

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: P243399

Luminaire Tested: S123RDRP-H340D840-X4F0-XX-UDD-F-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243399
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-H340D840-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

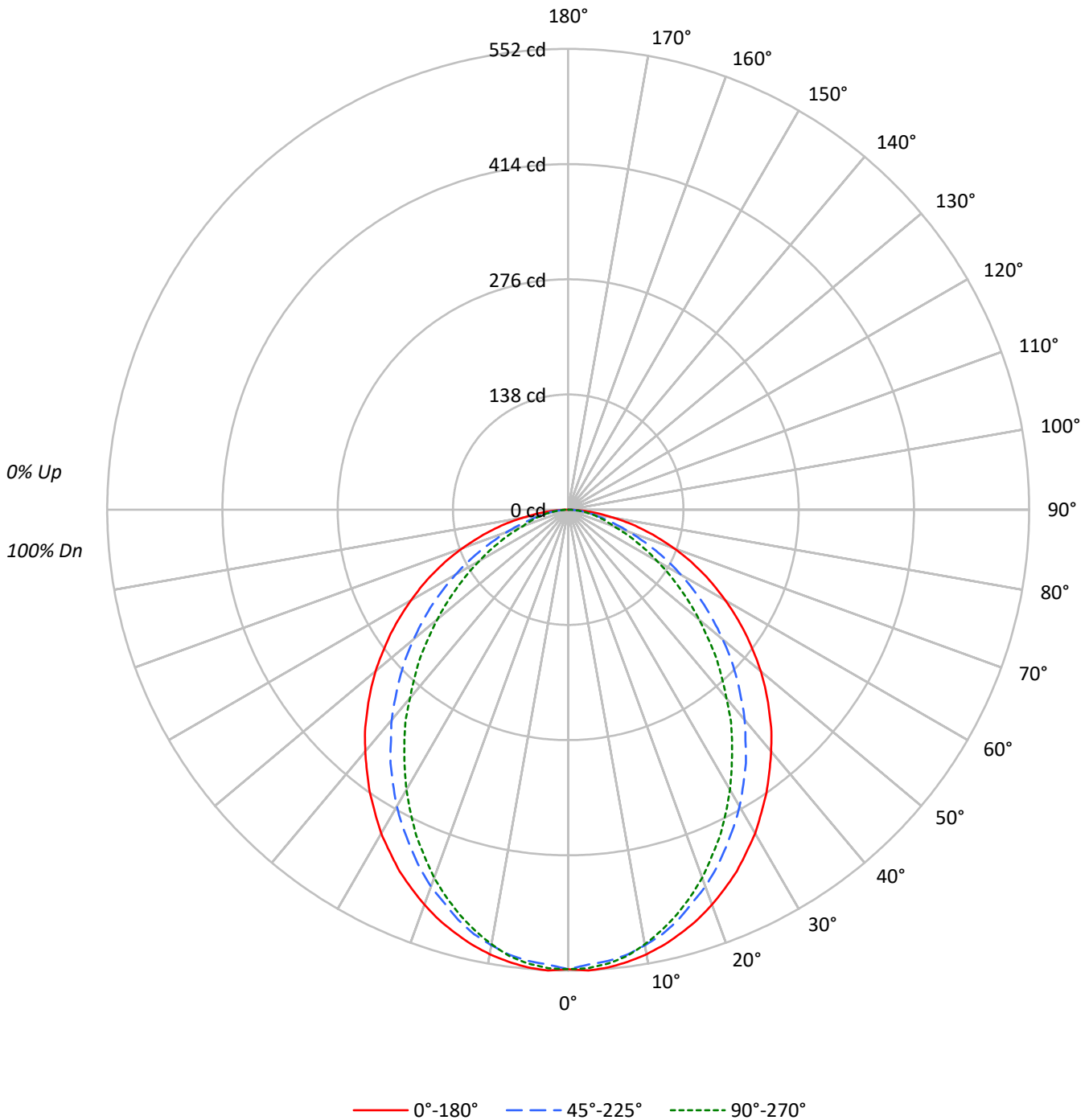
Lumens per Lamp: N/A
Luminaire Lumens: 1242.8 lumens
Efficiency: N/A
Efficacy: 111.0 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.07 / 1.22
Luminous Opening: Rectangular (W 0.23' x L: 3.88' x H: 0')
CIE Type: Direct

Input Watts (W): 11.2
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	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°	6672	6672	6672
5°	6697	6605	6641
10°	6655	6520	6505
15°	6583	6382	6302
20°	6495	6195	6054
25°	6389	5970	5756
30°	6266	5746	5419
35°	6125	5487	5061
40°	5980	5204	4663
45°	5833	4892	4291
50°	5676	4552	3858
55°	5486	4199	3421
60°	5268	3782	2982
65°	5057	3310	2547
70°	4763	2771	2038
75°	4398	2196	1939
80°	3839	1948	1773
85°	3240	1711	1641

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 5833 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	51.8	4.2
10°-20°	144.2	11.6
20°-30°	207.5	16.7
30°-40°	233.8	18.8
40°-50°	223.3	18.0
50°-60°	182.6	14.7
60°-70°	122.6	9.9
70°-80°	61.2	4.9
80°-90°	15.8	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°	403.5	32.5
0°-40°	637.2	51.3
0°-60°	1043.2	83.9
0°-90°	1242.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1242.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	550	550	550	550	550	
5°	550	548	543	547	546	52
15°	525	521	509	506	502	148
25°	478	467	446	437	430	220
35°	414	398	371	350	342	259
45°	340	320	285	260	250	263
55°	260	236	199	171	162	232
65°	176	152	115	94	89	174
75°	94	71	47	42	41	99
85°	23	14	12	11	12	27
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°	550.4	550.4	550.4	550.4	550.4	550.4	550.4	550.4	550.4	550.4	550.4
2.5°	552.5	551.3	549.6	550.0	550.4	550.9	550.9	550.4	549.2	547.5	545.4
5°	550.4	549.2	547.5	547.5	548.3	548.3	548.3	547.9	546.6	544.9	542.8
7.5°	546.2	545.4	543.2	543.7	544.1	544.1	544.1	543.7	542.0	539.9	537.8
10°	540.7	539.4	537.8	537.8	538.2	538.2	538.2	537.3	535.2	532.7	529.7
12.5°	533.5	532.3	530.6	530.6	530.6	530.6	530.6	529.3	525.9	523.4	520.8
15°	524.6	523.4	521.7	521.7	521.3	520.8	520.0	517.9	514.9	512.0	508.6
17.5°	514.9	513.2	511.1	510.7	510.3	509.8	508.6	507.3	503.1	498.9	493.8
20°	503.5	501.8	499.7	499.3	498.0	496.7	495.9	493.4	488.7	483.6	480.3
22.5°	490.8	489.1	487.0	486.2	483.6	482.8	481.5	477.7	472.6	468.0	464.2
25°	477.7	475.6	473.1	471.8	468.8	467.2	466.7	461.2	456.2	451.1	446.4
27.5°	462.5	460.8	458.7	456.2	453.2	451.1	450.2	445.2	438.8	432.9	428.7
30°	447.7	445.2	443.1	440.1	435.9	433.8	432.1	427.0	421.5	414.3	410.5
32.5°	430.4	428.7	426.1	423.2	419.0	417.3	414.7	408.4	401.2	396.1	390.2
35°	413.9	412.2	408.4	405.4	399.5	397.8	395.3	389.8	381.8	375.8	370.8
37.5°	395.7	393.6	390.6	386.4	381.3	379.2	375.8	370.3	361.0	355.1	348.8
40°	377.9	375.0	371.6	367.0	361.9	359.8	356.8	348.8	341.2	334.4	328.9
42.5°	360.2	356.8	352.6	348.4	342.9	339.9	336.5	328.9	320.5	314.1	306.5
45°	340.3	337.8	333.6	328.5	322.1	320.0	316.2	308.2	299.7	293.0	285.4
47.5°	320.9	317.9	313.7	308.6	302.3	299.3	295.5	287.5	279.0	270.6	263.8
50°	301.0	298.0	293.0	287.9	282.0	278.2	274.8	266.8	257.5	249.9	241.4
52.5°	279.9	277.3	273.1	268.0	260.4	257.5	254.1	245.2	236.3	227.4	219.8
55°	259.6	257.9	252.8	247.7	239.7	236.3	232.9	223.6	214.8	205.9	198.7
57.5°	238.4	237.2	232.1	226.2	219.0	215.6	211.4	202.1	193.6	184.7	177.1
60°	217.3	216.0	211.0	205.0	198.3	194.0	189.4	182.2	172.5	164.5	156.0
62.5°	197.0	195.3	191.1	184.7	177.1	172.9	168.7	160.2	151.3	142.9	135.3
65°	176.3	174.2	169.1	162.8	155.6	151.8	147.5	139.5	130.6	122.6	115.4
67.5°	155.6	153.5	148.0	142.9	134.4	130.6	126.8	118.8	110.3	102.3	95.5
70°	134.4	132.3	128.1	121.3	114.1	110.3	106.5	98.1	90.5	84.6	78.2
72.5°	113.7	112.0	107.8	101.5	94.7	90.9	86.7	79.5	72.7	66.4	61.7
75°	93.9	91.3	87.5	81.6	74.8	71.4	68.5	61.3	55.0	50.7	46.9
77.5°	74.8	71.9	67.6	63.0	56.6	53.3	50.3	44.4	40.2	37.2	36.4
80°	55.0	54.5	50.3	45.2	39.7	37.2	34.2	30.4	29.2	28.7	27.9
82.5°	38.5	36.8	33.4	28.7	24.5	22.8	22.0	21.1	20.3	20.3	19.4
85°	23.3	21.6	18.6	14.8	14.0	13.5	13.1	13.1	12.7	12.3	12.3
87.5°	10.1	8.5	6.3	5.9	5.5	5.5	5.9	5.9	5.9	5.5	5.5
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°	550.4	550.4	550.4	550.4	550.4	550.4	550.4	550.4	550.4	550.4
2.5°	546.2	548.3	549.6	550.0	550.0	550.0	550.4	550.4	550.0	549.6
5°	543.2	545.4	546.2	547.1	547.1	547.1	547.1	547.1	546.6	545.8
7.5°	538.6	539.9	541.1	540.7	540.7	540.3	539.9	540.3	539.4	539.4
10°	530.1	531.4	532.3	531.0	531.0	531.4	531.4	531.0	529.7	528.5
12.5°	520.4	521.7	520.4	520.8	520.0	519.1	518.7	518.3	517.0	516.2
15°	507.7	507.7	506.9	506.9	505.6	503.9	503.5	503.9	502.2	502.2
17.5°	493.8	492.9	491.7	490.8	490.4	490.4	488.7	488.7	486.6	486.2
20°	478.6	477.7	476.5	474.3	473.5	473.9	472.2	471.0	469.7	469.3
22.5°	462.5	460.4	459.1	457.0	455.3	455.3	454.0	451.9	450.7	449.4
25°	444.3	442.2	439.7	438.0	436.7	434.6	433.8	432.1	430.8	430.4
27.5°	425.7	422.3	419.0	417.3	416.4	413.9	412.6	411.8	409.2	408.8
30°	405.9	403.3	399.1	396.1	394.0	394.4	391.5	389.8	388.5	387.2
32.5°	386.8	382.6	378.4	374.6	372.0	371.6	368.6	367.0	365.7	364.4
35°	365.3	361.0	356.0	352.6	350.0	348.8	345.8	345.0	342.9	342.0
37.5°	343.7	339.1	334.0	329.8	328.1	325.1	323.8	321.7	320.0	320.0
40°	322.6	317.1	312.0	306.9	304.8	303.1	299.7	298.0	295.9	294.7
42.5°	300.6	294.2	289.6	284.9	282.0	280.7	276.9	274.8	272.7	272.3
45°	278.6	272.3	266.3	261.7	260.4	257.9	254.1	251.1	250.7	250.3
47.5°	256.2	249.9	244.4	239.3	237.6	234.6	232.1	230.0	227.4	226.2
50°	234.6	228.3	222.4	216.9	214.8	212.2	209.7	206.7	205.9	204.6
52.5°	213.1	205.9	199.5	194.5	192.8	190.7	187.7	185.2	183.9	183.1
55°	191.1	183.9	178.4	173.3	171.2	169.9	166.6	164.5	162.8	161.9
57.5°	169.5	162.3	157.3	153.5	150.5	149.2	145.9	143.7	142.9	142.5
60°	149.2	142.5	137.0	133.2	130.6	129.4	126.8	124.7	123.4	123.0
62.5°	128.9	123.0	118.0	114.1	112.5	110.8	108.6	107.0	105.7	105.7
65°	109.5	103.6	98.9	96.0	94.3	93.4	90.9	90.0	88.8	88.8
67.5°	90.5	86.2	82.9	79.1	77.8	77.8	75.3	74.4	73.6	73.6
70°	74.0	70.2	66.4	64.3	63.0	62.6	60.5	59.2	58.3	57.5
72.5°	57.9	54.5	51.2	50.7	50.7	50.3	50.3	49.5	49.5	49.9
75°	44.4	43.5	42.7	42.7	42.3	41.9	41.9	41.4	41.4	41.4
77.5°	35.5	35.1	34.7	34.2	34.2	33.8	33.4	33.4	33.4	33.4
80°	27.1	26.6	26.6	26.2	25.8	26.2	25.8	25.8	25.4	25.4
82.5°	19.0	19.0	19.0	18.6	18.6	18.6	18.6	18.2	18.2	18.6
85°	11.8	11.8	11.8	11.8	11.4	11.8	11.4	11.4	11.4	11.8
87.5°	5.1	5.5	5.1	5.5	5.5	5.1	5.1	5.1	5.1	5.1
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	18.12	19.67	18.48	19.99	20.30	15.31	16.87	15.68	17.18	17.49
	3H	19.95	21.34	20.32	21.67	22.03	16.39	17.78	16.76	18.11	18.47
	4H	20.63	21.94	21.03	22.29	22.67	16.78	18.09	17.18	18.44	18.82
	6H	21.13	22.34	21.54	22.71	23.10	17.11	18.32	17.52	18.68	19.08
	8H	21.29	22.44	21.71	22.83	23.23	17.21	18.37	17.64	18.76	19.16
	12H	21.39	22.49	21.82	22.87	23.30	17.29	18.40	17.72	18.78	19.21
4H	2H	18.36	19.67	18.76	20.02	20.40	16.03	17.34	16.43	17.69	18.07
	3H	20.35	21.44	20.76	21.84	22.24	17.25	18.34	17.66	18.74	19.14
	4H	21.14	22.12	21.57	22.53	22.97	17.74	18.72	18.17	19.14	19.57
	6H	21.76	22.61	22.21	23.05	23.51	18.16	19.02	18.62	19.46	19.92
	8H	21.96	22.76	22.42	23.20	23.67	18.31	19.10	18.77	19.55	20.02
	12H	22.10	22.82	22.58	23.30	23.77	18.42	19.13	18.90	19.61	20.08
8H	4H	21.18	21.97	21.64	22.42	22.88	18.06	18.86	18.52	19.30	19.77
	6H	21.84	22.50	22.34	22.99	23.47	18.57	19.23	19.07	19.72	20.20
	8H	22.08	22.68	22.60	23.18	23.67	18.78	19.37	19.29	19.88	20.37
	12H	22.27	22.80	22.78	23.29	23.85	18.95	19.47	19.46	19.97	20.53
12H	4H	21.16	21.88	21.65	22.36	22.83	18.10	18.81	18.58	19.29	19.76
	6H	21.83	22.42	22.34	22.93	23.42	18.63	19.22	19.14	19.73	20.22
	8H	22.10	22.63	22.61	23.12	23.68	18.88	19.41	19.39	19.90	20.46