

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: P243412

Luminaire Tested: S123RDRP-H1000D935-X4F0-XX-UDD-F-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P243412  
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-H1000D935-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: -

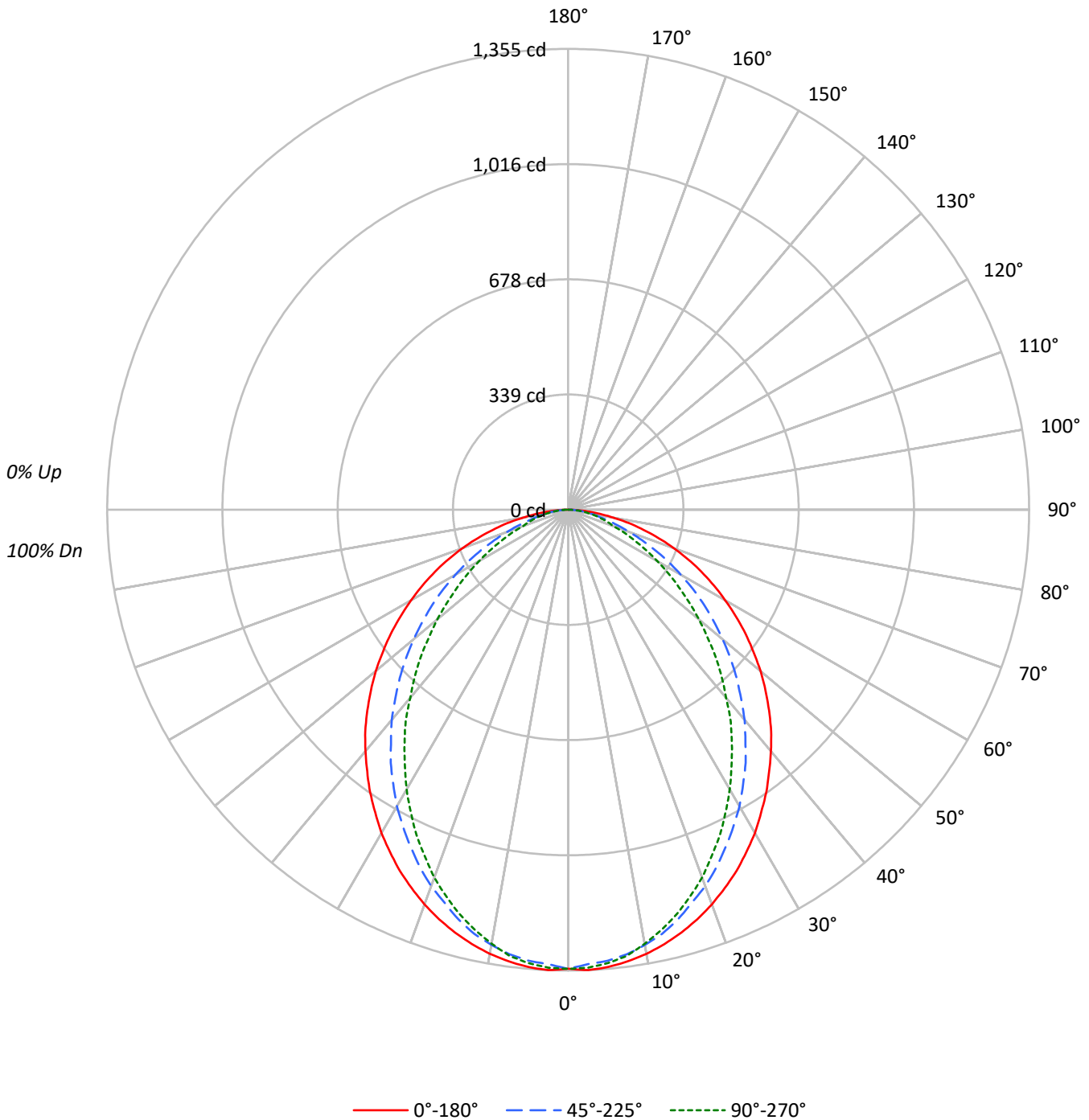
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3047.6 lumens  
Efficiency: N/A  
Efficacy: 96.8 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): 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

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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
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°	16361	16361	16361
5°	16424	16197	16285
10°	16321	15988	15950
15°	16145	15651	15455
20°	15927	15191	14844
25°	15668	14642	14115
30°	15367	14090	13291
35°	15019	13454	12410
40°	14665	12763	11434
45°	14307	11996	10520
50°	13920	11164	9463
55°	13453	10298	8392
60°	12919	9275	7314
65°	12399	8117	6244
70°	11685	6797	4997
75°	10781	5390	4758
80°	9409	4775	4342
85°	7927	4186	4033

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 14307 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	127.0	4.2
10°-20°	353.5	11.6
20°-30°	508.9	16.7
30°-40°	573.3	18.8
40°-50°	547.7	18.0
50°-60°	447.8	14.7
60°-70°	300.7	9.9
70°-80°	150.0	4.9
80°-90°	38.8	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°	989.4	32.5
0°-40°	1562.7	51.3
0°-60°	2558.2	83.9
0°-90°	3047.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3047.6	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1350	1350	1350	1350	1350	
5°	1350	1345	1331	1342	1338	128
15°	1287	1277	1247	1240	1232	363
25°	1172	1146	1095	1071	1055	539
35°	1015	976	909	858	839	634
45°	835	785	700	639	614	644
55°	637	580	487	420	397	569
65°	432	372	283	231	218	428
75°	230	175	115	104	102	244
85°	57	33	30	28	29	66
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°	1349.8	1349.8	1349.8	1349.8	1349.8	1349.8	1349.8	1349.8	1349.8	1349.8	1349.8
2.5°	1355.0	1351.9	1347.7	1348.8	1349.8	1350.9	1350.9	1349.8	1346.7	1342.6	1337.4
5°	1349.8	1346.7	1342.6	1342.6	1344.6	1344.6	1344.6	1343.6	1340.5	1336.3	1331.2
7.5°	1339.5	1337.4	1332.2	1333.2	1334.3	1334.3	1334.3	1333.2	1329.1	1323.9	1318.7
10°	1326.0	1322.9	1318.7	1318.7	1319.8	1319.8	1319.8	1317.7	1312.5	1306.3	1299.0
12.5°	1308.4	1305.2	1301.1	1301.1	1301.1	1301.1	1301.1	1298.0	1289.7	1283.5	1277.2
15°	1286.6	1283.5	1279.3	1279.3	1278.3	1277.2	1275.2	1270.0	1262.7	1255.5	1247.2
17.5°	1262.7	1258.6	1253.4	1252.4	1251.3	1250.3	1247.2	1244.1	1233.7	1223.3	1210.9
20°	1234.7	1230.6	1225.4	1224.4	1221.3	1218.2	1216.1	1209.9	1198.5	1186.0	1177.7
22.5°	1203.6	1199.5	1194.3	1192.2	1186.0	1183.9	1180.8	1171.5	1159.1	1147.7	1138.3
25°	1171.5	1166.3	1160.1	1157.0	1149.7	1145.6	1144.5	1131.1	1118.6	1106.2	1094.8
27.5°	1134.2	1130.0	1124.9	1118.6	1111.4	1106.2	1104.1	1091.7	1076.1	1061.6	1051.2
30°	1097.9	1091.7	1086.5	1079.2	1068.9	1063.7	1059.5	1047.1	1033.6	1016.0	1006.7
32.5°	1055.4	1051.2	1045.0	1037.8	1027.4	1023.3	1017.0	1001.5	983.9	971.4	956.9
35°	1015.0	1010.8	1001.5	994.2	979.7	975.6	969.3	955.9	936.2	921.7	909.2
37.5°	970.4	965.2	957.9	947.6	935.1	929.9	921.7	908.2	885.4	870.9	855.3
40°	926.8	919.6	911.3	899.9	887.4	882.3	875.0	855.3	836.6	820.1	806.6
42.5°	883.3	875.0	864.6	854.3	840.8	833.5	825.2	806.6	785.8	770.3	751.6
45°	834.6	828.3	818.0	805.5	790.0	784.8	775.5	755.8	735.0	718.5	699.8
47.5°	786.9	779.6	769.3	756.8	741.3	734.0	724.7	705.0	684.2	663.5	646.9
50°	738.2	730.9	718.5	706.0	691.5	682.2	673.9	654.2	631.4	612.7	592.0
52.5°	686.3	680.1	669.7	657.3	638.6	631.4	623.1	601.3	579.5	557.8	539.1
55°	636.6	632.4	620.0	607.5	587.8	579.5	571.2	548.4	526.7	504.9	487.3
57.5°	584.7	581.6	569.2	554.6	537.0	528.7	518.4	495.6	474.8	453.1	434.4
60°	532.9	529.8	517.3	502.8	486.2	475.9	464.5	446.8	423.0	403.3	382.6
62.5°	483.1	479.0	468.6	453.1	434.4	424.0	413.7	392.9	371.1	350.4	331.8
65°	432.3	427.1	414.7	399.1	381.5	372.2	361.8	342.1	320.3	300.7	283.0
67.5°	381.5	376.3	362.9	350.4	329.7	320.3	311.0	291.3	270.6	250.9	234.3
70°	329.7	324.5	314.1	297.5	279.9	270.6	261.3	240.5	221.9	207.3	191.8
72.5°	278.9	274.7	264.4	248.8	232.2	222.9	212.5	194.9	178.3	162.8	151.4
75°	230.2	223.9	214.6	200.1	183.5	175.2	167.9	150.3	134.8	124.4	115.1
77.5°	183.5	176.2	165.9	154.5	138.9	130.6	123.4	108.9	98.5	91.2	89.2
80°	134.8	133.7	123.4	110.9	97.5	91.2	84.0	74.6	71.5	70.5	68.4
82.5°	94.3	90.2	81.9	70.5	60.1	56.0	53.9	51.8	49.8	49.8	47.7
85°	57.0	52.9	45.6	36.3	34.2	33.2	32.1	32.1	31.1	30.1	30.1
87.5°	24.9	20.7	15.6	14.5	13.5	13.5	14.5	14.5	14.5	13.5	13.5
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°	1349.8	1349.8	1349.8	1349.8	1349.8	1349.8	1349.8	1349.8	1349.8	1349.8
2.5°	1339.5	1344.6	1347.7	1348.8	1348.8	1348.8	1349.8	1349.8	1348.8	1347.7
5°	1332.2	1337.4	1339.5	1341.5	1341.5	1341.5	1341.5	1341.5	1340.5	1338.4
7.5°	1320.8	1323.9	1327.0	1326.0	1326.0	1324.9	1323.9	1324.9	1322.9	1322.9
10°	1300.1	1303.2	1305.2	1302.1	1302.1	1303.2	1303.2	1302.1	1299.0	1295.9
12.5°	1276.2	1279.3	1276.2	1277.2	1275.2	1273.1	1272.1	1271.0	1267.9	1265.8
15°	1245.1	1245.1	1243.0	1243.0	1239.9	1235.8	1234.7	1235.8	1231.6	1231.6
17.5°	1210.9	1208.8	1205.7	1203.6	1202.6	1202.6	1198.5	1198.5	1193.3	1192.2
20°	1173.6	1171.5	1168.4	1163.2	1161.1	1162.2	1158.0	1154.9	1151.8	1150.8
22.5°	1134.2	1129.0	1125.9	1120.7	1116.6	1116.6	1113.4	1108.3	1105.2	1102.0
25°	1089.6	1084.4	1078.2	1074.1	1070.9	1065.8	1063.7	1059.5	1056.4	1055.4
27.5°	1044.0	1035.7	1027.4	1023.3	1021.2	1015.0	1011.8	1009.8	1003.6	1002.5
30°	995.3	989.0	978.7	971.4	966.2	967.3	960.0	955.9	952.8	949.6
32.5°	948.6	938.2	927.9	918.5	912.3	911.3	904.0	899.9	896.8	893.7
35°	895.7	885.4	872.9	864.6	858.4	855.3	848.0	846.0	840.8	838.7
37.5°	842.9	831.5	819.0	808.6	804.5	797.2	794.1	789.0	784.8	784.8
40°	791.0	777.5	765.1	752.7	747.5	743.3	735.0	730.9	725.7	722.6
42.5°	737.1	721.6	710.2	698.8	691.5	688.4	679.1	673.9	668.7	667.7
45°	683.2	667.7	653.1	641.7	638.6	632.4	623.1	615.8	614.8	613.7
47.5°	628.3	612.7	599.2	586.8	582.6	575.4	569.2	564.0	557.8	554.6
50°	575.4	559.8	545.3	531.8	526.7	520.4	514.2	507.0	504.9	501.8
52.5°	522.5	504.9	489.3	476.9	472.7	467.6	460.3	454.1	451.0	448.9
55°	468.6	451.0	437.5	425.1	419.9	416.8	408.5	403.3	399.1	397.1
57.5°	415.7	398.1	385.7	376.3	369.1	366.0	357.7	352.5	350.4	349.4
60°	366.0	349.4	335.9	326.6	320.3	317.2	311.0	305.8	302.7	301.7
62.5°	316.2	301.7	289.2	279.9	275.8	271.6	266.4	262.3	259.2	259.2
65°	268.5	254.0	242.6	235.3	231.2	229.1	222.9	220.8	217.7	217.7
67.5°	221.9	211.5	203.2	193.9	190.8	190.8	184.5	182.5	180.4	180.4
70°	181.4	172.1	162.8	157.6	154.5	153.4	148.3	145.1	143.1	141.0
72.5°	142.0	133.7	125.4	124.4	124.4	123.4	123.4	121.3	121.3	122.3
75°	108.9	106.8	104.7	104.7	103.7	102.6	102.6	101.6	101.6	101.6
77.5°	87.1	86.0	85.0	84.0	84.0	82.9	81.9	81.9	81.9	81.9
80°	66.4	65.3	65.3	64.3	63.2	64.3	63.2	63.2	62.2	62.2
82.5°	46.7	46.7	46.7	45.6	45.6	45.6	45.6	44.6	44.6	45.6
85°	29.0	29.0	29.0	29.0	28.0	29.0	28.0	28.0	28.0	29.0
87.5°	12.4	13.5	12.4	13.5	13.5	12.4	12.4	12.4	12.4	12.4
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	21.23	22.79	21.60	23.10	23.42	18.43	19.98	18.79	20.30	20.61
	3H	23.06	24.46	23.44	24.79	25.15	19.50	20.90	19.88	21.23	21.59
	4H	23.75	25.06	24.15	25.41	25.79	19.90	21.21	20.30	21.56	21.94
	6H	24.25	25.46	24.66	25.82	26.22	20.22	21.43	20.63	21.80	22.19
	8H	24.40	25.56	24.83	25.95	26.35	20.33	21.49	20.76	21.87	22.28
	12H	24.50	25.61	24.93	25.99	26.42	20.41	21.51	20.84	21.89	22.32
4H	2H	21.48	22.79	21.87	23.13	23.51	19.15	20.46	19.55	20.81	21.18
	3H	23.47	24.56	23.88	24.95	25.36	20.37	21.46	20.78	21.86	22.26
	4H	24.25	25.24	24.69	25.65	26.09	20.86	21.84	21.29	22.25	22.69
	6H	24.87	25.73	25.33	26.17	26.63	21.28	22.13	21.73	22.57	23.03
	8H	25.07	25.87	25.54	26.32	26.78	21.42	22.22	21.88	22.66	23.13
	12H	25.22	25.93	25.70	26.41	26.88	21.53	22.25	22.01	22.73	23.20
8H	4H	24.29	25.09	24.75	25.53	26.00	21.17	21.97	21.64	22.42	22.88
	6H	24.96	25.62	25.45	26.11	26.59	21.69	22.35	22.18	22.84	23.32
	8H	25.20	25.79	25.71	26.30	26.79	21.89	22.49	22.41	22.99	23.48
	12H	25.39	25.92	25.90	26.41	26.97	22.07	22.59	22.58	23.08	23.65
12H	4H	24.28	24.99	24.76	25.47	25.94	21.21	21.93	21.69	22.40	22.87
	6H	24.94	25.54	25.46	26.05	26.53	21.74	22.34	22.26	22.85	23.33
	8H	25.22	25.74	25.73	26.24	26.80	22.00	22.52	22.51	23.02	23.58