

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: P242506

Luminaire Tested: S123DRP-S560D840-X4F0-XX-UDD-D-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P242506  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-15)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S123DRP-S560D840-X4F0-XX-UDD-D-W  
Description: DEFINE 3 DIRECT RECESSED WITH SATIN DROP DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 4000K CCT, 80 CRI LEDS  
Ballast/Driver: -

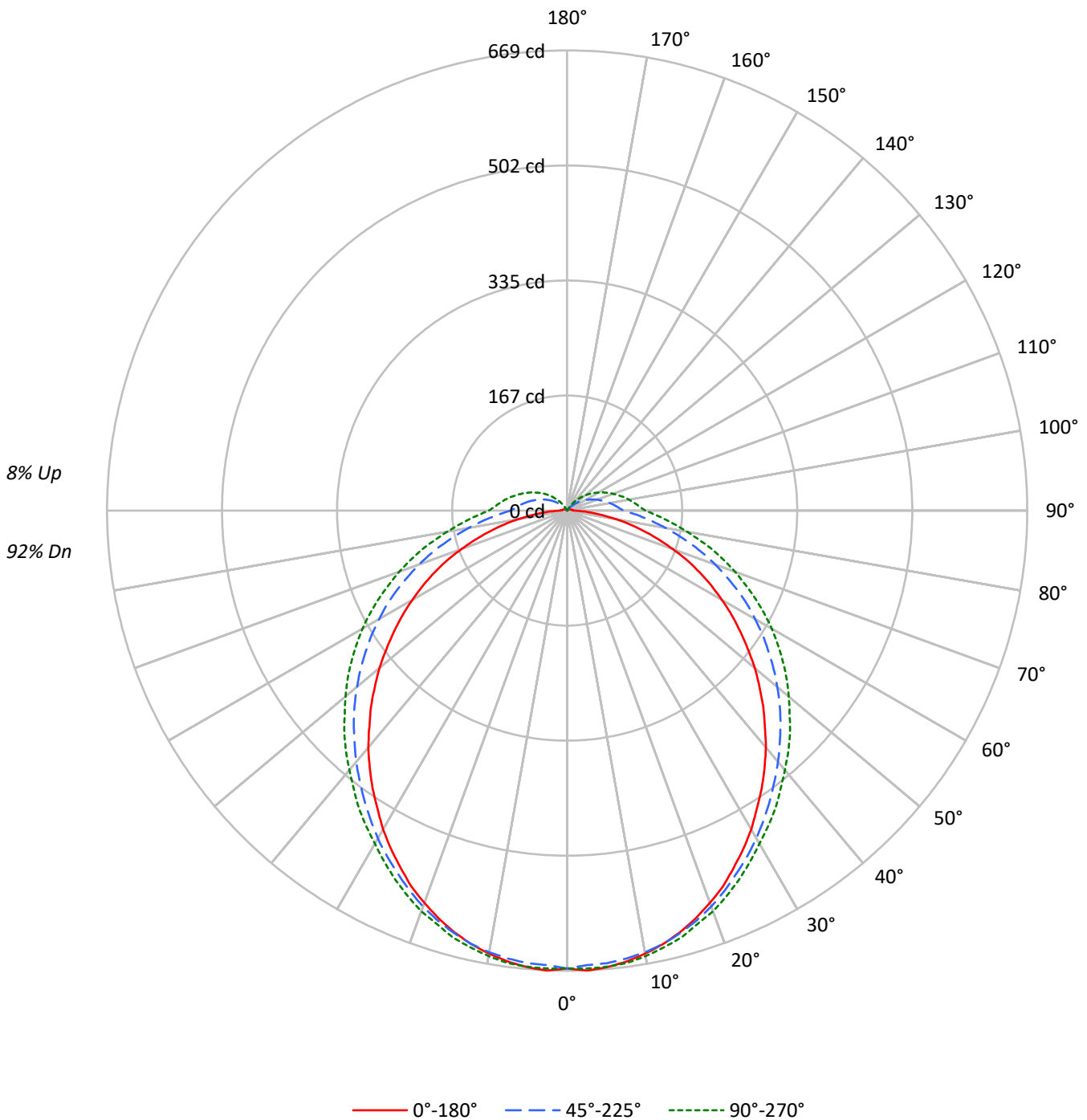
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2237.1 lumens  
Efficiency: N/A  
Efficacy: 119.0 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.25 / 1.37  
Luminous Opening: Rectangular w/ Sides (W: 0.23' x L: 3.88' x H: 0.08')  
CIE Type: Direct  
  
Input Watts (W): 18.8  
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

TEST NUMBER: P242506

CATALOG NUMBER: S123DRP-S560D840-X4F0-XX-UDD-D-W

### Luminous Intensity Polar Plot





TEST NUMBER: P242506

CATALOG NUMBER: S123DRP-S560D840-X4F0-XX-UDD-D-W

**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	117	117	117	117	113	113	113	113	106	106	106	100	100	100	94	94	94	92
1	105	100	95	90	102	97	92	88	91	87	84	85	82	80	80	78	76	73
2	95	86	79	72	92	83	77	71	79	73	68	74	69	65	70	66	63	60
3	86	75	67	60	83	73	65	59	69	62	56	65	59	54	61	56	52	50
4	79	66	57	50	76	64	56	49	61	54	48	57	51	46	54	49	45	42
5	72	59	50	43	70	58	49	42	54	47	41	52	45	40	49	43	39	36
6	67	53	44	37	64	52	43	37	49	42	36	47	40	35	44	38	34	32
7	62	48	39	33	60	47	38	32	45	37	32	42	36	31	40	35	30	28
8	58	44	35	29	56	43	35	29	41	33	28	39	32	28	37	31	27	25
9	54	40	32	26	52	39	31	26	37	30	25	36	29	25	34	28	24	22
10	50	37	29	24	49	36	29	24	35	28	23	33	27	23	32	26	22	20

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	8069	8069	8069
5°	8093	7851	7850
10°	8019	7656	7607
15°	7917	7437	7346
20°	7768	7191	7063
25°	7585	6910	6766
30°	7398	6657	6468
35°	7188	6389	6226
40°	6988	6145	5969
45°	6766	5911	5761
50°	6545	5678	5533
55°	6303	5439	5326
60°	6067	5195	5112
65°	5826	4936	4860
70°	5458	4644	4602
75°	4999	4311	4337
80°	4467	3978	4032
85°	3963	3727	3833

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 6766 cd/sqm



TEST NUMBER: P242506

CATALOG NUMBER: S123DRP-S560D840-X4F0-XX-UDD-D-W

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	63.1	2.8
10°-20°	180.0	8.0
20°-30°	269.2	12.0
30°-40°	321.4	14.4
40°-50°	336.3	15.0
50°-60°	315.6	14.1
60°-70°	263.6	11.8
70°-80°	188.5	8.4
80°-90°	112.1	5.0
90°-100°	70.5	3.2
100°-110°	51.8	2.3
110°-120°	34.6	1.5
120°-130°	19.8	0.9
130°-140°	8.9	0.4
140°-150°	1.8	0.1
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	512.3	22.9
0°-40°	833.7	37.3
0°-60°	1485.6	66.4
0°-90°	2049.8	91.6
90°-120°	156.9	7.0
90°-150°	187.3	8.4
90°-180°	187.0	8.4
0°-180°	2237.1	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	666	666	666	666	666	
5°	666	665	661	666	666	63
15°	634	637	636	643	642	179
25°	573	580	582	592	592	264
35°	493	505	514	525	528	308
45°	403	421	439	452	458	311
55°	307	331	358	377	383	275
65°	212	241	273	294	302	210
75°	115	149	186	210	218	123
85°	36	72	110	135	142	37
90°	9	45	82	107	114	7
95°	8	36	72	94	102	6
105°	6	23	54	75	81	6
115°	4	12	38	56	62	4
125°	2	2	23	38	44	2
135°	2	1	9	22	25	1
145°	1	0	0	6	9	0
155°	0	0	0	0	0	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	0



TEST NUMBER: P242506

CATALOG NUMBER: S123DRP-S560D840-X4F0-XX-UDD-D-W

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	665.7	665.7	665.7	665.7	665.7
2.5°	669.3	667.1	661.3	667.1	666.4
5°	666.4	664.9	660.6	666.4	665.7
7.5°	661.3	661.3	656.9	664.2	663.5
10°	654.0	655.5	651.9	659.1	657.7
12.5°	645.3	647.5	645.3	651.9	650.4
15°	634.5	636.6	635.9	643.2	642.4
17.5°	621.4	625.8	625.0	631.6	630.1
20°	606.9	611.3	612.7	619.2	620.0
22.5°	591.7	596.0	598.2	606.9	606.2
25°	572.8	580.1	582.3	591.7	591.7
27.5°	554.7	562.7	567.0	575.0	575.7
30°	535.1	544.6	550.4	559.1	559.1
32.5°	513.4	524.3	532.2	541.7	543.8
35°	493.1	504.7	514.1	525.0	527.9
37.5°	471.3	484.4	495.2	507.6	509.8
40°	449.6	462.6	477.1	489.4	492.3
42.5°	425.6	442.3	457.5	471.3	475.7
45°	403.2	420.6	438.7	452.5	458.3
47.5°	379.2	398.8	419.1	434.3	438.7
50°	356.0	376.3	398.8	415.5	420.6
52.5°	331.4	353.1	378.5	395.9	402.4
55°	307.4	331.4	357.5	377.1	382.9
57.5°	284.2	308.9	337.2	356.8	363.3
60°	259.6	285.7	315.4	335.7	343.7
62.5°	236.4	263.2	295.1	315.4	322.7
65°	212.5	240.7	272.6	294.4	301.6
67.5°	188.5	218.3	250.2	274.1	279.9
70°	163.1	194.3	229.1	252.3	259.6
72.5°	139.9	171.1	207.4	231.3	238.6
75°	115.3	149.4	185.6	209.6	218.3
77.5°	94.3	128.3	164.6	190.0	196.5
80°	71.8	107.3	145.0	169.7	176.9
82.5°	52.2	88.5	126.9	151.5	158.8
85°	35.5	71.8	110.2	134.9	142.1
87.5°	21.8	58.0	95.0	119.6	126.9
90°	9.4	45.0	81.9	106.6	113.8
92.5°	8.7	39.9	76.1	100.1	106.6
95°	8.0	36.3	71.8	94.3	101.5
97.5°	7.3	33.4	67.4	89.2	96.4
100°	6.5	29.7	63.1	84.1	91.4
102.5°	5.8	26.1	58.7	79.0	86.3
105°	5.8	23.2	54.4	74.7	81.2
107.5°	5.1	20.3	50.0	69.6	76.1
110°	4.4	17.4	46.4	65.3	71.1



TEST NUMBER: P242506

CATALOG NUMBER: S123DRP-S560D840-X4F0-XX-UDD-D-W

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	4.4	14.5	42.1	60.2	66.7
115°	3.6	12.3	38.4	55.8	61.6
117.5°	3.6	9.4	34.1	51.5	57.3
120°	2.9	6.5	30.5	47.1	52.2
122.5°	2.9	4.4	26.8	42.8	47.9
125°	2.2	2.2	23.2	38.4	43.5
127.5°	2.2	1.5	19.6	34.1	39.2
130°	2.2	1.5	16.0	29.7	34.1
132.5°	1.5	1.5	12.3	25.4	30.5
135°	1.5	0.7	8.7	21.8	25.4
137.5°	1.5	0.7	5.8	17.4	21.0
140°	0.7	0.7	2.9	13.8	17.4
142.5°	0.7	0.0	0.0	9.4	13.1
145°	0.7	0.0	0.0	5.8	8.7
147.5°	0.0	0.0	0.0	2.2	5.1
150°	0.0	0.0	0.0	0.0	1.5
152.5°	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0
157.5°	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0
162.5°	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0
167.5°	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P242506  
 CATALOG NUMBER: S123DRP-S560D840-X4F0-XX-UDD-D-W

**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	16.31	17.81	16.79	18.29	18.81	18.30	19.81	18.79	20.29	20.81
	3H	17.86	19.23	18.36	19.73	20.28	20.68	22.05	21.18	22.54	23.10
	4H	18.38	19.68	18.91	20.19	20.76	21.79	23.09	22.32	23.60	24.17
	6H	18.73	19.94	19.26	20.46	21.05	22.90	24.11	23.44	24.63	25.22
	8H	18.82	19.98	19.36	20.52	21.11	23.46	24.62	24.01	25.16	25.75
	12H	18.86	19.98	19.42	20.51	21.14	24.06	25.17	24.62	25.71	26.33
4H	2H	17.21	18.51	17.74	19.02	19.59	18.76	20.06	19.29	20.57	21.14
	3H	19.01	20.12	19.55	20.67	21.26	21.36	22.46	21.89	23.01	23.61
	4H	19.68	20.69	20.23	21.25	21.87	22.62	23.64	23.18	24.20	24.82
	6H	20.15	21.05	20.73	21.63	22.27	23.91	24.80	24.48	25.39	26.02
	8H	20.29	21.13	20.87	21.71	22.36	24.56	25.40	25.14	25.98	26.63
	12H	20.38	21.14	20.98	21.75	22.41	25.27	26.04	25.88	26.65	27.30
8H	4H	20.31	21.15	20.89	21.74	22.39	22.85	23.69	23.43	24.27	24.92
	6H	20.97	21.68	21.58	22.31	22.96	24.29	25.00	24.90	25.63	26.28
	8H	21.20	21.84	21.83	22.48	23.15	25.07	25.71	25.69	26.34	27.01
	12H	21.37	21.95	22.00	22.57	23.30	25.95	26.52	26.58	27.15	27.88
12H	4H	20.47	21.23	21.07	21.84	22.50	22.86	23.62	23.46	24.24	24.89
	6H	21.21	21.85	21.84	22.49	23.16	24.33	24.97	24.96	25.61	26.28
	8H	21.53	22.11	22.16	22.73	23.47	25.17	25.74	25.80	26.37	27.10