

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: P243408

Luminaire Tested: S123RDRP-H1165D930-X4F0-XX-UDD-F-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243408
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-H1165D930-X4F0-XX-UDD-F-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH SATIN FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

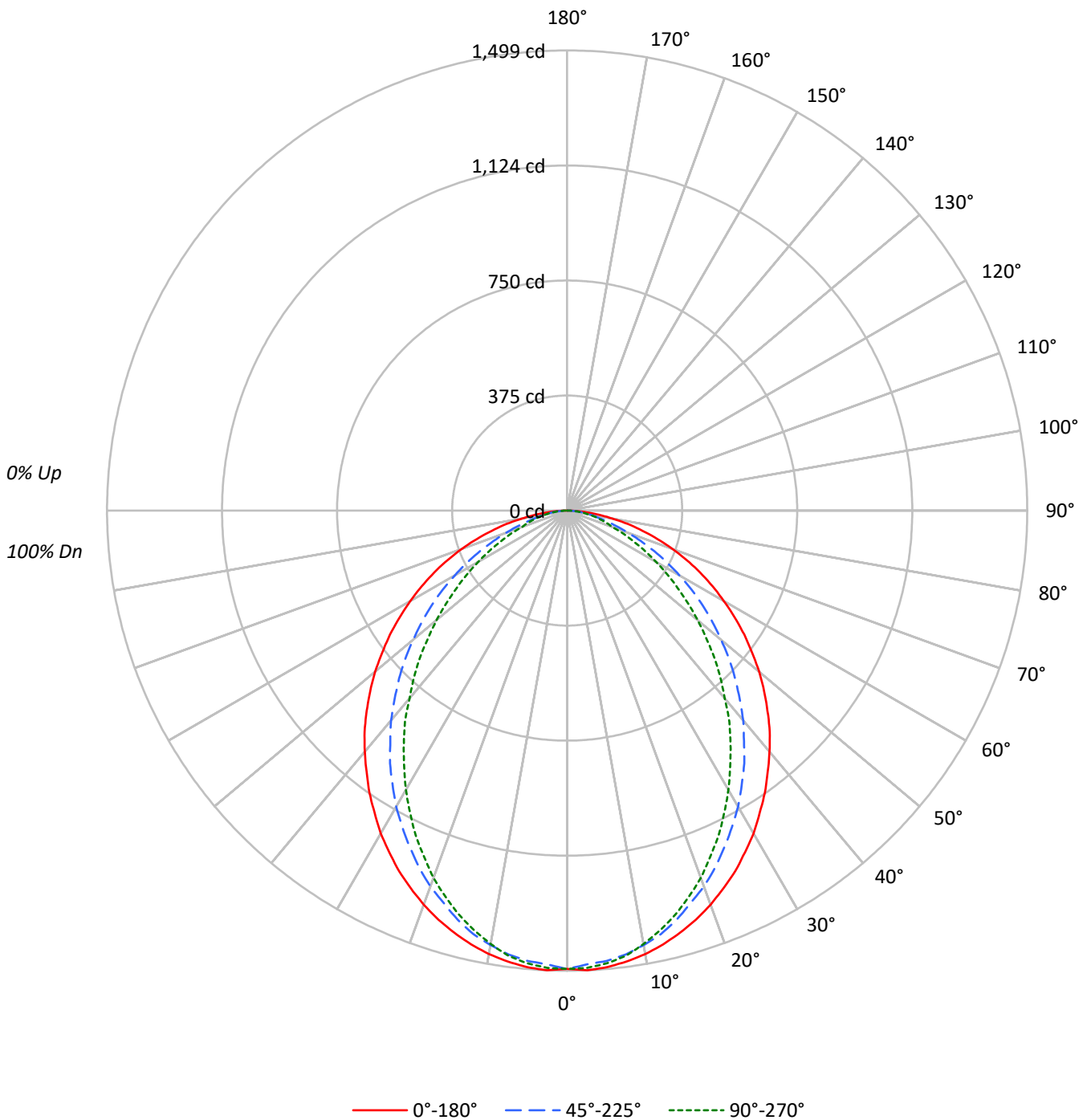
Lumens per Lamp: N/A
Luminaire Lumens: 3371.2 lumens
Efficiency: N/A
Efficacy: 89.4 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.07 / 1.22
Luminous Opening: Rectangular (W 0.23' x L: 3.88' x H: 0')
CIE Type: Direct

Input Watts (W): 37.7
Input Voltage (V): 120
Input Current (A_{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																		
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	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																												
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°	18098	18098	18098
5°	18167	17917	18014
10°	18054	17687	17644
15°	17859	17312	17097
20°	17619	16805	16421
25°	17332	16196	15614
30°	16999	15586	14703
35°	16613	14883	13729
40°	16223	14117	12647
45°	15825	13270	11638
50°	15397	12348	10468
55°	14880	11391	9281
60°	14291	10259	8090
65°	13715	8980	6906
70°	12925	7520	5529
75°	11924	5962	5264
80°	10408	5284	4802
85°	8776	4631	4464

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 15825 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	140.5	4.2
10°-20°	391.1	11.6
20°-30°	563.0	16.7
30°-40°	634.2	18.8
40°-50°	605.8	18.0
50°-60°	495.4	14.7
60°-70°	332.6	9.9
70°-80°	165.9	4.9
80°-90°	42.9	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°	1094.5	32.5
0°-40°	1728.6	51.3
0°-60°	2829.8	83.9
0°-90°	3371.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3371.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1493	1493	1493	1493	1493	
5°	1493	1487	1472	1484	1480	142
15°	1423	1413	1380	1372	1362	401
25°	1296	1267	1211	1185	1168	596
35°	1123	1079	1006	950	928	702
45°	923	868	774	706	679	713
55°	704	641	539	464	439	629
65°	478	412	313	256	241	473
75°	255	194	127	115	112	270
85°	63	37	33	31	32	73
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°	1493.1	1493.1	1493.1	1493.1	1493.1	1493.1	1493.1	1493.1	1493.1	1493.1	1493.1
2.5°	1498.9	1495.4	1490.9	1492.0	1493.1	1494.3	1494.3	1493.1	1489.7	1485.1	1479.4
5°	1493.1	1489.7	1485.1	1485.1	1487.4	1487.4	1487.4	1486.3	1482.8	1478.2	1472.5
7.5°	1481.7	1479.4	1473.7	1474.8	1475.9	1475.9	1475.9	1474.8	1470.2	1464.5	1458.7
10°	1466.8	1463.3	1458.7	1458.7	1459.9	1459.9	1459.9	1457.6	1451.9	1445.0	1437.0
12.5°	1447.3	1443.8	1439.2	1439.2	1439.2	1439.2	1439.2	1435.8	1426.6	1419.8	1412.9
15°	1423.2	1419.8	1415.2	1415.2	1414.0	1412.9	1410.6	1404.8	1396.8	1388.8	1379.6
17.5°	1396.8	1392.2	1386.5	1385.3	1384.2	1383.1	1379.6	1376.2	1364.7	1353.2	1339.5
20°	1365.9	1361.3	1355.5	1354.4	1350.9	1347.5	1345.2	1338.3	1325.7	1312.0	1302.8
22.5°	1331.4	1326.9	1321.1	1318.8	1312.0	1309.7	1306.2	1295.9	1282.1	1269.5	1259.2
25°	1295.9	1290.2	1283.3	1279.8	1271.8	1267.2	1266.1	1251.2	1237.4	1223.6	1211.0
27.5°	1254.6	1250.0	1244.3	1237.4	1229.4	1223.6	1221.4	1207.6	1190.4	1174.3	1162.9
30°	1214.5	1207.6	1201.9	1193.8	1182.4	1176.6	1172.0	1158.3	1143.4	1123.9	1113.6
32.5°	1167.5	1162.9	1156.0	1148.0	1136.5	1131.9	1125.0	1107.8	1088.3	1074.6	1058.5
35°	1122.7	1118.1	1107.8	1099.8	1083.7	1079.2	1072.3	1057.4	1035.6	1019.5	1005.8
37.5°	1073.4	1067.7	1059.7	1048.2	1034.4	1028.7	1019.5	1004.6	979.4	963.3	946.1
40°	1025.3	1017.2	1008.0	995.4	981.7	975.9	967.9	946.1	925.5	907.1	892.2
42.5°	977.1	967.9	956.4	945.0	930.1	922.0	912.9	892.2	869.3	852.1	831.4
45°	923.2	916.3	904.8	891.1	873.9	868.1	857.8	836.0	813.1	794.7	774.1
47.5°	870.4	862.4	850.9	837.2	820.0	811.9	801.6	779.8	756.9	734.0	715.6
50°	816.5	808.5	794.7	781.0	764.9	754.6	745.4	723.6	698.4	677.8	654.8
52.5°	759.2	752.3	740.8	727.1	706.4	698.4	689.2	665.2	641.1	617.0	596.3
55°	704.1	699.6	685.8	672.0	650.2	641.1	631.9	606.7	582.6	558.5	539.0
57.5°	646.8	643.4	629.6	613.5	594.0	584.9	573.4	548.2	525.2	501.2	480.5
60°	589.5	586.0	572.3	556.2	537.9	526.4	513.8	494.3	467.9	446.1	423.2
62.5°	534.4	529.8	518.4	501.2	480.5	469.0	457.6	434.6	410.6	387.6	367.0
65°	478.2	472.5	458.7	441.5	422.0	411.7	400.2	378.4	354.4	332.6	313.1
67.5°	422.0	416.3	401.4	387.6	364.7	354.4	344.0	322.3	299.3	277.5	259.2
70°	364.7	359.0	347.5	329.1	309.6	299.3	289.0	266.1	245.4	229.4	212.2
72.5°	308.5	303.9	292.4	275.2	256.9	246.6	235.1	215.6	197.3	180.0	167.4
75°	254.6	247.7	237.4	221.3	203.0	193.8	185.8	166.3	149.1	137.6	127.3
77.5°	203.0	195.0	183.5	170.9	153.7	144.5	136.5	120.4	108.9	100.9	98.6
80°	149.1	147.9	136.5	122.7	107.8	100.9	92.9	82.6	79.1	78.0	75.7
82.5°	104.4	99.8	90.6	78.0	66.5	61.9	59.6	57.3	55.0	55.0	52.8
85°	63.1	58.5	50.5	40.1	37.8	36.7	35.6	35.6	34.4	33.3	33.3
87.5°	27.5	22.9	17.2	16.1	14.9	14.9	16.1	16.1	16.1	14.9	14.9
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°	1493.1	1493.1	1493.1	1493.1	1493.1	1493.1	1493.1	1493.1	1493.1	1493.1
2.5°	1481.7	1487.4	1490.9	1492.0	1492.0	1492.0	1493.1	1493.1	1492.0	1490.9
5°	1473.7	1479.4	1481.7	1484.0	1484.0	1484.0	1484.0	1484.0	1482.8	1480.5
7.5°	1461.0	1464.5	1467.9	1466.8	1466.8	1465.6	1464.5	1465.6	1463.3	1463.3
10°	1438.1	1441.5	1443.8	1440.4	1440.4	1441.5	1441.5	1440.4	1437.0	1433.5
12.5°	1411.7	1415.2	1411.7	1412.9	1410.6	1408.3	1407.1	1406.0	1402.6	1400.3
15°	1377.3	1377.3	1375.0	1375.0	1371.6	1367.0	1365.9	1367.0	1362.4	1362.4
17.5°	1339.5	1337.2	1333.7	1331.4	1330.3	1330.3	1325.7	1325.7	1320.0	1318.8
20°	1298.2	1295.9	1292.5	1286.7	1284.4	1285.6	1281.0	1277.5	1274.1	1273.0
22.5°	1254.6	1248.9	1245.4	1239.7	1235.1	1235.1	1231.7	1225.9	1222.5	1219.1
25°	1205.3	1199.6	1192.7	1188.1	1184.7	1178.9	1176.6	1172.0	1168.6	1167.5
27.5°	1154.8	1145.7	1136.5	1131.9	1129.6	1122.7	1119.3	1117.0	1110.1	1109.0
30°	1100.9	1094.1	1082.6	1074.6	1068.8	1070.0	1061.9	1057.4	1053.9	1050.5
32.5°	1049.3	1037.9	1026.4	1016.1	1009.2	1008.0	1000.0	995.4	992.0	988.6
35°	990.8	979.4	965.6	956.4	949.6	946.1	938.1	935.8	930.1	927.8
37.5°	932.4	919.7	906.0	894.5	889.9	881.9	878.5	872.7	868.1	868.1
40°	875.0	860.1	846.3	832.6	826.9	822.3	813.1	808.5	802.8	799.3
42.5°	815.4	798.2	785.6	773.0	764.9	761.5	751.2	745.4	739.7	738.5
45°	755.7	738.5	722.5	709.9	706.4	699.6	689.2	681.2	680.1	678.9
47.5°	695.0	677.8	662.9	649.1	644.5	636.5	629.6	623.9	617.0	613.5
50°	636.5	619.3	603.2	588.3	582.6	575.7	568.8	560.8	558.5	555.1
52.5°	578.0	558.5	541.3	527.5	522.9	517.2	509.2	502.3	498.9	496.6
55°	518.4	498.9	484.0	470.2	464.5	461.0	451.8	446.1	441.5	439.2
57.5°	459.9	440.4	426.6	416.3	408.3	404.8	395.7	389.9	387.6	386.5
60°	404.8	386.5	371.6	361.2	354.4	350.9	344.0	338.3	334.9	333.7
62.5°	349.8	333.7	320.0	309.6	305.1	300.5	294.7	290.1	286.7	286.7
65°	297.0	281.0	268.4	260.3	255.7	253.4	246.6	244.3	240.8	240.8
67.5°	245.4	233.9	224.8	214.5	211.0	211.0	204.1	201.8	199.5	199.5
70°	200.7	190.4	180.0	174.3	170.9	169.7	164.0	160.6	158.3	156.0
72.5°	157.1	147.9	138.8	137.6	137.6	136.5	136.5	134.2	134.2	135.3
75°	120.4	118.1	115.8	115.8	114.7	113.5	113.5	112.4	112.4	112.4
77.5°	96.3	95.2	94.0	92.9	92.9	91.7	90.6	90.6	90.6	90.6
80°	73.4	72.2	72.2	71.1	70.0	71.1	70.0	70.0	68.8	68.8
82.5°	51.6	51.6	51.6	50.5	50.5	50.5	50.5	49.3	49.3	50.5
85°	32.1	32.1	32.1	32.1	31.0	32.1	31.0	31.0	31.0	32.1
87.5°	13.8	14.9	13.8	14.9	14.9	13.8	13.8	13.8	13.8	13.8
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	21.59	23.14	21.95	23.45	23.77	18.78	20.33	19.14	20.65	20.96
	3H	23.41	24.81	23.79	25.14	25.50	19.85	21.25	20.23	21.58	21.94
	4H	24.10	25.41	24.50	25.76	26.14	20.25	21.56	20.65	21.91	22.29
	6H	24.60	25.81	25.01	26.18	26.57	20.57	21.78	20.98	22.15	22.54
	8H	24.76	25.91	25.18	26.30	26.70	20.68	21.84	21.11	22.23	22.63
	12H	24.85	25.96	25.28	26.34	26.77	20.76	21.86	21.19	22.24	22.67
4H	2H	21.83	23.14	22.23	23.49	23.86	19.50	20.81	19.90	21.16	21.53
	3H	23.82	24.91	24.23	25.31	25.71	20.72	21.81	21.13	22.21	22.61
	4H	24.61	25.59	25.04	26.00	26.44	21.21	22.19	21.64	22.60	23.04
	6H	25.22	26.08	25.68	26.52	26.98	21.63	22.48	22.08	22.92	23.38
	8H	25.43	26.22	25.89	26.67	27.13	21.77	22.57	22.24	23.01	23.48
	12H	25.57	26.28	26.05	26.76	27.23	21.88	22.60	22.37	23.08	23.55
8H	4H	24.64	25.44	25.11	25.88	26.35	21.52	22.32	21.99	22.77	23.23
	6H	25.31	25.97	25.81	26.46	26.94	22.04	22.70	22.53	23.19	23.67
	8H	25.55	26.14	26.06	26.65	27.14	22.24	22.84	22.76	23.35	23.83
	12H	25.74	26.27	26.25	26.76	27.32	22.42	22.94	22.93	23.43	24.00
12H	4H	24.63	25.34	25.11	25.82	26.29	21.56	22.28	22.04	22.75	23.22
	6H	25.29	25.89	25.81	26.40	26.88	22.09	22.69	22.61	23.20	23.68
	8H	25.57	26.09	26.08	26.59	27.15	22.35	22.88	22.86	23.37	23.93