

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: P242521

Luminaire Tested: S123DRP-S560D940-X4F0-XX-UDD-D-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P242521  
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-S560D940-X4F0-XX-UDD-D-W  
Description: DEFINE 3 DIRECT RECESSED WITH SATIN DROP DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 4000K CCT, 90 CRI LEDS  
Ballast/Driver: -

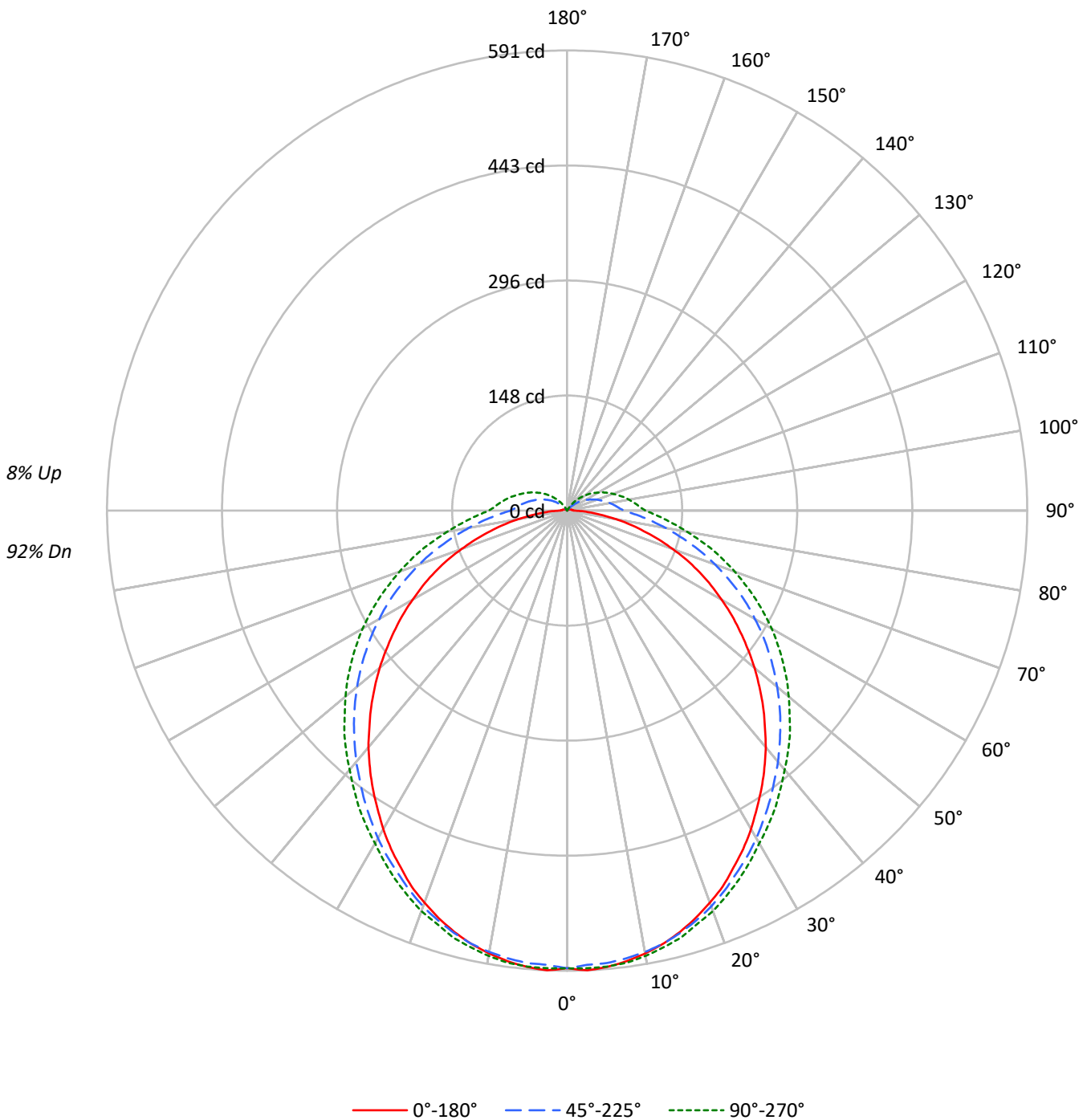
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1975.4 lumens  
Efficiency: N/A  
Efficacy: 105.1 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 (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	0
RW	70	50	30	10	70	50	30	10	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	94	94	94	92	
1	105	100	95	90	102	97	92	88	91	87	84	85	82	80	80	78	76	76	76	76	73	
2	95	86	79	72	92	83	77	71	79	73	68	74	69	65	70	66	63	63	63	63	60	
3	86	75	67	60	83	73	65	59	69	62	56	65	59	54	61	56	52	52	52	52	50	
4	79	66	57	50	76	64	56	49	61	54	48	57	51	46	54	49	45	45	45	45	42	
5	72	59	50	43	70	58	49	42	54	47	41	52	45	40	49	43	39	39	39	39	36	
6	67	53	44	37	64	52	43	37	49	42	36	47	40	35	44	38	34	34	34	34	32	
7	62	48	39	33	60	47	38	32	45	37	32	42	36	31	40	35	30	30	30	30	28	
8	58	44	35	29	56	43	35	29	41	33	28	39	32	28	37	31	27	27	27	27	25	
9	54	40	32	26	52	39	31	26	37	30	25	36	29	25	34	28	24	24	24	24	22	
10	50	37	29	24	49	36	29	24	35	28	23	33	27	23	32	26	22	22	22	22	20	

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

	0°	45°	90°
0°	7125	7125	7125
5°	7146	6932	6932
10°	7081	6760	6717
15°	6990	6567	6487
20°	6859	6349	6236
25°	6698	6101	5975
30°	6532	5878	5710
35°	6347	5642	5497
40°	6170	5426	5270
45°	5974	5219	5087
50°	5781	5013	4886
55°	5567	4803	4703
60°	5357	4588	4514
65°	5143	4358	4293
70°	4822	4101	4063
75°	4413	3807	3829
80°	3944	3514	3561
85°	3505	3290	3385

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 5974 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	55.8	2.8
10°-20°	158.9	8.0
20°-30°	237.7	12.0
30°-40°	283.8	14.4
40°-50°	296.9	15.0
50°-60°	278.7	14.1
60°-70°	232.7	11.8
70°-80°	166.4	8.4
80°-90°	99.0	5.0
90°-100°	62.2	3.2
100°-110°	45.7	2.3
110°-120°	30.5	1.5
120°-130°	17.4	0.9
130°-140°	7.8	0.4
140°-150°	1.6	0.1
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	452.4	22.9
0°-40°	736.2	37.3
0°-60°	1311.8	66.4
0°-90°	1810.0	91.6
90°-120°	138.5	7.0
90°-150°	165.4	8.4
90°-180°	165.0	8.4
0°-180°	1975.4	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	588	588	588	588	588	
5°	588	587	583	588	588	56
15°	560	562	562	568	567	158
25°	506	512	514	522	522	233
35°	435	446	454	464	466	272
45°	356	371	387	400	405	275
55°	272	293	316	333	338	243
65°	188	213	241	260	266	185
75°	102	132	164	185	193	109
85°	31	63	97	119	126	32
90°	8	40	72	94	100	6
95°	7	32	63	83	90	5
105°	5	20	48	66	72	5
115°	3	11	34	49	54	3
125°	2	2	20	34	38	2
135°	1	1	8	19	22	1
145°	1	0	0	5	8	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



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	587.8	587.8	587.8	587.8	587.8
2.5°	591.0	589.1	583.9	589.1	588.4
5°	588.4	587.1	583.3	588.4	587.8
7.5°	583.9	583.9	580.1	586.5	585.8
10°	577.5	578.8	575.6	582.0	580.7
12.5°	569.8	571.8	569.8	575.6	574.3
15°	560.2	562.2	561.5	567.9	567.3
17.5°	548.7	552.6	551.9	557.7	556.4
20°	535.9	539.7	541.0	546.8	547.4
22.5°	522.5	526.3	528.2	535.9	535.3
25°	505.8	512.2	514.1	522.5	522.5
27.5°	489.8	496.9	500.7	507.7	508.4
30°	472.5	480.8	486.0	493.6	493.6
32.5°	453.3	462.9	470.0	478.3	480.2
35°	435.4	445.6	454.0	463.6	466.1
37.5°	416.2	427.7	437.3	448.2	450.1
40°	397.0	408.5	421.3	432.2	434.7
42.5°	375.8	390.6	404.0	416.2	420.0
45°	356.0	371.4	387.4	399.5	404.7
47.5°	334.9	352.1	370.1	383.5	387.4
50°	314.4	332.3	352.1	366.9	371.4
52.5°	292.6	311.8	334.2	349.6	355.4
55°	271.5	292.6	315.7	332.9	338.1
57.5°	251.0	272.8	297.7	315.0	320.8
60°	229.2	252.3	278.5	296.4	303.5
62.5°	208.7	232.4	260.6	278.5	284.9
65°	187.6	212.6	240.7	260.0	266.4
67.5°	166.5	192.7	220.9	242.0	247.1
70°	144.1	171.6	202.3	222.8	229.2
72.5°	123.6	151.1	183.1	204.2	210.6
75°	101.8	131.9	163.9	185.0	192.7
77.5°	83.2	113.3	145.3	167.8	173.5
80°	63.4	94.8	128.1	149.8	156.2
82.5°	46.1	78.1	112.0	133.8	140.2
85°	31.4	63.4	97.3	119.1	125.5
87.5°	19.2	51.2	83.9	105.6	112.0
90°	8.3	39.7	72.4	94.1	100.5
92.5°	7.7	35.2	67.2	88.4	94.1
95°	7.0	32.0	63.4	83.2	89.6
97.5°	6.4	29.5	59.5	78.8	85.2
100°	5.8	26.3	55.7	74.3	80.7
102.5°	5.1	23.0	51.9	69.8	76.2
105°	5.1	20.5	48.0	65.9	71.7
107.5°	4.5	17.9	44.2	61.5	67.2
110°	3.8	15.4	41.0	57.6	62.7



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	3.8	12.8	37.1	53.1	58.9
115°	3.2	10.9	33.9	49.3	54.4
117.5°	3.2	8.3	30.1	45.5	50.6
120°	2.6	5.8	26.9	41.6	46.1
122.5°	2.6	3.8	23.7	37.8	42.3
125°	1.9	1.9	20.5	33.9	38.4
127.5°	1.9	1.3	17.3	30.1	34.6
130°	1.9	1.3	14.1	26.3	30.1
132.5°	1.3	1.3	10.9	22.4	26.9
135°	1.3	0.6	7.7	19.2	22.4
137.5°	1.3	0.6	5.1	15.4	18.6
140°	0.6	0.6	2.6	12.2	15.4
142.5°	0.6	0.0	0.0	8.3	11.5
145°	0.6	0.0	0.0	5.1	7.7
147.5°	0.0	0.0	0.0	1.9	4.5
150°	0.0	0.0	0.0	0.0	1.3
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



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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	15.87	17.38	16.36	17.86	18.38	17.87	19.38	18.36	19.86	20.37
	3H	17.43	18.80	17.93	19.29	19.85	20.25	21.62	20.75	22.11	22.67
	4H	17.95	19.25	18.48	19.76	20.33	21.36	22.66	21.88	23.17	23.74
	6H	18.30	19.51	18.83	20.03	20.61	22.47	23.68	23.00	24.20	24.79
	8H	18.38	19.54	18.93	20.09	20.68	23.02	24.18	23.57	24.73	25.32
	12H	18.43	19.54	18.99	20.08	20.70	23.63	24.74	24.18	25.28	25.90
4H	2H	16.78	18.08	17.30	18.59	19.16	18.33	19.63	18.85	20.14	20.71
	3H	18.58	19.69	19.12	20.24	20.83	20.92	22.03	21.46	22.58	23.17
	4H	19.25	20.26	19.80	20.82	21.44	22.19	23.20	22.75	23.76	24.39
	6H	19.72	20.62	20.30	21.20	21.84	23.47	24.37	24.05	24.95	25.59
	8H	19.86	20.70	20.44	21.28	21.93	24.12	24.97	24.71	25.55	26.20
	12H	19.94	20.71	20.55	21.32	21.97	24.84	25.60	25.44	26.22	26.87
8H	4H	19.88	20.72	20.46	21.31	21.96	22.42	23.26	23.00	23.84	24.49
	6H	20.54	21.25	21.15	21.88	22.53	23.86	24.57	24.47	25.19	25.85
	8H	20.77	21.41	21.40	22.05	22.72	24.63	25.28	25.26	25.91	26.58
	12H	20.94	21.51	21.57	22.14	22.87	25.52	26.09	26.14	26.71	27.45
12H	4H	20.04	20.80	20.64	21.41	22.07	22.43	23.19	23.03	23.80	24.46
	6H	20.78	21.42	21.40	22.06	22.73	23.90	24.54	24.52	25.18	25.84
	8H	21.10	21.67	21.73	22.30	23.03	24.74	25.31	25.37	25.94	26.67