

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: P243365

Luminaire Tested: S123DRP-H340D840-X4F0-XX-UDD-D-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P243365  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-54)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S123DRP-H340D840-X4F0-XX-UDD-D-W  
Description: DEFINE 3 DIRECT RECESSED WITH SATIN DROP DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 4000K CCT, 80 CRI LEDS  
Ballast/Driver: -

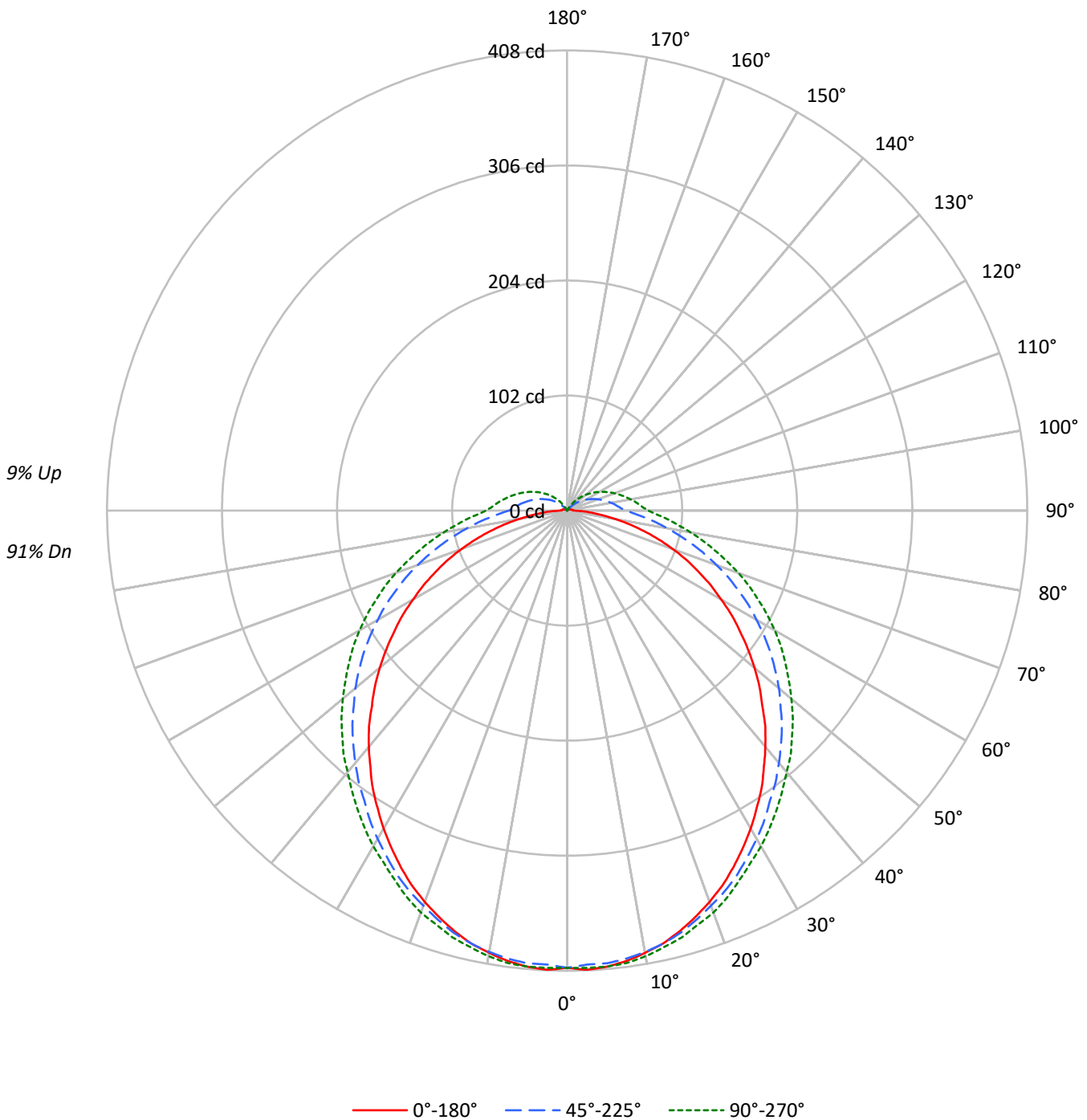
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1376.1 lumens  
Efficiency: N/A  
Efficacy: 122.9 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.26 / 1.37  
Luminous Opening: Rectangular w/ Sides (W: 0.23' x L: 3.88' x H: 0.08')  
CIE Type: Direct  
  
Input Watts (W): 11.2  
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			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	91
1	105	100	95	90	101	96	92	88	91	87	84	85	82	80	80	78	76	73
2	95	86	79	72	91	83	77	71	78	73	68	74	69	65	69	66	62	60
3	86	75	66	60	83	73	65	58	69	62	56	65	59	54	61	56	52	50
4	79	66	57	50	76	64	56	49	61	53	48	57	51	46	54	49	45	42
5	72	59	50	43	70	57	49	42	54	47	41	51	45	40	49	43	39	36
6	67	53	44	37	64	52	43	37	49	41	36	46	40	35	44	38	34	31
7	62	48	39	33	60	47	38	32	44	37	32	42	36	31	40	34	30	28
8	57	44	35	29	55	43	34	29	41	33	28	39	32	27	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	23	35	28	23	33	27	22	32	26	22	20

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

	0°	45°	90°
0°	4914	4914	4914
5°	4930	4788	4787
10°	4883	4667	4641
15°	4816	4534	4481
20°	4724	4376	4320
25°	4619	4230	4134
30°	4500	4065	3976
35°	4382	3899	3819
40°	4251	3762	3670
45°	4108	3628	3545
50°	3988	3491	3415
55°	3840	3352	3287
60°	3686	3196	3162
65°	3523	3031	3012
70°	3340	2854	2863
75°	3061	2662	2688
80°	2706	2469	2535
85°	2411	2316	2417

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 4108 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	38.5	2.8
10°-20°	109.7	8.0
20°-30°	164.4	11.9
30°-40°	196.7	14.3
40°-50°	206.2	15.0
50°-60°	193.9	14.1
60°-70°	162.2	11.8
70°-80°	116.4	8.5
80°-90°	69.7	5.1
90°-100°	44.2	3.2
100°-110°	32.6	2.4
110°-120°	21.8	1.6
120°-130°	12.6	0.9
130°-140°	5.8	0.4
140°-150°	1.3	0.1
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	312.6	22.7
0°-40°	509.2	37.0
0°-60°	909.3	66.1
0°-90°	1257.7	91.4
90°-120°	98.6	7.2
90°-150°	118.3	8.6
90°-180°	118.0	8.6
0°-180°	1376.1	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	405	405	405	405	405	
5°	406	405	403	406	406	38
15°	386	388	388	393	392	109
25°	349	353	356	362	362	161
35°	301	308	314	322	324	188
45°	245	257	269	279	282	189
55°	187	203	220	232	236	168
65°	128	148	167	182	187	128
75°	71	92	115	130	135	75
85°	22	44	68	84	90	22
90°	6	28	52	67	72	4
95°	5	23	45	59	64	4
105°	3	15	34	47	51	4
115°	2	8	24	35	39	2
125°	2	2	15	24	28	1
135°	1	0	6	14	16	1
145°	0	0	0	4	6	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°	405.4	405.4	405.4	405.4	405.4
2.5°	407.5	406.3	402.9	406.7	405.9
5°	405.9	405.4	402.9	406.3	405.9
7.5°	402.9	402.9	400.8	404.6	404.6
10°	398.2	399.5	397.4	401.6	401.2
12.5°	393.2	394.9	393.2	397.8	396.5
15°	386.0	388.5	387.7	392.7	391.9
17.5°	377.9	380.9	380.5	385.6	385.1
20°	369.1	372.9	372.9	377.9	379.2
22.5°	359.8	364.0	365.3	370.3	371.2
25°	348.8	353.4	356.4	361.9	361.5
27.5°	337.4	342.9	346.2	352.2	352.2
30°	325.5	331.9	336.1	342.4	343.7
32.5°	312.8	320.5	325.5	332.3	334.0
35°	300.6	307.8	313.7	321.7	323.8
37.5°	286.6	295.5	303.5	312.0	313.3
40°	273.5	283.2	292.1	301.0	302.7
42.5°	260.0	270.1	280.7	289.6	293.4
45°	244.8	257.0	269.3	278.6	282.0
47.5°	231.3	243.5	256.6	267.6	271.4
50°	216.9	229.6	245.2	255.8	259.6
52.5°	202.1	216.0	232.5	243.9	247.7
55°	187.3	202.9	220.3	232.1	236.3
57.5°	173.3	189.0	207.2	220.3	224.9
60°	157.7	175.0	194.0	207.6	212.6
62.5°	143.7	161.5	181.4	194.9	200.0
65°	128.5	147.5	167.4	182.2	186.9
67.5°	114.6	133.2	154.7	169.5	174.6
70°	99.8	119.2	140.8	156.0	161.5
72.5°	85.0	105.7	127.7	143.3	148.0
75°	70.6	92.2	114.6	130.2	135.3
77.5°	57.1	78.6	101.9	117.5	123.0
80°	43.5	66.0	90.0	105.7	111.2
82.5°	31.7	54.5	79.1	94.3	99.3
85°	21.6	44.0	68.5	84.1	89.6
87.5°	12.7	35.5	59.2	74.8	79.5
90°	5.9	27.9	51.6	67.2	71.9
92.5°	5.5	24.9	47.8	62.6	67.2
95°	4.7	22.8	44.8	59.2	63.8
97.5°	4.7	20.7	42.3	56.2	60.5
100°	4.2	18.6	39.7	52.8	57.1
102.5°	3.8	16.5	36.8	49.9	54.1
105°	3.4	14.8	34.2	46.9	50.7
107.5°	3.0	12.7	31.7	44.0	47.8
110°	3.0	11.0	29.2	41.0	44.8



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	2.5	9.3	26.6	38.0	41.9
115°	2.1	7.6	24.1	35.1	38.9
117.5°	2.1	5.9	21.6	32.6	35.9
120°	2.1	4.7	19.4	29.6	33.0
122.5°	1.7	3.0	17.3	27.1	30.4
125°	1.7	1.7	14.8	24.1	27.5
127.5°	1.3	0.8	12.7	21.6	24.5
130°	1.3	0.8	10.6	19.0	22.0
132.5°	0.8	0.8	8.5	16.5	19.4
135°	0.8	0.4	6.3	14.0	16.5
137.5°	0.8	0.4	4.2	11.4	14.0
140°	0.4	0.4	2.1	8.9	11.4
142.5°	0.4	0.0	0.4	6.8	8.9
145°	0.4	0.0	0.0	4.2	5.9
147.5°	0.4	0.0	0.0	2.1	3.8
150°	0.4	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	14.57	16.07	15.06	16.55	17.08	16.64	18.14	17.13	18.62	19.14
	3H	16.12	17.49	16.62	17.98	18.55	19.03	20.40	19.54	20.89	21.46
	4H	16.65	17.94	17.17	18.45	19.03	20.15	21.44	20.67	21.96	22.53
	6H	16.99	18.19	17.52	18.72	19.31	21.27	22.48	21.81	23.00	23.60
	8H	17.07	18.23	17.62	18.78	19.37	21.84	22.99	22.39	23.54	24.14
	12H	17.12	18.23	17.68	18.77	19.40	22.45	23.56	23.01	24.10	24.73
4H	2H	15.48	16.78	16.01	17.29	17.87	17.09	18.38	17.61	18.90	19.47
	3H	17.28	18.39	17.82	18.94	19.54	19.70	20.80	20.24	21.36	21.95
	4H	17.95	18.97	18.51	19.53	20.16	20.97	21.98	21.53	22.55	23.18
	6H	18.42	19.32	19.00	19.91	20.55	22.27	23.17	22.85	23.75	24.40
	8H	18.56	19.40	19.14	19.99	20.64	22.93	23.77	23.52	24.36	25.01
	12H	18.64	19.41	19.25	20.02	20.68	23.66	24.42	24.27	25.04	25.70
8H	4H	18.60	19.44	19.18	20.03	20.68	21.19	22.03	21.78	22.62	23.28
	6H	19.25	19.97	19.87	20.60	21.26	22.65	23.37	23.27	24.00	24.66
	8H	19.49	20.13	20.11	20.77	21.44	23.44	24.08	24.07	24.72	25.39
	12H	19.66	20.23	20.29	20.86	21.60	24.33	24.91	24.96	25.53	26.27
12H	4H	18.76	19.52	19.36	20.14	20.80	21.21	21.97	21.81	22.58	23.24
	6H	19.50	20.15	20.13	20.78	21.46	22.69	23.34	23.32	23.98	24.65
	8H	19.83	20.40	20.46	21.03	21.77	23.55	24.12	24.18	24.75	25.48