

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: P243407

Luminaire Tested: S123RDRP-H1000D930-X4F0-XX-UDD-F-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P243407  
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-H1000D930-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: -

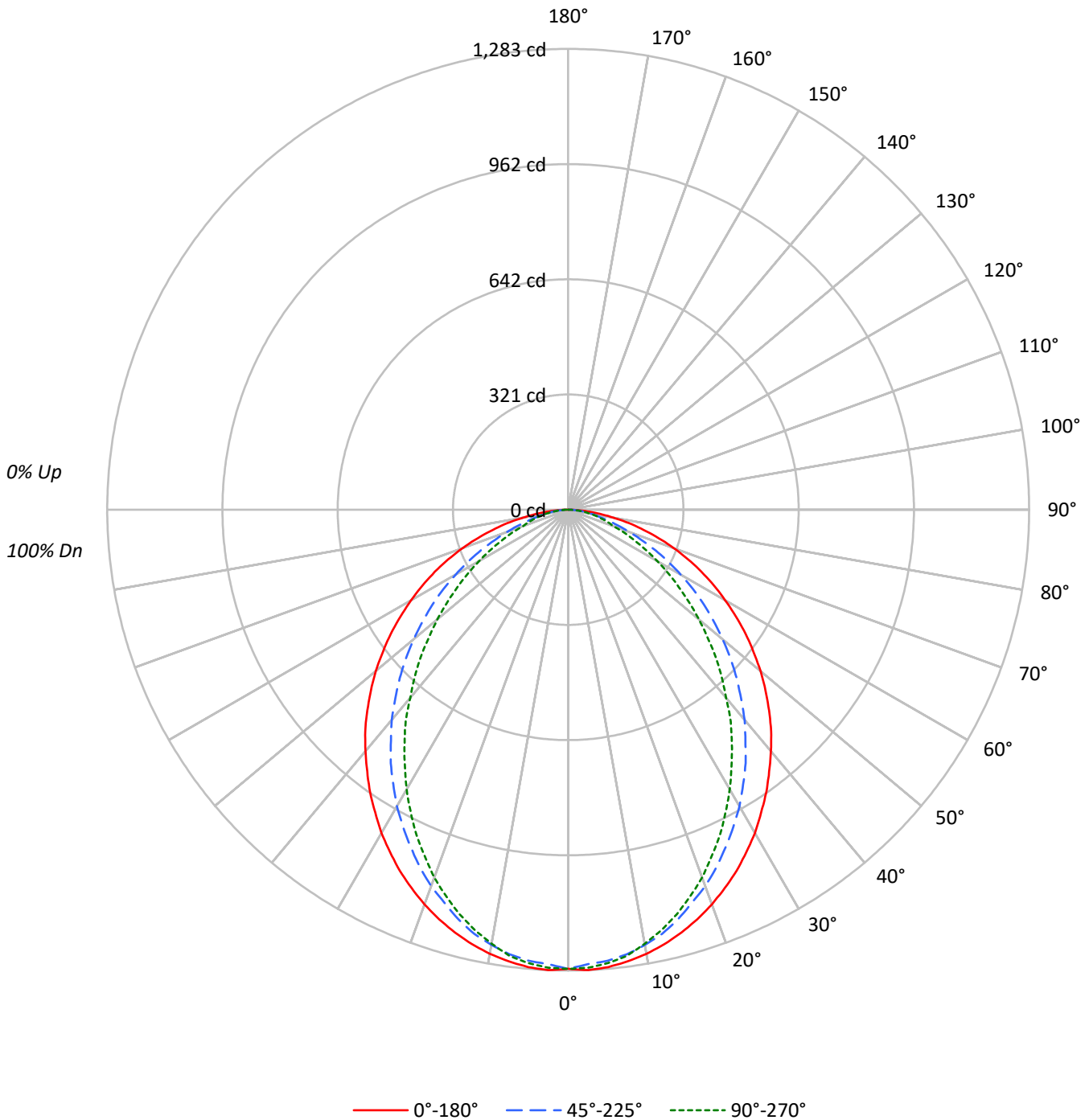
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2885.9 lumens  
Efficiency: N/A  
Efficacy: 91.6 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<sub>in</sub>): 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	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°	15493	15493	15493
5°	15553	15337	15421
10°	15454	15140	15103
15°	15288	14820	14636
20°	15082	14385	14056
25°	14836	13865	13366
30°	14551	13341	12586
35°	14222	12740	11752
40°	13886	12086	10826
45°	13547	11358	9963
50°	13181	10571	8959
55°	12739	9751	7946
60°	12233	8781	6926
65°	11742	7687	5914
70°	11064	6436	4731
75°	10205	5105	4505
80°	8907	4523	4111
85°	7510	3964	3825

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 13547 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	120.2	4.2
10°-20°	334.8	11.6
20°-30°	481.9	16.7
30°-40°	542.8	18.8
40°-50°	518.6	18.0
50°-60°	424.0	14.7
60°-70°	284.7	9.9
70°-80°	142.0	4.9
80°-90°	36.7	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°	936.9	32.5
0°-40°	1479.8	51.3
0°-60°	2422.4	83.9
0°-90°	2885.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2885.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1278	1278	1278	1278	1278	
5°	1278	1273	1260	1270	1267	121
15°	1218	1210	1181	1174	1166	344
25°	1109	1085	1037	1014	999	511
35°	961	924	861	813	794	601
45°	790	743	663	605	581	610
55°	603	549	461	398	376	538
65°	409	352	268	219	206	405
75°	218	166	109	98	96	231
85°	54	31	28	26	28	63
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°	1278.2	1278.2	1278.2	1278.2	1278.2	1278.2	1278.2	1278.2	1278.2	1278.2	1278.2
2.5°	1283.1	1280.1	1276.2	1277.2	1278.2	1279.2	1279.2	1278.2	1275.2	1271.3	1266.4
5°	1278.2	1275.2	1271.3	1271.3	1273.3	1273.3	1273.3	1272.3	1269.3	1265.4	1260.5
7.5°	1268.4	1266.4	1261.5	1262.5	1263.4	1263.4	1263.4	1262.5	1258.5	1253.6	1248.7
10°	1255.6	1252.6	1248.7	1248.7	1249.7	1249.7	1249.7	1247.7	1242.8	1236.9	1230.1
12.5°	1238.9	1236.0	1232.0	1232.0	1232.0	1232.0	1232.0	1229.1	1221.2	1215.3	1209.5
15°	1218.3	1215.3	1211.4	1211.4	1210.4	1209.5	1207.5	1202.6	1195.7	1188.8	1181.0
17.5°	1195.7	1191.8	1186.9	1185.9	1184.9	1183.9	1181.0	1178.0	1168.2	1158.4	1146.6
20°	1169.2	1165.3	1160.4	1159.4	1156.4	1153.5	1151.5	1145.6	1134.8	1123.1	1115.2
22.5°	1139.8	1135.8	1130.9	1129.0	1123.1	1121.1	1118.2	1109.3	1097.5	1086.7	1077.9
25°	1109.3	1104.4	1098.5	1095.6	1088.7	1084.8	1083.8	1071.0	1059.3	1047.5	1036.7
27.5°	1074.0	1070.1	1065.1	1059.3	1052.4	1047.5	1045.5	1033.7	1019.0	1005.3	995.4
30°	1039.6	1033.7	1028.8	1021.9	1012.1	1007.2	1003.3	991.5	978.8	962.1	953.2
32.5°	999.4	995.4	989.6	982.7	972.9	968.9	963.0	948.3	931.6	919.9	906.1
35°	961.1	957.2	948.3	941.5	927.7	923.8	917.9	905.1	886.5	872.7	861.0
37.5°	918.9	914.0	907.1	897.3	885.5	880.6	872.7	860.0	838.4	824.6	809.9
40°	877.6	870.8	862.9	852.1	840.3	835.4	828.6	809.9	792.2	776.5	763.8
42.5°	836.4	828.6	818.7	808.9	796.2	789.3	781.4	763.8	744.1	729.4	711.7
45°	790.3	784.4	774.6	762.8	748.1	743.1	734.3	715.7	696.0	680.3	662.6
47.5°	745.1	738.2	728.4	716.6	701.9	695.0	686.2	667.6	647.9	628.3	612.6
50°	699.0	692.1	680.3	668.5	654.8	646.0	638.1	619.5	597.9	580.2	560.6
52.5°	649.9	644.0	634.2	622.4	604.7	597.9	590.0	569.4	548.8	528.2	510.5
55°	602.8	598.8	587.1	575.3	556.6	548.8	540.9	519.3	498.7	478.1	461.4
57.5°	553.7	550.7	539.0	525.2	508.5	500.7	490.9	469.3	449.6	429.0	411.3
60°	504.6	501.6	489.9	476.1	460.4	450.6	439.8	423.1	400.5	381.9	362.2
62.5°	457.5	453.5	443.7	429.0	411.3	401.5	391.7	372.1	351.4	331.8	314.1
65°	409.4	404.5	392.7	378.0	361.3	352.4	342.6	324.0	303.3	284.7	268.0
67.5°	361.3	356.4	343.6	331.8	312.2	303.3	294.5	275.9	256.2	237.6	221.9
70°	312.2	307.3	297.5	281.7	265.1	256.2	247.4	227.8	210.1	196.3	181.6
72.5°	264.1	260.2	250.3	235.6	219.9	211.1	201.2	184.6	168.9	154.1	143.3
75°	217.9	212.0	203.2	189.5	173.8	165.9	159.0	142.3	127.6	117.8	109.0
77.5°	173.8	166.9	157.1	146.3	131.5	123.7	116.8	103.1	93.3	86.4	84.4
80°	127.6	126.6	116.8	105.0	92.3	86.4	79.5	70.7	67.7	66.8	64.8
82.5°	89.3	85.4	77.6	66.8	56.9	53.0	51.0	49.1	47.1	47.1	45.2
85°	54.0	50.1	43.2	34.4	32.4	31.4	30.4	30.4	29.5	28.5	28.5
87.5°	23.6	19.6	14.7	13.7	12.8	12.8	13.7	13.7	13.7	12.8	12.8
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°	1278.2	1278.2	1278.2	1278.2	1278.2	1278.2	1278.2	1278.2	1278.2	1278.2
2.5°	1268.4	1273.3	1276.2	1277.2	1277.2	1277.2	1278.2	1278.2	1277.2	1276.2
5°	1261.5	1266.4	1268.4	1270.3	1270.3	1270.3	1270.3	1270.3	1269.3	1267.4
7.5°	1250.7	1253.6	1256.6	1255.6	1255.6	1254.6	1253.6	1254.6	1252.6	1252.6
10°	1231.1	1234.0	1236.0	1233.0	1233.0	1234.0	1234.0	1233.0	1230.1	1227.1
12.5°	1208.5	1211.4	1208.5	1209.5	1207.5	1205.5	1204.5	1203.6	1200.6	1198.7
15°	1179.0	1179.0	1177.1	1177.1	1174.1	1170.2	1169.2	1170.2	1166.3	1166.3
17.5°	1146.6	1144.7	1141.7	1139.8	1138.8	1138.8	1134.8	1134.8	1129.9	1129.0
20°	1111.3	1109.3	1106.4	1101.5	1099.5	1100.5	1096.6	1093.6	1090.7	1089.7
22.5°	1074.0	1069.1	1066.1	1061.2	1057.3	1057.3	1054.3	1049.4	1046.5	1043.5
25°	1031.8	1026.9	1021.0	1017.0	1014.1	1009.2	1007.2	1003.3	1000.4	999.4
27.5°	988.6	980.7	972.9	968.9	967.0	961.1	958.1	956.2	950.3	949.3
30°	942.4	936.5	926.7	919.9	914.9	915.9	909.1	905.1	902.2	899.2
32.5°	898.3	888.4	878.6	869.8	863.9	862.9	856.0	852.1	849.2	846.2
35°	848.2	838.4	826.6	818.7	812.8	809.9	803.0	801.1	796.2	794.2
37.5°	798.1	787.3	775.5	765.7	761.8	754.9	752.0	747.1	743.1	743.1
40°	749.0	736.3	724.5	712.7	707.8	703.9	696.0	692.1	687.2	684.2
42.5°	698.0	683.3	672.5	661.7	654.8	651.8	643.0	638.1	633.2	632.2
45°	646.9	632.2	618.5	607.7	604.7	598.8	590.0	583.1	582.1	581.2
47.5°	594.9	580.2	567.4	555.6	551.7	544.8	539.0	534.0	528.2	525.2
50°	544.8	530.1	516.4	503.6	498.7	492.8	486.9	480.1	478.1	475.1
52.5°	494.8	478.1	463.4	451.6	447.7	442.7	435.9	430.0	427.0	425.1
55°	443.7	427.0	414.3	402.5	397.6	394.6	386.8	381.9	378.0	376.0
57.5°	393.7	377.0	365.2	356.4	349.5	346.5	338.7	333.8	331.8	330.8
60°	346.5	330.8	318.1	309.2	303.3	300.4	294.5	289.6	286.7	285.7
62.5°	299.4	285.7	273.9	265.1	261.1	257.2	252.3	248.4	245.4	245.4
65°	254.3	240.5	229.7	222.8	218.9	217.0	211.1	209.1	206.2	206.2
67.5°	210.1	200.3	192.4	183.6	180.6	180.6	174.7	172.8	170.8	170.8
70°	171.8	163.0	154.1	149.2	146.3	145.3	140.4	137.4	135.5	133.5
72.5°	134.5	126.6	118.8	117.8	117.8	116.8	116.8	114.9	114.9	115.8
75°	103.1	101.1	99.2	99.2	98.2	97.2	97.2	96.2	96.2	96.2
77.5°	82.5	81.5	80.5	79.5	79.5	78.5	77.6	77.6	77.6	77.6
80°	62.8	61.8	61.8	60.9	59.9	60.9	59.9	59.9	58.9	58.9
82.5°	44.2	44.2	44.2	43.2	43.2	43.2	43.2	42.2	42.2	43.2
85°	27.5	27.5	27.5	27.5	26.5	27.5	26.5	26.5	26.5	27.5
87.5°	11.8	12.8	11.8	12.8	12.8	11.8	11.8	11.8	11.8	11.8
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	21.05	22.60	21.41	22.91	23.23	18.24	19.79	18.60	20.11	20.42
	3H	22.87	24.27	23.25	24.60	24.96	19.31	20.71	19.69	21.04	21.40
	4H	23.56	24.87	23.96	25.22	25.60	19.71	21.02	20.11	21.37	21.75
	6H	24.06	25.27	24.47	25.64	26.03	20.03	21.24	20.44	21.61	22.00
	8H	24.21	25.37	24.64	25.76	26.16	20.14	21.30	20.57	21.69	22.09
	12H	24.31	25.42	24.74	25.80	26.23	20.22	21.32	20.65	21.70	22.13
4H	2H	21.29	22.60	21.69	22.95	23.32	18.96	20.27	19.36	20.62	20.99
	3H	23.28	24.37	23.69	24.77	25.17	20.18	21.27	20.59	21.67	22.07
	4H	24.07	25.05	24.50	25.46	25.90	20.67	21.65	21.10	22.06	22.50
	6H	24.68	25.54	25.14	25.98	26.44	21.09	21.94	21.54	22.38	22.84
	8H	24.89	25.68	25.35	26.13	26.59	21.23	22.03	21.70	22.47	22.94
	12H	25.03	25.74	25.51	26.22	26.69	21.34	22.06	21.83	22.54	23.01
8H	4H	24.10	24.90	24.57	25.34	25.81	20.98	21.78	21.45	22.23	22.69
	6H	24.77	25.43	25.27	25.92	26.40	21.50	22.16	21.99	22.65	23.13
	8H	25.01	25.60	25.52	26.11	26.60	21.70	22.30	22.22	22.81	23.29
	12H	25.20	25.73	25.71	26.22	26.78	21.88	22.40	22.39	22.89	23.46
12H	4H	24.09	24.80	24.57	25.28	25.75	21.02	21.74	21.50	22.21	22.68
	6H	24.75	25.35	25.27	25.86	26.34	21.55	22.15	22.07	22.66	23.14
	8H	25.03	25.55	25.54	26.05	26.61	21.81	22.34	22.32	22.83	23.39