

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: P243415

Luminaire Tested: S123RDRP-H560D940-X4F0-XX-UDD-F-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243415
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-H560D940-X4F0-XX-UDD-F-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH SATIN FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

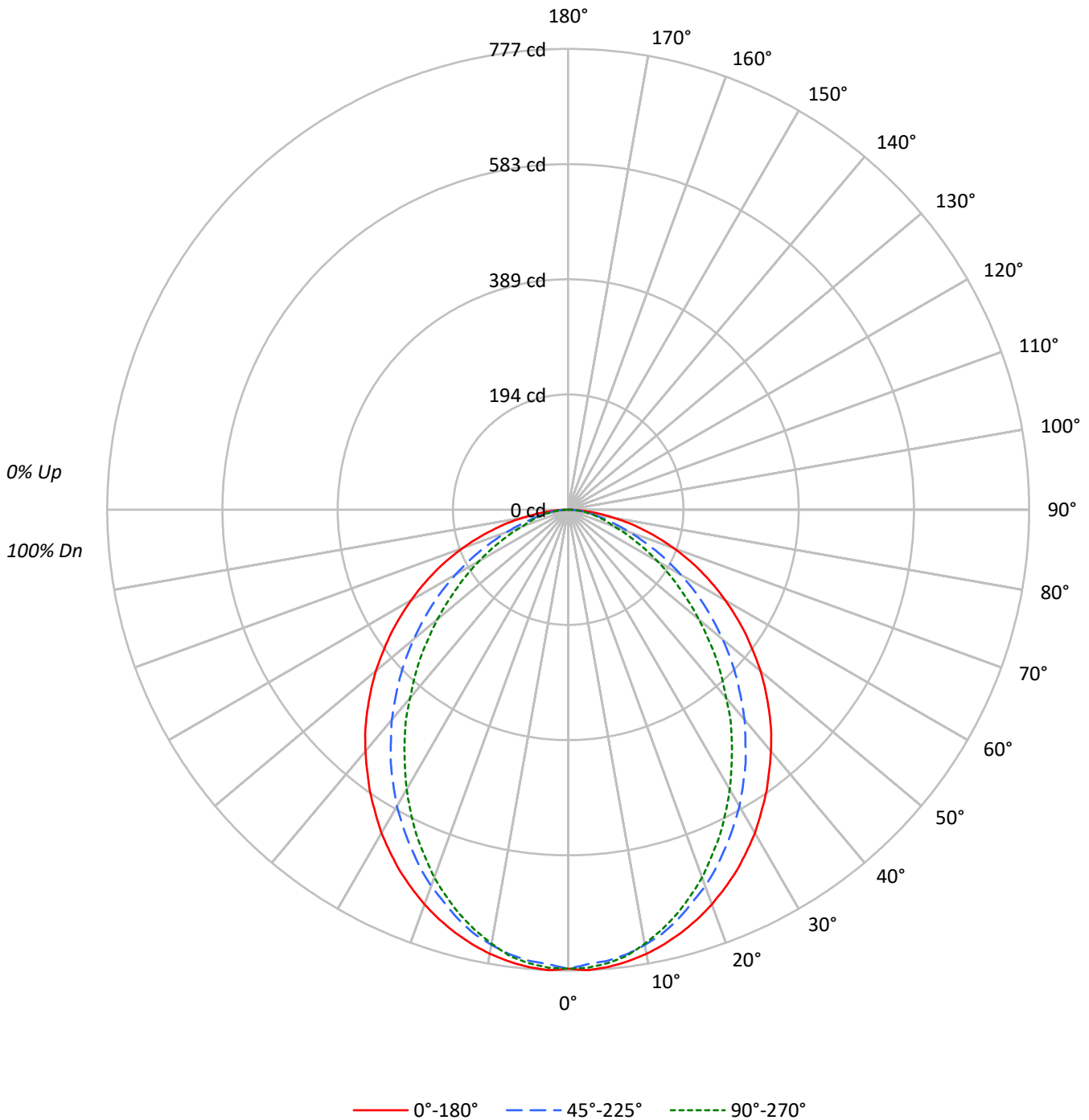
Lumens per Lamp: N/A
Luminaire Lumens: 1747.6 lumens
Efficiency: N/A
Efficacy: 101.6 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.07 / 1.22
Luminous Opening: Rectangular (W 0.23' x L: 3.88' x H: 0')
CIE Type: Direct

Input Watts (W): 17.2
Input Voltage (V): 120
Input Current (Ain): 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°	9382	9382	9382
5°	9418	9287	9339
10°	9358	9168	9146
15°	9259	8975	8862
20°	9133	8711	8512
25°	8985	8396	8094
30°	8812	8079	7621
35°	8612	7715	7116
40°	8410	7318	6557
45°	8204	6879	6032
50°	7982	6402	5425
55°	7713	5904	4812
60°	7408	5319	4194
65°	7110	4655	3579
70°	6698	3898	2867
75°	6182	3091	2730
80°	5396	2736	2492
85°	4548	2392	2309

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 8204 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	72.8	4.2
10°-20°	202.7	11.6
20°-30°	291.8	16.7
30°-40°	328.7	18.8
40°-50°	314.0	18.0
50°-60°	256.8	14.7
60°-70°	172.4	9.9
70°-80°	86.0	4.9
80°-90°	22.2	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°	567.4	32.5
0°-40°	896.1	51.3
0°-60°	1466.9	83.9
0°-90°	1747.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1747.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	774	774	774	774	774	
5°	774	771	763	769	768	73
15°	738	732	715	711	706	208
25°	672	657	628	614	605	309
35°	582	559	521	492	481	364
45°	479	450	401	366	352	369
55°	365	332	279	241	228	326
65°	248	213	162	133	125	245
75°	132	100	66	59	58	140
85°	33	19	17	16	17	38
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°	774.0	774.0	774.0	774.0	774.0	774.0	774.0	774.0	774.0	774.0	774.0
2.5°	777.0	775.2	772.8	773.4	774.0	774.6	774.6	774.0	772.2	769.9	766.9
5°	774.0	772.2	769.9	769.9	771.0	771.0	771.0	770.5	768.7	766.3	763.3
7.5°	768.1	766.9	763.9	764.5	765.1	765.1	765.1	764.5	762.1	759.2	756.2
10°	760.3	758.6	756.2	756.2	756.8	756.8	756.8	755.6	752.6	749.1	744.9
12.5°	750.2	748.5	746.1	746.1	746.1	746.1	746.1	744.3	739.5	736.0	732.4
15°	737.8	736.0	733.6	733.6	733.0	732.4	731.2	728.2	724.1	719.9	715.2
17.5°	724.1	721.7	718.7	718.1	717.5	717.0	715.2	713.4	707.4	701.5	694.4
20°	708.0	705.7	702.7	702.1	700.3	698.5	697.3	693.8	687.2	680.1	675.3
22.5°	690.2	687.8	684.8	683.7	680.1	678.9	677.1	671.8	664.6	658.1	652.7
25°	671.8	668.8	665.2	663.4	659.3	656.9	656.3	648.6	641.5	634.3	627.8
27.5°	650.4	648.0	645.0	641.5	637.3	634.3	633.1	626.0	617.1	608.8	602.8
30°	629.6	626.0	623.0	618.9	612.9	609.9	607.6	600.4	592.7	582.6	577.2
32.5°	605.2	602.8	599.2	595.1	589.1	586.8	583.2	574.3	564.2	557.0	548.7
35°	582.0	579.6	574.3	570.1	561.8	559.4	555.8	548.1	536.8	528.5	521.4
37.5°	556.4	553.5	549.3	543.4	536.2	533.3	528.5	520.8	507.7	499.4	490.5
40°	531.5	527.3	522.6	516.0	508.9	505.9	501.7	490.5	479.8	470.2	462.5
42.5°	506.5	501.7	495.8	489.9	482.1	478.0	473.2	462.5	450.6	441.7	431.0
45°	478.6	475.0	469.0	461.9	453.0	450.0	444.7	433.4	421.5	412.0	401.3
47.5°	451.2	447.1	441.1	434.0	425.1	420.9	415.5	404.3	392.4	380.5	371.0
50°	423.3	419.1	412.0	404.8	396.5	391.2	386.4	375.1	362.0	351.3	339.5
52.5°	393.5	390.0	384.0	376.9	366.2	362.0	357.3	344.8	332.3	319.8	309.1
55°	365.0	362.6	355.5	348.4	337.1	332.3	327.6	314.5	302.0	289.5	279.4
57.5°	335.3	333.5	326.4	318.1	307.9	303.2	297.2	284.2	272.3	259.8	249.1
60°	305.6	303.8	296.6	288.3	278.8	272.9	266.3	256.2	242.6	231.3	219.4
62.5°	277.0	274.7	268.7	259.8	249.1	243.1	237.2	225.3	212.8	200.9	190.2
65°	247.9	244.9	237.8	228.9	218.8	213.4	207.5	196.2	183.7	172.4	162.3
67.5°	218.8	215.8	208.1	200.9	189.0	183.7	178.3	167.1	155.2	143.9	134.4
70°	189.0	186.1	180.1	170.6	160.5	155.2	149.8	137.9	127.2	118.9	110.0
72.5°	159.9	157.5	151.6	142.7	133.2	127.8	121.9	111.8	102.3	93.3	86.8
75°	132.0	128.4	123.1	114.7	105.2	100.5	96.3	86.2	77.3	71.3	66.0
77.5°	105.2	101.1	95.1	88.6	79.7	74.9	70.7	62.4	56.5	52.3	51.1
80°	77.3	76.7	70.7	63.6	55.9	52.3	48.2	42.8	41.0	40.4	39.2
82.5°	54.1	51.7	47.0	40.4	34.5	32.1	30.9	29.7	28.5	28.5	27.3
85°	32.7	30.3	26.2	20.8	19.6	19.0	18.4	18.4	17.8	17.2	17.2
87.5°	14.3	11.9	8.9	8.3	7.7	7.7	8.3	8.3	8.3	7.7	7.7
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°	774.0	774.0	774.0	774.0	774.0	774.0	774.0	774.0	774.0	774.0
2.5°	768.1	771.0	772.8	773.4	773.4	773.4	774.0	774.0	773.4	772.8
5°	763.9	766.9	768.1	769.3	769.3	769.3	769.3	769.3	768.7	767.5
7.5°	757.4	759.2	760.9	760.3	760.3	759.8	759.2	759.8	758.6	758.6
10°	745.5	747.3	748.5	746.7	746.7	747.3	747.3	746.7	744.9	743.1
12.5°	731.8	733.6	731.8	732.4	731.2	730.0	729.4	728.8	727.1	725.9
15°	714.0	714.0	712.8	712.8	711.0	708.6	708.0	708.6	706.2	706.2
17.5°	694.4	693.2	691.4	690.2	689.6	689.6	687.2	687.2	684.3	683.7
20°	673.0	671.8	670.0	667.0	665.8	666.4	664.0	662.3	660.5	659.9
22.5°	650.4	647.4	645.6	642.6	640.3	640.3	638.5	635.5	633.7	631.9
25°	624.8	621.8	618.3	615.9	614.1	611.1	609.9	607.6	605.8	605.2
27.5°	598.6	593.9	589.1	586.8	585.6	582.0	580.2	579.0	575.5	574.9
30°	570.7	567.1	561.2	557.0	554.1	554.7	550.5	548.1	546.3	544.5
32.5°	544.0	538.0	532.1	526.7	523.1	522.6	518.4	516.0	514.2	512.4
35°	513.6	507.7	500.6	495.8	492.2	490.5	486.3	485.1	482.1	480.9
37.5°	483.3	476.8	469.6	463.7	461.3	457.2	455.4	452.4	450.0	450.0
40°	453.6	445.9	438.7	431.6	428.6	426.2	421.5	419.1	416.1	414.4
42.5°	422.7	413.8	407.2	400.7	396.5	394.7	389.4	386.4	383.4	382.8
45°	391.8	382.8	374.5	368.0	366.2	362.6	357.3	353.1	352.5	351.9
47.5°	360.3	351.3	343.6	336.5	334.1	329.9	326.4	323.4	319.8	318.1
50°	329.9	321.0	312.7	305.0	302.0	298.4	294.9	290.7	289.5	287.7
52.5°	299.6	289.5	280.6	273.5	271.1	268.1	264.0	260.4	258.6	257.4
55°	268.7	258.6	250.9	243.7	240.8	239.0	234.2	231.3	228.9	227.7
57.5°	238.4	228.3	221.1	215.8	211.6	209.9	205.1	202.1	200.9	200.3
60°	209.9	200.3	192.6	187.3	183.7	181.9	178.3	175.4	173.6	173.0
62.5°	181.3	173.0	165.9	160.5	158.1	155.8	152.8	150.4	148.6	148.6
65°	154.0	145.6	139.1	134.9	132.6	131.4	127.8	126.6	124.8	124.8
67.5°	127.2	121.3	116.5	111.2	109.4	109.4	105.8	104.6	103.4	103.4
70°	104.0	98.7	93.3	90.4	88.6	88.0	85.0	83.2	82.0	80.9
72.5°	81.4	76.7	71.9	71.3	71.3	70.7	70.7	69.6	69.6	70.1
75°	62.4	61.2	60.0	60.0	59.4	58.9	58.9	58.3	58.3	58.3
77.5°	49.9	49.3	48.7	48.2	48.2	47.6	47.0	47.0	47.0	47.0
80°	38.0	37.5	37.5	36.9	36.3	36.9	36.3	36.3	35.7	35.7
82.5°	26.8	26.8	26.8	26.2	26.2	26.2	26.2	25.6	25.6	26.2
85°	16.6	16.6	16.6	16.6	16.1	16.6	16.1	16.1	16.1	16.6
87.5°	7.1	7.7	7.1	7.7	7.7	7.1	7.1	7.1	7.1	7.1
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	19.30	20.86	19.67	21.17	21.48	16.50	18.05	16.86	18.37	18.68
	3H	21.13	22.53	21.51	22.85	23.22	17.57	18.97	17.95	19.29	19.66
	4H	21.82	23.13	22.22	23.48	23.85	17.97	19.28	18.37	19.63	20.01
	6H	22.32	23.53	22.73	23.89	24.28	18.29	19.50	18.70	19.87	20.26
	8H	22.47	23.63	22.90	24.02	24.42	18.40	19.55	18.83	19.94	20.34
	12H	22.57	23.68	23.00	24.06	24.49	18.48	19.58	18.91	19.96	20.39
4H	2H	19.54	20.85	19.94	21.20	21.58	17.22	18.53	17.61	18.87	19.25
	3H	21.53	22.62	21.94	23.02	23.42	18.44	19.53	18.85	19.93	20.33
	4H	22.32	23.30	22.75	23.72	24.16	18.92	19.91	19.36	20.32	20.76
	6H	22.94	23.79	23.40	24.24	24.70	19.35	20.20	19.80	20.64	21.10
	8H	23.14	23.94	23.61	24.39	24.85	19.49	20.29	19.95	20.73	21.20
	12H	23.29	24.00	23.77	24.48	24.95	19.60	20.32	20.08	20.79	21.27
8H	4H	22.36	23.16	22.82	23.60	24.07	19.24	20.04	19.70	20.48	20.95
	6H	23.03	23.69	23.52	24.18	24.65	19.76	20.42	20.25	20.91	21.38
	8H	23.27	23.86	23.78	24.37	24.86	19.96	20.55	20.47	21.06	21.55
	12H	23.46	23.98	23.97	24.48	25.04	20.14	20.66	20.65	21.15	21.72
12H	4H	22.35	23.06	22.83	23.54	24.01	19.28	19.99	19.76	20.47	20.94
	6H	23.01	23.61	23.52	24.11	24.60	19.81	20.41	20.33	20.92	21.40
	8H	23.29	23.81	23.80	24.30	24.87	20.07	20.59	20.58	21.09	21.65