

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: P243376

Luminaire Tested: S123DRP-H560D935-X4F0-XX-UDD-D-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P243376  
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-H560D935-X4F0-XX-UDD-D-W  
Description: DEFINE 3 DIRECT RECESSED WITH SATIN DROP DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3500K CCT, 90 CRI LEDS  
Ballast/Driver: -

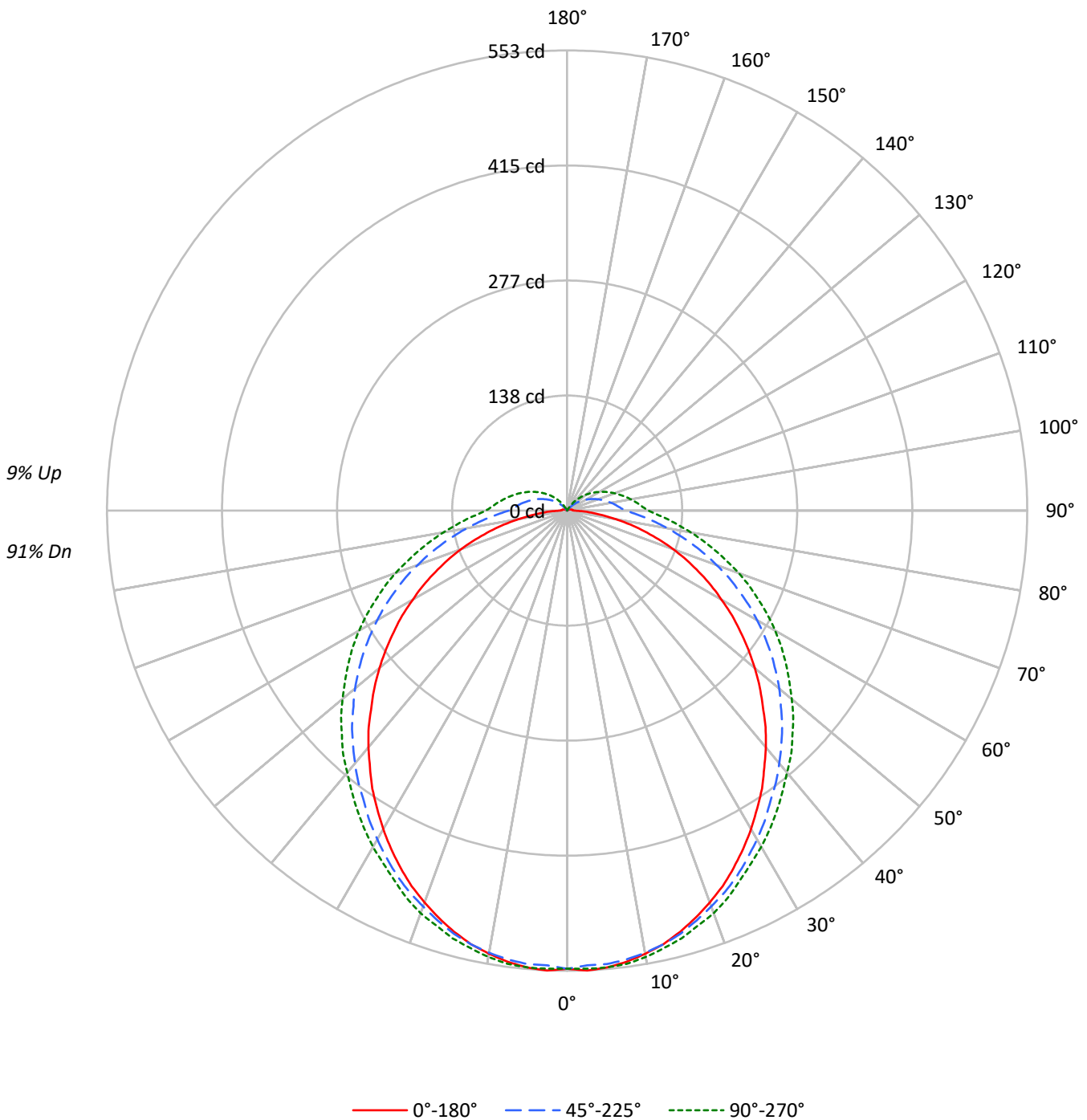
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1868.4 lumens  
Efficiency: N/A  
Efficacy: 108.6 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°	6673	6673	6673
5°	6693	6501	6499
10°	6630	6337	6300
15°	6539	6156	6084
20°	6414	5942	5865
25°	6271	5743	5612
30°	6111	5519	5399
35°	5949	5293	5186
40°	5773	5108	4983
45°	5578	4926	4813
50°	5415	4739	4636
55°	5214	4551	4464
60°	5004	4341	4294
65°	4784	4116	4088
70°	4534	3874	3888
75°	4158	3614	3650
80°	3677	3355	3442
85°	3271	3145	3283

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 5578 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	52.3	2.8
10°-20°	149.0	8.0
20°-30°	223.2	11.9
30°-40°	267.0	14.3
40°-50°	280.0	15.0
50°-60°	263.2	14.1
60°-70°	220.3	11.8
70°-80°	158.1	8.5
80°-90°	94.7	5.1
90°-100°	60.0	3.2
100°-110°	44.2	2.4
110°-120°	29.6	1.6
120°-130°	17.1	0.9
130°-140°	7.9	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°	424.4	22.7
0°-40°	691.4	37.0
0°-60°	1234.6	66.1
0°-90°	1707.7	91.4
90°-120°	133.9	7.2
90°-150°	160.6	8.6
90°-180°	161.0	8.6
0°-180°	1868.4	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	550	550	550	550	550	
5°	551	550	547	552	551	52
15°	524	528	526	533	532	148
25°	474	480	484	491	491	218
35°	408	418	426	437	440	255
45°	332	349	366	378	383	257
55°	254	276	299	315	321	228
65°	174	200	227	247	254	173
75°	96	125	156	177	184	102
85°	29	60	93	114	122	30
90°	8	38	70	91	98	6
95°	6	31	61	80	87	5
105°	5	20	46	64	69	5
115°	3	10	33	48	53	3
125°	2	2	20	33	37	2
135°	1	1	9	19	22	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°	550.5	550.5	550.5	550.5	550.5
2.5°	553.3	551.6	547.0	552.2	551.1
5°	551.1	550.5	547.0	551.6	551.1
7.5°	547.0	547.0	544.2	549.3	549.3
10°	540.7	542.4	539.6	545.3	544.7
12.5°	533.8	536.1	533.8	540.1	538.4
15°	524.1	527.5	526.4	533.3	532.1
17.5°	513.2	517.2	516.6	523.5	522.9
20°	501.1	506.3	506.3	513.2	514.9
22.5°	488.5	494.2	495.9	502.8	504.0
25°	473.6	479.9	483.9	491.4	490.8
27.5°	458.1	465.5	470.1	478.2	478.2
30°	442.0	450.6	456.3	464.9	466.7
32.5°	424.8	435.1	442.0	451.2	453.5
35°	408.1	417.9	425.9	436.8	439.7
37.5°	389.2	401.2	412.1	423.6	425.3
40°	371.4	384.6	396.6	408.7	411.0
42.5°	353.0	366.8	381.1	393.2	398.4
45°	332.4	349.0	365.6	378.3	382.9
47.5°	314.0	330.6	348.4	363.3	368.5
50°	294.5	311.7	332.9	347.3	352.4
52.5°	274.4	293.3	315.7	331.2	336.4
55°	254.3	275.5	299.1	315.1	320.9
57.5°	235.3	256.6	281.3	299.1	305.4
60°	214.1	237.6	263.5	281.8	288.7
62.5°	195.2	219.3	246.3	264.6	271.5
65°	174.5	200.3	227.3	247.4	253.7
67.5°	155.6	180.8	210.1	230.2	237.1
70°	135.5	161.9	191.1	211.8	219.3
72.5°	115.4	143.5	173.4	194.6	200.9
75°	95.9	125.1	155.6	176.8	183.7
77.5°	77.5	106.8	138.3	159.6	167.0
80°	59.1	89.5	122.3	143.5	151.0
82.5°	43.1	74.0	107.3	128.0	134.9
85°	29.3	59.7	93.0	114.2	121.7
87.5°	17.2	48.2	80.4	101.6	107.9
90°	8.0	37.9	70.0	91.3	97.6
92.5°	7.5	33.9	64.9	85.0	91.3
95°	6.3	31.0	60.8	80.4	86.7
97.5°	6.3	28.1	57.4	76.3	82.1
100°	5.7	25.3	54.0	71.8	77.5
102.5°	5.2	22.4	49.9	67.7	73.5
105°	4.6	20.1	46.5	63.7	68.9
107.5°	4.0	17.2	43.1	59.7	64.9
110°	4.0	14.9	39.6	55.7	60.8



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	3.4	12.6	36.2	51.7	56.8
115°	2.9	10.3	32.7	47.6	52.8
117.5°	2.9	8.0	29.3	44.2	48.8
120°	2.9	6.3	26.4	40.2	44.8
122.5°	2.3	4.0	23.5	36.7	41.3
125°	2.3	2.3	20.1	32.7	37.3
127.5°	1.7	1.1	17.2	29.3	33.3
130°	1.7	1.1	14.4	25.8	29.8
132.5°	1.1	1.1	11.5	22.4	26.4
135°	1.1	0.6	8.6	18.9	22.4
137.5°	1.1	0.6	5.7	15.5	18.9
140°	0.6	0.6	2.9	12.1	15.5
142.5°	0.6	0.0	0.6	9.2	12.1
145°	0.6	0.0	0.0	5.7	8.0
147.5°	0.6	0.0	0.0	2.9	5.2
150°	0.6	0.0	0.0	0.0	1.7
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	15.63	17.13	16.12	17.62	18.14	17.70	19.20	18.19	19.69	20.21
	3H	17.18	18.55	17.69	19.05	19.61	20.09	21.46	20.60	21.96	22.52
	4H	17.71	19.01	18.23	19.52	20.09	21.21	22.51	21.73	23.02	23.59
	6H	18.05	19.26	18.59	19.78	20.37	22.33	23.54	22.87	24.07	24.66
	8H	18.13	19.29	18.69	19.84	20.44	22.90	24.06	23.45	24.60	25.20
	12H	18.18	19.29	18.74	19.83	20.46	23.52	24.63	24.07	25.17	25.79
4H	2H	16.54	17.84	17.07	18.35	18.93	18.15	19.45	18.68	19.96	20.53
	3H	18.35	19.45	18.89	20.01	20.60	20.76	21.87	21.30	22.42	23.02
	4H	19.02	20.03	19.57	20.59	21.22	22.03	23.05	22.59	23.61	24.24
	6H	19.49	20.38	20.06	20.97	21.61	23.34	24.23	23.91	24.82	25.46
	8H	19.62	20.46	20.20	21.05	21.70	23.99	24.83	24.58	25.42	26.08
	12H	19.71	20.47	20.31	21.09	21.74	24.72	25.49	25.33	26.10	26.76
8H	4H	19.66	20.50	20.24	21.09	21.74	22.26	23.10	22.84	23.69	24.34
	6H	20.32	21.03	20.93	21.66	22.32	23.72	24.43	24.33	25.06	25.72
	8H	20.55	21.19	21.18	21.83	22.50	24.50	25.14	25.13	25.78	26.46
	12H	20.72	21.29	21.35	21.92	22.66	25.40	25.97	26.03	26.60	27.34
12H	4H	19.82	20.58	20.43	21.20	21.86	22.27	23.03	22.87	23.65	24.31
	6H	20.56	21.21	21.19	21.85	22.52	23.76	24.40	24.39	25.04	25.71
	8H	20.89	21.46	21.52	22.09	22.83	24.61	25.18	25.24	25.81	26.55