

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: P243410

Luminaire Tested: S123RDRP-H560D935-X4F0-XX-UDD-F-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P243410  
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-H560D935-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: -

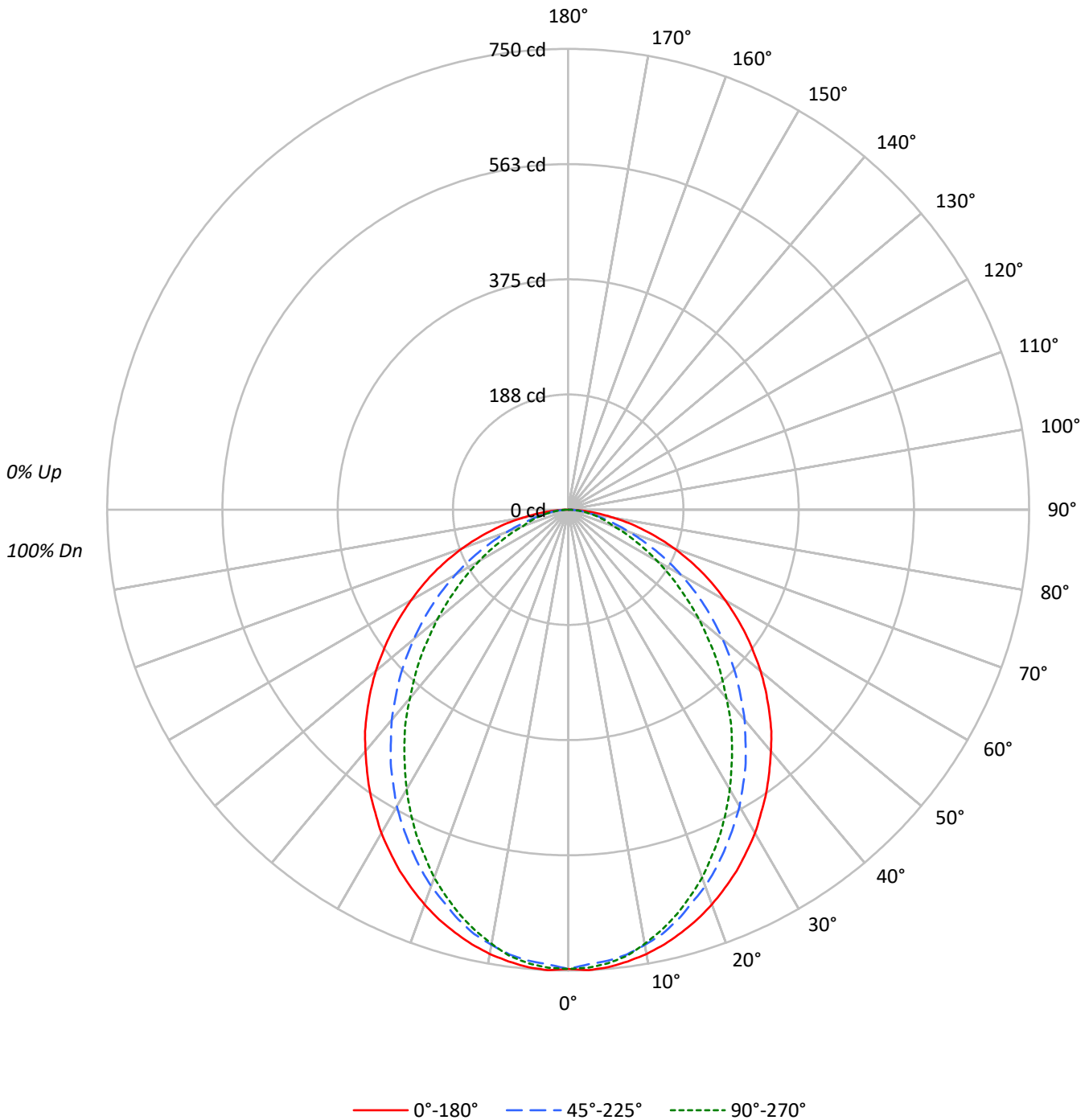
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1687.4 lumens  
Efficiency: N/A  
Efficacy: 98.1 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): 17.2  
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°	9059	9059	9059
5°	9094	8967	9016
10°	9037	8852	8831
15°	8939	8665	8557
20°	8818	8412	8219
25°	8675	8107	7815
30°	8508	7802	7359
35°	8316	7449	6872
40°	8120	7067	6331
45°	7921	6643	5825
50°	7707	6181	5239
55°	7447	5702	4645
60°	7152	5135	4048
65°	6866	4494	3456
70°	6468	3764	2768
75°	5967	2983	2637
80°	5207	2646	2401
85°	4395	2309	2239

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 7921 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	70.3	4.2
10°-20°	195.7	11.6
20°-30°	281.8	16.7
30°-40°	317.4	18.8
40°-50°	303.2	18.0
50°-60°	247.9	14.7
60°-70°	166.5	9.9
70°-80°	83.0	4.9
80°-90°	21.5	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°	547.8	32.5
0°-40°	865.2	51.3
0°-60°	1416.4	83.9
0°-90°	1687.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1687.4	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	747	747	747	747	747	
5°	747	744	737	743	741	71
15°	712	707	690	686	682	201
25°	649	634	606	593	584	299
35°	562	540	503	475	464	351
45°	462	434	388	354	340	357
55°	352	321	270	232	220	315
65°	239	206	157	128	120	237
75°	127	97	64	57	56	135
85°	32	18	17	16	16	37
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°	747.4	747.4	747.4	747.4	747.4	747.4	747.4	747.4	747.4	747.4	747.4
2.5°	750.2	748.5	746.2	746.8	747.4	747.9	747.9	747.4	745.6	743.3	740.5
5°	747.4	745.6	743.3	743.3	744.5	744.5	744.5	743.9	742.2	739.9	737.0
7.5°	741.6	740.5	737.6	738.2	738.8	738.8	738.8	738.2	735.9	733.0	730.1
10°	734.2	732.4	730.1	730.1	730.7	730.7	730.7	729.6	726.7	723.3	719.2
12.5°	724.4	722.7	720.4	720.4	720.4	720.4	720.4	718.7	714.1	710.6	707.2
15°	712.3	710.6	708.3	708.3	707.8	707.2	706.0	703.2	699.1	695.1	690.5
17.5°	699.1	696.9	694.0	693.4	692.8	692.3	690.5	688.8	683.1	677.3	670.4
20°	683.6	681.4	678.5	677.9	676.2	674.5	673.3	669.9	663.6	656.7	652.1
22.5°	666.4	664.1	661.3	660.1	656.7	655.5	653.8	648.6	641.7	635.4	630.3
25°	648.6	645.8	642.3	640.6	636.6	634.3	633.7	626.2	619.4	612.5	606.2
27.5°	628.0	625.7	622.8	619.4	615.3	612.5	611.3	604.4	595.8	587.8	582.0
30°	607.9	604.4	601.6	597.5	591.8	588.9	586.6	579.8	572.3	562.5	557.4
32.5°	584.3	582.0	578.6	574.6	568.8	566.5	563.1	554.5	544.7	537.8	529.8
35°	562.0	559.7	554.5	550.5	542.4	540.1	536.7	529.2	518.3	510.3	503.4
37.5°	537.3	534.4	530.4	524.6	517.8	514.9	510.3	502.8	490.2	482.2	473.6
40°	513.2	509.1	504.6	498.2	491.4	488.5	484.5	473.6	463.2	454.0	446.6
42.5°	489.1	484.5	478.7	473.0	465.5	461.5	456.9	446.6	435.1	426.5	416.2
45°	462.1	458.6	452.9	446.0	437.4	434.5	429.4	418.5	407.0	397.8	387.5
47.5°	435.7	431.7	425.9	419.0	410.4	406.4	401.2	390.3	378.8	367.4	358.2
50°	408.7	404.7	397.8	390.9	382.9	377.7	373.1	362.2	349.6	339.2	327.8
52.5°	380.0	376.6	370.8	363.9	353.6	349.6	345.0	332.9	320.9	308.8	298.5
55°	352.4	350.1	343.3	336.4	325.5	320.9	316.3	303.7	291.6	279.5	269.8
57.5°	323.7	322.0	315.1	307.1	297.3	292.7	287.0	274.4	262.9	250.8	240.5
60°	295.0	293.3	286.4	278.4	269.2	263.5	257.2	247.4	234.2	223.3	211.8
62.5°	267.5	265.2	259.5	250.8	240.5	234.8	229.0	217.6	205.5	194.0	183.7
65°	239.4	236.5	229.6	221.0	211.2	206.1	200.3	189.4	177.4	166.5	156.7
67.5°	211.2	208.4	200.9	194.0	182.5	177.4	172.2	161.3	149.8	138.9	129.7
70°	182.5	179.7	173.9	164.7	155.0	149.8	144.7	133.2	122.8	114.8	106.2
72.5°	154.4	152.1	146.4	137.8	128.6	123.4	117.7	107.9	98.7	90.1	83.8
75°	127.4	124.0	118.8	110.8	101.6	97.0	93.0	83.2	74.6	68.9	63.7
77.5°	101.6	97.6	91.8	85.5	76.9	72.3	68.3	60.3	54.5	50.5	49.4
80°	74.6	74.0	68.3	61.4	54.0	50.5	46.5	41.3	39.6	39.0	37.9
82.5°	52.2	49.9	45.3	39.0	33.3	31.0	29.8	28.7	27.6	27.6	26.4
85°	31.6	29.3	25.3	20.1	18.9	18.4	17.8	17.8	17.2	16.6	16.6
87.5°	13.8	11.5	8.6	8.0	7.5	7.5	8.0	8.0	8.0	7.5	7.5
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°	747.4	747.4	747.4	747.4	747.4	747.4	747.4	747.4	747.4	747.4
2.5°	741.6	744.5	746.2	746.8	746.8	746.8	747.4	747.4	746.8	746.2
5°	737.6	740.5	741.6	742.8	742.8	742.8	742.8	742.8	742.2	741.0
7.5°	731.3	733.0	734.7	734.2	734.2	733.6	733.0	733.6	732.4	732.4
10°	719.8	721.5	722.7	721.0	721.0	721.5	721.5	721.0	719.2	717.5
12.5°	706.6	708.3	706.6	707.2	706.0	704.9	704.3	703.7	702.0	700.9
15°	689.4	689.4	688.2	688.2	686.5	684.2	683.6	684.2	681.9	681.9
17.5°	670.4	669.3	667.6	666.4	665.9	665.9	663.6	663.6	660.7	660.1
20°	649.8	648.6	646.9	644.0	642.9	643.5	641.2	639.4	637.7	637.2
22.5°	628.0	625.1	623.4	620.5	618.2	618.2	616.5	613.6	611.9	610.2
25°	603.3	600.4	597.0	594.7	593.0	590.1	588.9	586.6	584.9	584.3
27.5°	578.0	573.4	568.8	566.5	565.4	562.0	560.2	559.1	555.6	555.1
30°	551.1	547.6	541.9	537.8	535.0	535.6	531.5	529.2	527.5	525.8
32.5°	525.2	519.5	513.7	508.6	505.1	504.6	500.5	498.2	496.5	494.8
35°	495.9	490.2	483.3	478.7	475.3	473.6	469.5	468.4	465.5	464.4
37.5°	466.7	460.4	453.5	447.7	445.4	441.4	439.7	436.8	434.5	434.5
40°	438.0	430.5	423.6	416.7	413.9	411.6	407.0	404.7	401.8	400.1
42.5°	408.1	399.5	393.2	386.9	382.9	381.1	376.0	373.1	370.2	369.7
45°	378.3	369.7	361.6	355.3	353.6	350.1	345.0	341.0	340.4	339.8
47.5°	347.9	339.2	331.8	324.9	322.6	318.6	315.1	312.3	308.8	307.1
50°	318.6	310.0	301.9	294.5	291.6	288.2	284.7	280.7	279.5	277.8
52.5°	289.3	279.5	270.9	264.0	261.7	258.9	254.9	251.4	249.7	248.5
55°	259.5	249.7	242.2	235.3	232.5	230.8	226.2	223.3	221.0	219.8
57.5°	230.2	220.4	213.5	208.4	204.3	202.6	198.0	195.2	194.0	193.4
60°	202.6	193.4	186.0	180.8	177.4	175.6	172.2	169.3	167.6	167.0
62.5°	175.1	167.0	160.1	155.0	152.7	150.4	147.5	145.2	143.5	143.5
65°	148.7	140.6	134.3	130.3	128.0	126.9	123.4	122.3	120.5	120.5
67.5°	122.8	117.1	112.5	107.3	105.6	105.6	102.2	101.0	99.9	99.9
70°	100.5	95.3	90.1	87.2	85.5	85.0	82.1	80.4	79.2	78.1
72.5°	78.6	74.0	69.5	68.9	68.9	68.3	68.3	67.2	67.2	67.7
75°	60.3	59.1	58.0	58.0	57.4	56.8	56.8	56.3	56.3	56.3
77.5°	48.2	47.6	47.1	46.5	46.5	45.9	45.3	45.3	45.3	45.3
80°	36.7	36.2	36.2	35.6	35.0	35.6	35.0	35.0	34.4	34.4
82.5°	25.8	25.8	25.8	25.3	25.3	25.3	25.3	24.7	24.7	25.3
85°	16.1	16.1	16.1	16.1	15.5	16.1	15.5	15.5	15.5	16.1
87.5°	6.9	7.5	6.9	7.5	7.5	6.9	6.9	6.9	6.9	6.9
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	19.18	20.73	19.55	21.05	21.36	16.37	17.93	16.74	18.24	18.56
	3H	21.01	22.40	21.39	22.73	23.09	17.45	18.84	17.83	19.17	19.53
	4H	21.69	23.00	22.09	23.35	23.73	17.85	19.16	18.25	19.51	19.88
	6H	22.19	23.40	22.60	23.77	24.16	18.17	19.38	18.58	19.75	20.14
	8H	22.35	23.50	22.78	23.89	24.29	18.28	19.43	18.70	19.82	20.22
	12H	22.45	23.55	22.88	23.94	24.37	18.35	19.46	18.78	19.84	20.27
4H	2H	19.42	20.73	19.82	21.08	21.46	17.09	18.40	17.49	18.75	19.13
	3H	21.41	22.50	21.82	22.90	23.30	18.31	19.40	18.73	19.80	20.20
	4H	22.20	23.18	22.63	23.60	24.03	18.80	19.78	19.23	20.20	20.64
	6H	22.82	23.67	23.27	24.11	24.57	19.22	20.08	19.68	20.52	20.98
	8H	23.02	23.82	23.48	24.26	24.73	19.37	20.17	19.83	20.61	21.08
	12H	23.16	23.88	23.65	24.36	24.83	19.48	20.19	19.96	20.67	21.14
8H	4H	22.24	23.04	22.70	23.48	23.95	19.12	19.92	19.58	20.36	20.83
	6H	22.90	23.56	23.40	24.06	24.53	19.63	20.29	20.13	20.78	21.26
	8H	23.15	23.74	23.66	24.25	24.73	19.84	20.43	20.35	20.94	21.43
	12H	23.34	23.86	23.85	24.35	24.92	20.01	20.54	20.52	21.03	21.59
12H	4H	22.23	22.94	22.71	23.42	23.89	19.16	19.87	19.64	20.35	20.82
	6H	22.89	23.48	23.40	23.99	24.48	19.69	20.28	20.20	20.79	21.28
	8H	23.17	23.69	23.67	24.18	24.74	19.95	20.47	20.46	20.96	21.53