

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: P243400

Luminaire Tested: S123RDRP-H560D840-X4F0-XX-UDD-F-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243400
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-64)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123RDRP-H560D840-X4F0-XX-UDD-F-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH SATIN FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

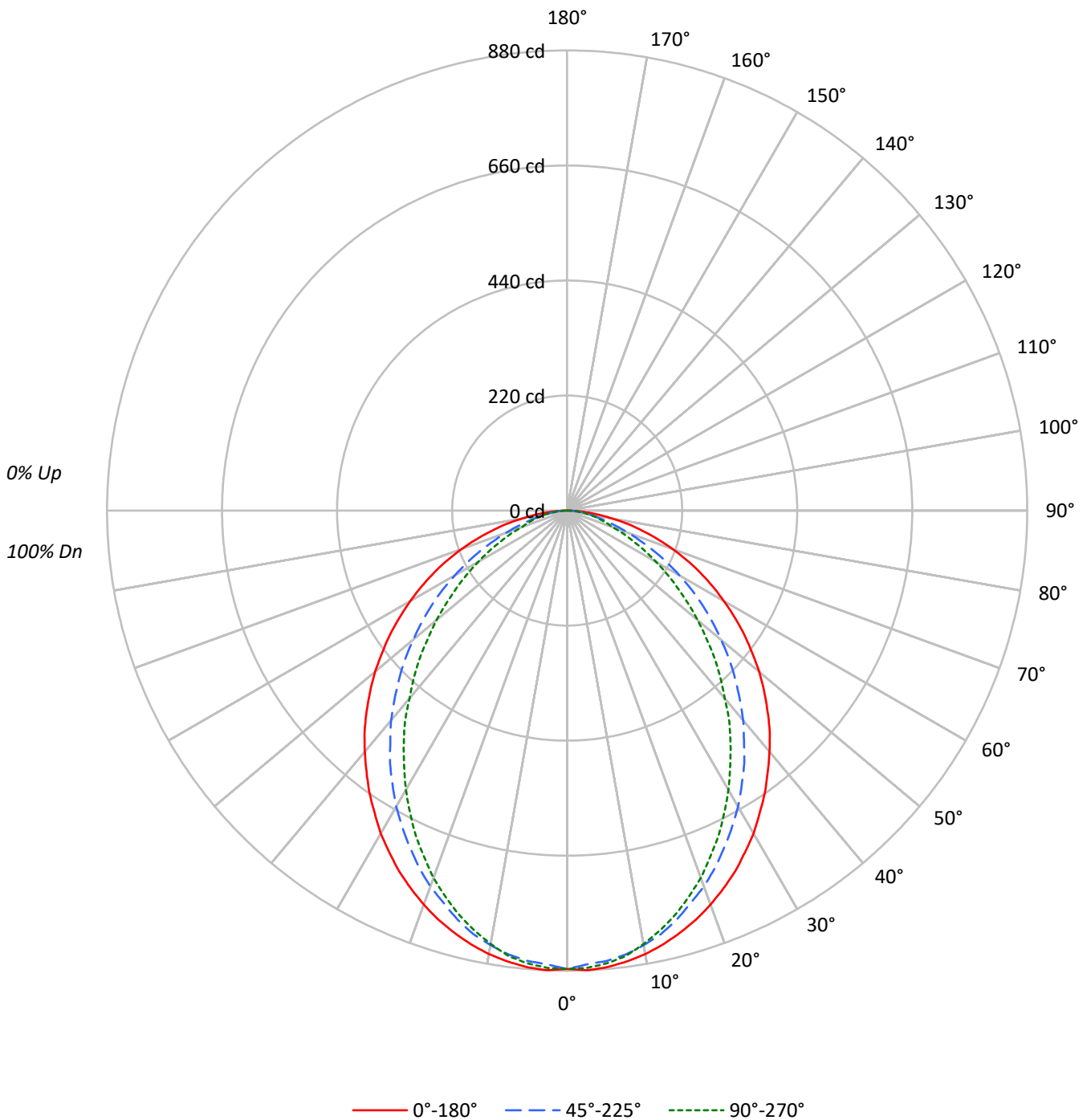
Lumens per Lamp: N/A
Luminaire Lumens: 1979.2 lumens
Efficiency: N/A
Efficacy: 115.1 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.07 / 1.22
Luminous Opening: Rectangular (W 0.23' x L: 3.88' x H: 0')
CIE Type: Direct

Input Watts (W): 17.2
Input Voltage (V): 120
Input Current (A_{in}): 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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	110	105	101	98	107	103	99	96	99	96	93	95	93	90	91	89	88	86
2	101	93	87	81	98	91	85	80	87	83	78	84	80	77	81	78	75	73
3	92	82	75	69	90	81	74	68	78	72	67	75	70	66	73	68	65	62
4	85	73	65	59	83	72	64	58	70	63	58	67	62	57	65	60	56	54
5	78	66	58	51	76	65	57	51	63	56	50	61	55	50	59	54	49	47
6	73	60	51	45	71	59	51	45	57	50	45	56	49	44	54	48	44	42
7	67	55	46	40	66	54	46	40	52	45	40	51	44	40	49	44	39	37
8	63	50	42	36	61	49	41	36	48	41	36	47	40	36	46	40	35	34
9	59	46	38	33	58	45	38	33	44	37	32	43	37	32	42	36	32	30
10	55	43	35	30	54	42	35	30	41	34	30	40	34	30	39	34	29	28

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	10625	10625	10625
5°	10666	10519	10576
10°	10599	10383	10359
15°	10485	10163	10037
20°	10343	9865	9640
25°	10175	9509	9167
30°	9979	9149	8632
35°	9753	8736	8060
40°	9524	8288	7426
45°	9291	7789	6833
50°	9040	7249	6146
55°	8736	6686	5450
60°	8390	6022	4749
65°	8051	5272	4056
70°	7588	4416	3246
75°	7002	3498	3091
80°	6108	3099	2820
85°	5146	2712	2629

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 9291 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	82.5	4.2
10°-20°	229.6	11.6
20°-30°	330.5	16.7
30°-40°	372.3	18.8
40°-50°	355.6	18.0
50°-60°	290.8	14.7
60°-70°	195.3	9.9
70°-80°	97.4	4.9
80°-90°	25.2	1.3
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	642.5	32.5
0°-40°	1014.8	51.3
0°-60°	1661.3	83.9
0°-90°	1979.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1979.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	877	877	877	877	877	
5°	877	873	864	871	869	83
15°	836	830	810	805	800	236
25°	761	744	711	696	685	350
35°	659	634	590	558	545	412
45°	542	510	454	415	399	418
55°	413	376	316	273	258	369
65°	281	242	184	150	141	278
75°	150	114	75	67	66	158
85°	37	22	20	18	19	43
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	876.6	876.6	876.6	876.6	876.6	876.6	876.6	876.6	876.6	876.6	876.6
2.5°	879.9	877.9	875.2	875.9	876.6	877.3	877.3	876.6	874.6	871.9	868.5
5°	876.6	874.6	871.9	871.9	873.2	873.2	873.2	872.5	870.5	867.8	864.5
7.5°	869.8	868.5	865.1	865.8	866.5	866.5	866.5	865.8	863.1	859.7	856.4
10°	861.1	859.1	856.4	856.4	857.1	857.1	857.1	855.7	852.3	848.3	843.6
12.5°	849.7	847.6	844.9	844.9	844.9	844.9	844.9	842.9	837.5	833.5	829.5
15°	835.5	833.5	830.8	830.8	830.1	829.5	828.1	824.7	820.0	815.3	809.9
17.5°	820.0	817.3	814.0	813.3	812.6	811.9	809.9	807.9	801.2	794.4	786.4
20°	801.8	799.2	795.8	795.1	793.1	791.1	789.7	785.7	778.3	770.2	764.8
22.5°	781.7	779.0	775.6	774.2	770.2	768.9	766.8	760.8	752.7	745.3	739.2
25°	760.8	757.4	753.4	751.4	746.6	743.9	743.3	734.5	726.4	718.4	711.0
27.5°	736.5	733.9	730.5	726.4	721.7	718.4	717.0	708.9	698.8	689.4	682.7
30°	713.0	708.9	705.6	700.9	694.1	690.8	688.1	680.0	671.2	659.8	653.7
32.5°	685.4	682.7	678.6	673.9	667.2	664.5	660.5	650.4	638.9	630.8	621.4
35°	659.1	656.4	650.4	645.7	636.2	633.5	629.5	620.7	608.0	598.5	590.4
37.5°	630.2	626.8	622.1	615.4	607.3	603.9	598.5	589.8	575.0	565.5	555.4
40°	601.9	597.2	591.8	584.4	576.3	572.9	568.2	555.4	543.3	532.5	523.8
42.5°	573.6	568.2	561.5	554.8	546.0	541.3	535.9	523.8	510.3	500.2	488.1
45°	542.0	537.9	531.2	523.1	513.0	509.7	503.6	490.8	477.3	466.6	454.4
47.5°	511.0	506.3	499.6	491.5	481.4	476.7	470.6	457.8	444.3	430.9	420.1
50°	479.4	474.6	466.6	458.5	449.1	443.0	437.6	424.8	410.0	397.9	384.4
52.5°	445.7	441.7	434.9	426.8	414.7	410.0	404.6	390.5	376.4	362.2	350.1
55°	413.4	410.7	402.6	394.5	381.7	376.4	371.0	356.2	342.0	327.9	316.4
57.5°	379.7	377.7	369.6	360.2	348.7	343.4	336.6	321.8	308.4	294.2	282.1
60°	346.1	344.0	336.0	326.5	315.8	309.0	301.6	290.2	274.7	261.9	248.4
62.5°	313.7	311.0	304.3	294.2	282.1	275.4	268.6	255.2	241.0	227.6	215.4
65°	280.7	277.4	269.3	259.2	247.8	241.7	235.0	222.2	208.0	195.2	183.8
67.5°	247.8	244.4	235.6	227.6	214.1	208.0	202.0	189.2	175.7	162.9	152.2
70°	214.1	210.7	204.0	193.2	181.8	175.7	169.7	156.2	144.1	134.7	124.6
72.5°	181.1	178.4	171.7	161.6	150.8	144.8	138.0	126.6	115.8	105.7	98.3
75°	149.5	145.4	139.4	129.9	119.2	113.8	109.1	97.6	87.5	80.8	74.7
77.5°	119.2	114.5	107.7	100.3	90.2	84.8	80.1	70.7	64.0	59.2	57.9
80°	87.5	86.9	80.1	72.0	63.3	59.2	54.5	48.5	46.5	45.8	44.4
82.5°	61.3	58.6	53.2	45.8	39.0	36.4	35.0	33.7	32.3	32.3	31.0
85°	37.0	34.3	29.6	23.6	22.2	21.5	20.9	20.9	20.2	19.5	19.5
87.5°	16.2	13.5	10.1	9.4	8.8	8.8	9.4	9.4	9.4	8.8	8.8
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	876.6	876.6	876.6	876.6	876.6	876.6	876.6	876.6	876.6	876.6
2.5°	869.8	873.2	875.2	875.9	875.9	875.9	876.6	876.6	875.9	875.2
5°	865.1	868.5	869.8	871.2	871.2	871.2	871.2	871.2	870.5	869.2
7.5°	857.7	859.7	861.8	861.1	861.1	860.4	859.7	860.4	859.1	859.1
10°	844.3	846.3	847.6	845.6	845.6	846.3	846.3	845.6	843.6	841.6
12.5°	828.8	830.8	828.8	829.5	828.1	826.8	826.1	825.4	823.4	822.0
15°	808.6	808.6	807.2	807.2	805.2	802.5	801.8	802.5	799.8	799.8
17.5°	786.4	785.0	783.0	781.7	781.0	781.0	778.3	778.3	774.9	774.2
20°	762.1	760.8	758.8	755.4	754.0	754.7	752.0	750.0	748.0	747.3
22.5°	736.5	733.2	731.2	727.8	725.1	725.1	723.1	719.7	717.7	715.7
25°	707.6	704.2	700.2	697.5	695.5	692.1	690.8	688.1	686.0	685.4
27.5°	678.0	672.6	667.2	664.5	663.2	659.1	657.1	655.8	651.7	651.0
30°	646.3	642.3	635.6	630.8	627.5	628.1	623.4	620.7	618.7	616.7
32.5°	616.0	609.3	602.6	596.5	592.5	591.8	587.1	584.4	582.4	580.3
35°	581.7	575.0	566.9	561.5	557.5	555.4	550.7	549.4	546.0	544.7
37.5°	547.4	540.0	531.9	525.1	522.4	517.7	515.7	512.3	509.7	509.7
40°	513.7	504.9	496.9	488.8	485.4	482.7	477.3	474.6	471.3	469.3
42.5°	478.7	468.6	461.2	453.8	449.1	447.0	441.0	437.6	434.3	433.6
45°	443.7	433.6	424.2	416.7	414.7	410.7	404.6	399.9	399.2	398.6
47.5°	408.0	397.9	389.1	381.1	378.4	373.7	369.6	366.3	362.2	360.2
50°	373.7	363.6	354.1	345.4	342.0	338.0	333.9	329.2	327.9	325.9
52.5°	339.3	327.9	317.8	309.7	307.0	303.6	298.9	294.9	292.9	291.5
55°	304.3	292.9	284.1	276.0	272.7	270.6	265.3	261.9	259.2	257.9
57.5°	270.0	258.5	250.5	244.4	239.7	237.7	232.3	228.9	227.6	226.9
60°	237.7	226.9	218.1	212.1	208.0	206.0	202.0	198.6	196.6	195.9
62.5°	205.3	195.9	187.8	181.8	179.1	176.4	173.0	170.3	168.3	168.3
65°	174.4	164.9	157.5	152.8	150.1	148.8	144.8	143.4	141.4	141.4
67.5°	144.1	137.3	132.0	125.9	123.9	123.9	119.8	118.5	117.1	117.1
70°	117.8	111.8	105.7	102.3	100.3	99.6	96.3	94.3	92.9	91.6
72.5°	92.2	86.9	81.5	80.8	80.8	80.1	80.1	78.8	78.8	79.4
75°	70.7	69.3	68.0	68.0	67.3	66.7	66.7	66.0	66.0	66.0
77.5°	56.6	55.9	55.2	54.5	54.5	53.9	53.2	53.2	53.2	53.2
80°	43.1	42.4	42.4	41.7	41.1	41.7	41.1	41.1	40.4	40.4
82.5°	30.3	30.3	30.3	29.6	29.6	29.6	29.6	29.0	29.0	29.6
85°	18.9	18.9	18.9	18.9	18.2	18.9	18.2	18.2	18.2	18.9
87.5°	8.1	8.8	8.1	8.8	8.8	8.1	8.1	8.1	8.1	8.1
90°	0.0	0.0	0.0	0.0	0.0	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	19.73	21.29	20.10	21.60	21.92	16.93	18.48	17.29	18.80	19.11
	3H	21.56	22.96	21.94	23.29	23.65	18.00	19.40	18.38	19.73	20.09
	4H	22.25	23.56	22.65	23.91	24.29	18.40	19.71	18.80	20.06	20.44
	6H	22.75	23.96	23.16	24.33	24.72	18.72	19.94	19.14	20.30	20.69
	8H	22.91	24.06	23.33	24.45	24.85	18.83	19.99	19.26	20.38	20.78
	12H	23.00	24.11	23.43	24.49	24.92	18.91	20.01	19.34	20.40	20.83
4H	2H	19.98	21.29	20.37	21.63	22.01	17.65	18.96	18.05	19.31	19.68
	3H	21.97	23.06	22.38	23.45	23.86	18.87	19.96	19.28	20.36	20.76
	4H	22.75	23.74	23.19	24.15	24.59	19.36	20.34	19.79	20.75	21.19
	6H	23.37	24.23	23.83	24.67	25.13	19.78	20.63	20.23	21.08	21.53
	8H	23.58	24.37	24.04	24.82	25.28	19.92	20.72	20.39	21.17	21.63
	12H	23.72	24.43	24.20	24.91	25.38	20.03	20.75	20.52	21.23	21.70
8H	4H	22.79	23.59	23.25	24.03	24.50	19.67	20.47	20.14	20.92	21.38
	6H	23.46	24.12	23.95	24.61	25.09	20.19	20.85	20.68	21.34	21.82
	8H	23.70	24.29	24.21	24.80	25.29	20.39	20.99	20.91	21.50	21.98
	12H	23.89	24.42	24.40	24.91	25.47	20.57	21.09	21.08	21.58	22.15
12H	4H	22.78	23.49	23.26	23.97	24.44	19.71	20.43	20.19	20.90	21.37
	6H	23.44	24.04	23.96	24.55	25.03	20.24	20.84	20.76	21.35	21.83
	8H	23.72	24.24	24.23	24.74	25.30	20.50	21.03	21.01	21.52	22.08