

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: P243381

Luminaire Tested: S123DRP-H560D940-X4F0-XX-UDD-D-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P243381  
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-H560D940-X4F0-XX-UDD-D-W  
Description: DEFINE 3 DIRECT RECESSED WITH SATIN DROP DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 4000K CCT, 90 CRI LEDS  
Ballast/Driver: -

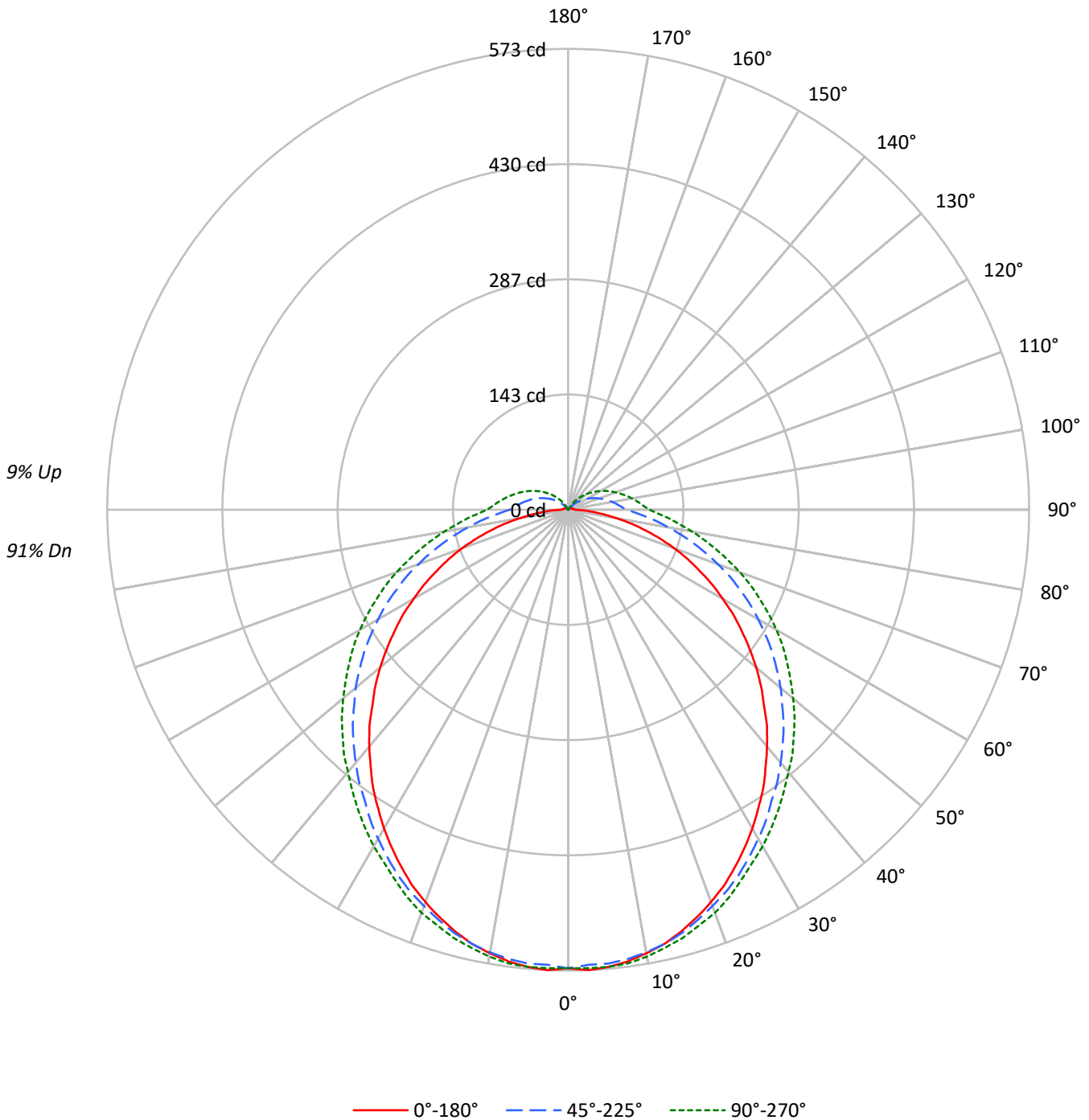
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1935.0 lumens  
Efficiency: N/A  
Efficacy: 112.5 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): 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	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°	6910	6910	6910
5°	6931	6732	6730
10°	6867	6563	6526
15°	6772	6375	6302
20°	6643	6153	6075
25°	6495	5948	5813
30°	6329	5716	5591
35°	6162	5482	5371
40°	5978	5291	5161
45°	5776	5102	4984
50°	5608	4909	4802
55°	5400	4712	4622
60°	5182	4495	4447
65°	4954	4262	4235
70°	4695	4014	4026
75°	4305	3742	3779
80°	3808	3473	3563
85°	3383	3256	3399

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 5776 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	54.1	2.8
10°-20°	154.3	8.0
20°-30°	231.1	11.9
30°-40°	276.5	14.3
40°-50°	290.0	15.0
50°-60°	272.6	14.1
60°-70°	228.2	11.8
70°-80°	163.7	8.5
80°-90°	98.1	5.1
90°-100°	62.2	3.2
100°-110°	45.8	2.4
110°-120°	30.7	1.6
120°-130°	17.7	0.9
130°-140°	8.2	0.4
140°-150°	1.9	0.1
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	439.6	22.7
0°-40°	716.1	37.0
0°-60°	1278.7	66.1
0°-90°	1768.6	91.4
90°-120°	138.7	7.2
90°-150°	166.4	8.6
90°-180°	166.0	8.6
0°-180°	1935.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	570	570	570	570	570	
5°	571	570	566	571	571	54
15°	543	546	545	552	551	153
25°	490	497	501	509	508	226
35°	423	433	441	452	455	264
45°	344	361	379	392	396	266
55°	263	285	310	326	332	236
65°	181	208	235	256	263	179
75°	99	130	161	183	190	105
85°	30	62	96	118	126	31
90°	8	39	72	94	101	6
95°	6	32	63	83	90	5
105°	5	21	48	66	71	5
115°	3	11	34	49	55	3
125°	2	2	21	34	39	2
135°	1	1	9	20	23	1
145°	1	0	0	6	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°	570.1	570.1	570.1	570.1	570.1
2.5°	573.1	571.3	566.5	571.9	570.7
5°	570.7	570.1	566.5	571.3	570.7
7.5°	566.5	566.5	563.6	568.9	568.9
10°	560.0	561.8	558.8	564.8	564.2
12.5°	552.9	555.3	552.9	559.4	557.6
15°	542.8	546.3	545.1	552.3	551.1
17.5°	531.5	535.6	535.0	542.2	541.6
20°	519.0	524.3	524.3	531.5	533.3
22.5°	505.9	511.9	513.6	520.8	522.0
25°	490.5	497.0	501.2	508.9	508.3
27.5°	474.4	482.1	486.9	495.2	495.2
30°	457.8	466.7	472.6	481.5	483.3
32.5°	439.9	450.6	457.8	467.3	469.6
35°	422.7	432.8	441.1	452.4	455.4
37.5°	403.1	415.5	426.8	438.7	440.5
40°	384.6	398.3	410.8	423.3	425.7
42.5°	365.6	379.9	394.7	407.2	412.6
45°	344.2	361.4	378.7	391.8	396.5
47.5°	325.2	342.4	360.9	376.3	381.7
50°	305.0	322.8	344.8	359.7	365.0
52.5°	284.2	303.8	327.0	343.0	348.4
55°	263.4	285.4	309.7	326.4	332.3
57.5°	243.7	265.7	291.3	309.7	316.3
60°	221.7	246.1	272.9	291.9	299.0
62.5°	202.1	227.1	255.0	274.1	281.2
65°	180.7	207.5	235.4	256.2	262.8
67.5°	161.1	187.3	217.6	238.4	245.5
70°	140.3	167.6	198.0	219.4	227.1
72.5°	119.5	148.6	179.5	201.5	208.1
75°	99.3	129.6	161.1	183.1	190.2
77.5°	80.3	110.6	143.3	165.3	173.0
80°	61.2	92.7	126.6	148.6	156.3
82.5°	44.6	76.7	111.2	132.6	139.7
85°	30.3	61.8	96.3	118.3	126.0
87.5°	17.8	49.9	83.2	105.2	111.8
90°	8.3	39.2	72.5	94.5	101.1
92.5°	7.7	35.1	67.2	88.0	94.5
95°	6.5	32.1	63.0	83.2	89.8
97.5°	6.5	29.1	59.4	79.1	85.0
100°	5.9	26.2	55.9	74.3	80.3
102.5°	5.4	23.2	51.7	70.1	76.1
105°	4.8	20.8	48.2	66.0	71.3
107.5°	4.2	17.8	44.6	61.8	67.2
110°	4.2	15.5	41.0	57.7	63.0



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	3.6	13.1	37.5	53.5	58.9
115°	3.0	10.7	33.9	49.3	54.7
117.5°	3.0	8.3	30.3	45.8	50.5
120°	3.0	6.5	27.3	41.6	46.4
122.5°	2.4	4.2	24.4	38.0	42.8
125°	2.4	2.4	20.8	33.9	38.6
127.5°	1.8	1.2	17.8	30.3	34.5
130°	1.8	1.2	14.9	26.8	30.9
132.5°	1.2	1.2	11.9	23.2	27.3
135°	1.2	0.6	8.9	19.6	23.2
137.5°	1.2	0.6	5.9	16.1	19.6
140°	0.6	0.6	3.0	12.5	16.1
142.5°	0.6	0.0	0.6	9.5	12.5
145°	0.6	0.0	0.0	5.9	8.3
147.5°	0.6	0.0	0.0	3.0	5.4
150°	0.6	0.0	0.0	0.0	1.8
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	15.75	17.25	16.24	17.74	18.26	17.82	19.32	18.31	19.81	20.33
	3H	17.30	18.67	17.81	19.17	19.73	20.21	21.58	20.72	22.08	22.64
	4H	17.83	19.13	18.35	19.64	20.21	21.33	22.63	21.86	23.14	23.71
	6H	18.17	19.38	18.71	19.90	20.49	22.46	23.66	22.99	24.19	24.78
	8H	18.26	19.41	18.81	19.96	20.56	23.02	24.18	23.57	24.73	25.32
	12H	18.30	19.41	18.86	19.95	20.58	23.64	24.75	24.19	25.29	25.91
4H	2H	16.67	17.96	17.19	18.47	19.05	18.27	19.57	18.80	20.08	20.65
	3H	18.47	19.57	19.01	20.13	20.72	20.88	21.99	21.42	22.54	23.14
	4H	19.14	20.15	19.70	20.71	21.34	22.16	23.17	22.71	23.73	24.36
	6H	19.61	20.50	20.19	21.09	21.73	23.46	24.35	24.04	24.94	25.58
	8H	19.74	20.58	20.33	21.17	21.83	24.12	24.96	24.70	25.54	26.20
	12H	19.83	20.59	20.43	21.21	21.87	24.84	25.61	25.45	26.22	26.88
8H	4H	19.78	20.62	20.37	21.21	21.87	22.38	23.22	22.96	23.81	24.46
	6H	20.44	21.15	21.05	21.78	22.44	23.84	24.55	24.45	25.18	25.84
	8H	20.67	21.31	21.30	21.95	22.62	24.62	25.27	25.25	25.90	26.58
	12H	20.84	21.41	21.47	22.04	22.78	25.52	26.09	26.15	26.72	27.46
12H	4H	19.94	20.70	20.55	21.32	21.98	22.39	23.15	22.99	23.77	24.43
	6H	20.69	21.33	21.31	21.97	22.64	23.88	24.52	24.51	25.16	25.83
	8H	21.01	21.58	21.64	22.21	22.95	24.73	25.30	25.36	25.93	26.67