.0	301.0
65°	311.9	295.0	281.8	273.3	268.5	266.1	258.9	256.5	252.9	252.9
67.5°	257.7	245.6	236.0	225.2	221.6	221.6	214.3	211.9	209.5	209.5
70°	210.7	199.9	189.0	183.0	179.4	178.2	172.2	168.6	166.2	163.8
72.5°	165.0	155.3	145.7	144.5	144.5	143.3	143.3	140.9	140.9	142.1
75°	126.4	124.0	121.6	121.6	120.4	119.2	119.2	118.0	118.0	118.0
77.5°	101.1	99.9	98.7	97.5	97.5	96.3	95.1	95.1	95.1	95.1
80°	77.1	75.9	75.9	74.7	73.4	74.7	73.4	73.4	72.2	72.2
82.5°	54.2	54.2	54.2	53.0	53.0	53.0	53.0	51.8	51.8	53.0
85°	33.7	33.7	33.7	33.7	32.5	33.7	32.5	32.5	32.5	33.7
87.5°	14.4	15.7	14.4	15.7	15.7	14.4	14.4	14.4	14.4	14.4
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	21.75	23.31	22.12	23.62	23.94	18.95	20.50	19.31	20.82	21.13
	3H	23.58	24.98	23.96	25.31	25.67	20.02	21.42	20.40	21.75	22.11
	4H	24.27	25.58	24.67	25.93	26.31	20.42	21.73	20.82	22.08	22.46
	6H	24.77	25.98	25.18	26.34	26.74	20.74	21.95	21.15	22.32	22.71
	8H	24.92	26.08	25.35	26.47	26.87	20.85	22.00	21.28	22.39	22.79
	12H	25.02	26.13	25.45	26.51	26.94	20.93	22.03	21.36	22.41	22.84
4H	2H	22.00	23.31	22.39	23.65	24.03	19.67	20.98	20.07	21.33	21.70
	3H	23.99	25.08	24.40	25.47	25.88	20.89	21.98	21.30	22.38	22.78
	4H	24.77	25.76	25.21	26.17	26.61	21.38	22.36	21.81	22.77	23.21
	6H	25.39	26.25	25.85	26.69	27.15	21.80	22.65	22.25	23.09	23.55
	8H	25.60	26.39	26.06	26.84	27.30	21.94	22.74	22.40	23.18	23.65
	12H	25.74	26.45	26.22	26.93	27.40	22.05	22.77	22.53	23.24	23.72
8H	4H	24.81	25.61	25.27	26.05	26.52	21.69	22.49	22.16	22.94	23.40
	6H	25.48	26.14	25.97	26.63	27.11	22.21	22.87	22.70	23.36	23.84
	8H	25.72	26.31	26.23	26.82	27.31	22.41	23.01	22.93	23.51	24.00
	12H	25.91	26.44	26.42	26.93	27.49	22.59	23.11	23.10	23.60	24.17
12H	4H	24.80	25.51	25.28	25.99	26.46	21.73	22.45	22.21	22.92	23.39
	6H	25.46	26.06	25.98	26.57	27.05	22.26	22.86	22.78	23.37	23.85
	8H	25.74	26.26	26.25	26.76	27.32	22.52	23.04	23.03	23.54	24.10