

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: P243405

Luminaire Tested: S123RDRP-H560D930-X4F0-XX-UDD-F-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243405
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-H560D930-X4F0-XX-UDD-F-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH SATIN FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

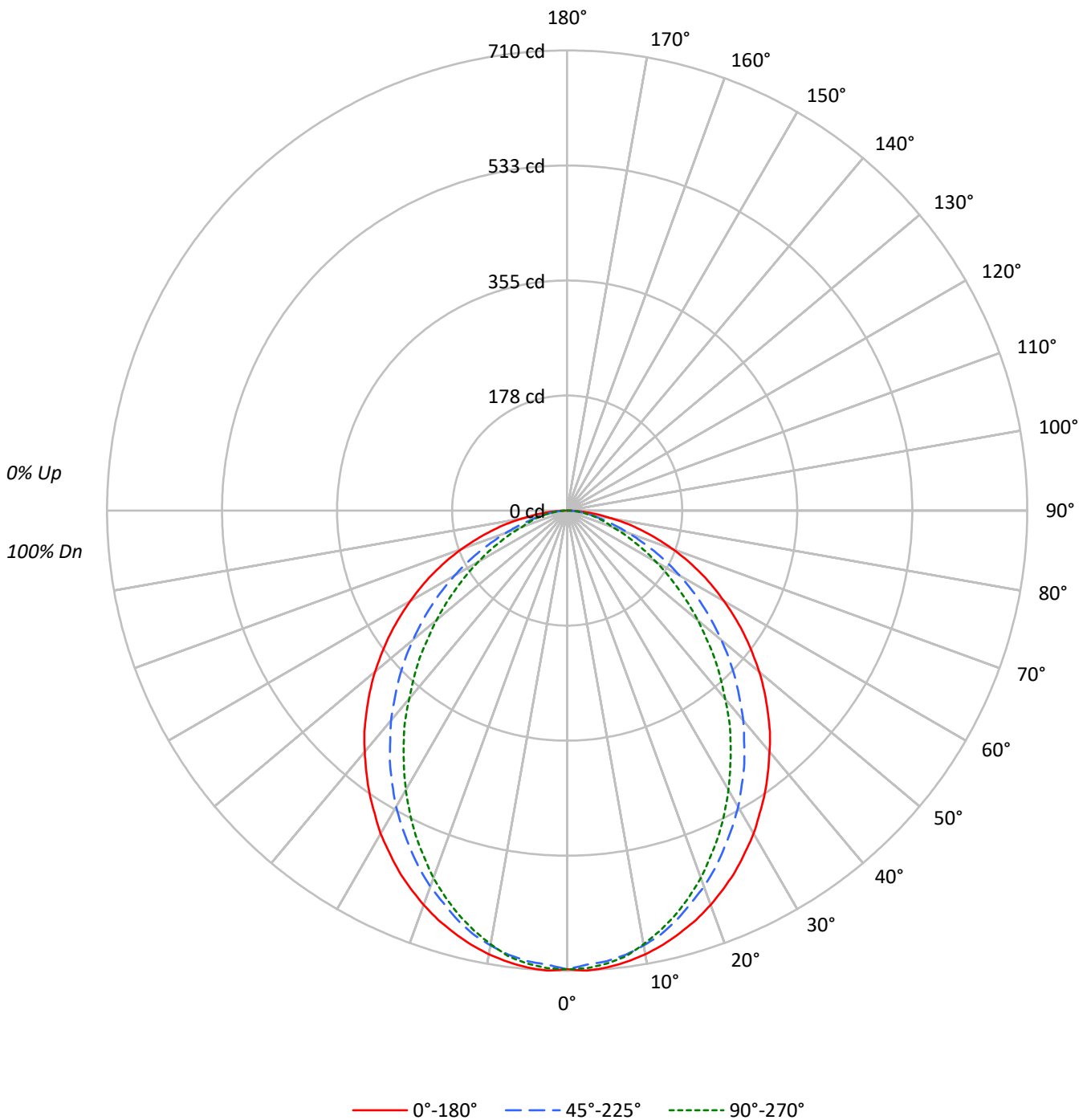
Lumens per Lamp: N/A
Luminaire Lumens: 1597.8 lumens
Efficiency: N/A
Efficacy: 92.9 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.07 / 1.22
Luminous Opening: Rectangular (W 0.23' x L: 3.88' x H: 0')
CIE Type: Direct

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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102
1	110	105	101	98	107	103	99	96	99	96	93	95	93	90	91	89	88
2	101	93	87	81	98	91	85	80	87	83	78	84	80	77	81	78	75
3	92	82	75	69	90	81	74	68	78	72	67	75	70	66	73	68	65
4	85	73	65	59	83	72	64	58	70	63	58	67	62	57	65	60	56
5	78	66	58	51	76	65	57	51	63	56	50	61	55	50	59	54	49
6	73	60	51	45	71	59	51	45	57	50	45	56	49	44	54	48	44
7	67	55	46	40	66	54	46	40	52	45	40	51	44	40	49	44	39
8	63	50	42	36	61	49	41	36	48	41	36	47	40	36	46	40	35
9	59	46	38	33	58	45	38	33	44	37	32	43	37	32	42	36	32
10	55	43	35	30	54	42	35	30	41	34	30	40	34	30	39	34	29

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	8578	8578	8578
5°	8611	8492	8538
10°	8557	8383	8362
15°	8464	8206	8103
20°	8351	7965	7782
25°	8214	7677	7400
30°	8056	7387	6969
35°	7874	7054	6506
40°	7688	6692	5995
45°	7501	6289	5516
50°	7298	5853	4961
55°	7052	5399	4400
60°	6773	4863	3835
65°	6502	4256	3273
70°	6124	3565	2619
75°	5653	2824	2496
80°	4935	2506	2276
85°	4158	2197	2114

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 7501 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	66.6	4.2
10°-20°	185.3	11.6
20°-30°	266.8	16.7
30°-40°	300.6	18.8
40°-50°	287.1	18.0
50°-60°	234.8	14.7
60°-70°	157.7	9.9
70°-80°	78.6	4.9
80°-90°	20.3	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°	518.7	32.5
0°-40°	819.3	51.3
0°-60°	1341.2	83.9
0°-90°	1597.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1597.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	708	708	708	708	708	
5°	708	705	698	703	702	67
15°	674	670	654	650	646	190
25°	614	601	574	562	553	283
35°	532	512	477	450	440	333
45°	438	412	367	335	322	338
55°	334	304	256	220	208	298
65°	227	195	148	121	114	224
75°	121	92	60	54	53	128
85°	30	17	16	15	15	35
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°	707.7	707.7	707.7	707.7	707.7	707.7	707.7	707.7	707.7	707.7	707.7
2.5°	710.4	708.8	706.6	707.2	707.7	708.2	708.2	707.7	706.1	703.9	701.2
5°	707.7	706.1	703.9	703.9	705.0	705.0	705.0	704.4	702.8	700.6	697.9
7.5°	702.3	701.2	698.5	699.0	699.5	699.5	699.5	699.0	696.8	694.1	691.4
10°	695.2	693.6	691.4	691.4	691.9	691.9	691.9	690.8	688.1	684.9	681.1
12.5°	686.0	684.3	682.1	682.1	682.1	682.1	682.1	680.5	676.2	672.9	669.6
15°	674.5	672.9	670.7	670.7	670.2	669.6	668.6	665.8	662.0	658.2	653.9
17.5°	662.0	659.9	657.1	656.6	656.1	655.5	653.9	652.3	646.8	641.4	634.9
20°	647.4	645.2	642.5	641.9	640.3	638.7	637.6	634.3	628.3	621.8	617.5
22.5°	631.1	628.9	626.2	625.1	621.8	620.7	619.1	614.2	607.7	601.7	596.8
25°	614.2	611.5	608.2	606.6	602.8	600.6	600.1	593.0	586.5	580.0	574.0
27.5°	594.6	592.5	589.7	586.5	582.7	580.0	578.9	572.4	564.2	556.6	551.2
30°	575.6	572.4	569.6	565.8	560.4	557.7	555.5	549.0	541.9	532.7	527.8
32.5°	553.3	551.2	547.9	544.1	538.7	536.5	533.2	525.1	515.8	509.3	501.7
35°	532.1	530.0	525.1	521.3	513.6	511.5	508.2	501.1	490.8	483.2	476.7
37.5°	508.8	506.0	502.2	496.8	490.3	487.6	483.2	476.1	464.2	456.6	448.4
40°	485.9	482.1	477.8	471.8	465.3	462.6	458.8	448.4	438.6	429.9	422.9
42.5°	463.1	458.8	453.3	447.9	440.8	437.0	432.7	422.9	412.0	403.9	394.1
45°	437.6	434.3	428.9	422.3	414.2	411.5	406.6	396.2	385.4	376.7	366.9
47.5°	412.5	408.7	403.3	396.8	388.6	384.8	379.9	369.6	358.7	347.9	339.2
50°	387.0	383.2	376.7	370.2	362.5	357.7	353.3	343.0	331.0	321.2	310.4
52.5°	359.8	356.6	351.1	344.6	334.8	331.0	326.7	315.3	303.8	292.4	282.6
55°	333.7	331.6	325.0	318.5	308.2	303.8	299.5	287.5	276.1	264.7	255.5
57.5°	306.6	304.9	298.4	290.8	281.6	277.2	271.8	259.8	248.9	237.5	227.7
60°	279.4	277.8	271.2	263.6	254.9	249.5	243.5	234.3	221.8	211.4	200.6
62.5°	253.3	251.1	245.7	237.5	227.7	222.3	216.9	206.0	194.6	183.7	173.9
65°	226.7	223.9	217.4	209.3	200.0	195.1	189.7	179.4	168.0	157.6	148.4
67.5°	200.0	197.3	190.2	183.7	172.8	168.0	163.1	152.7	141.9	131.5	122.8
70°	172.8	170.1	164.7	156.0	146.8	141.9	137.0	126.1	116.3	108.7	100.6
72.5°	146.2	144.0	138.6	130.5	121.8	116.9	111.4	102.2	93.5	85.3	79.4
75°	120.7	117.4	112.5	104.9	96.2	91.9	88.1	78.8	70.7	65.2	60.3
77.5°	96.2	92.4	87.0	81.0	72.8	68.5	64.7	57.1	51.6	47.8	46.7
80°	70.7	70.1	64.7	58.2	51.1	47.8	44.0	39.1	37.5	37.0	35.9
82.5°	49.5	47.3	42.9	37.0	31.5	29.4	28.3	27.2	26.1	26.1	25.0
85°	29.9	27.7	23.9	19.0	17.9	17.4	16.8	16.8	16.3	15.8	15.8
87.5°	13.0	10.9	8.2	7.6	7.1	7.1	7.6	7.6	7.6	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	0.0



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	707.7	707.7	707.7	707.7	707.7	707.7	707.7	707.7	707.7	707.7
2.5°	702.3	705.0	706.6	707.2	707.2	707.2	707.7	707.7	707.2	706.6
5°	698.5	701.2	702.3	703.3	703.3	703.3	703.3	703.3	702.8	701.7
7.5°	692.5	694.1	695.7	695.2	695.2	694.6	694.1	694.6	693.6	693.6
10°	681.6	683.2	684.3	682.7	682.7	683.2	683.2	682.7	681.1	679.4
12.5°	669.1	670.7	669.1	669.6	668.6	667.5	666.9	666.4	664.8	663.7
15°	652.8	652.8	651.7	651.7	650.1	647.9	647.4	647.9	645.7	645.7
17.5°	634.9	633.8	632.1	631.1	630.5	630.5	628.3	628.3	625.6	625.1
20°	615.3	614.2	612.6	609.9	608.8	609.3	607.1	605.5	603.9	603.3
22.5°	594.6	591.9	590.3	587.6	585.4	585.4	583.8	581.0	579.4	577.8
25°	571.3	568.5	565.3	563.1	561.5	558.8	557.7	555.5	553.9	553.3
27.5°	547.3	543.0	538.7	536.5	535.4	532.1	530.5	529.4	526.2	525.6
30°	521.8	518.5	513.1	509.3	506.6	507.1	503.3	501.1	499.5	497.9
32.5°	497.3	491.9	486.5	481.6	478.3	477.8	474.0	471.8	470.2	468.5
35°	469.6	464.2	457.7	453.3	450.1	448.4	444.6	443.5	440.8	439.7
37.5°	441.9	435.9	429.4	424.0	421.8	418.0	416.4	413.6	411.5	411.5
40°	414.7	407.7	401.1	394.6	391.9	389.7	385.4	383.2	380.5	378.9
42.5°	386.5	378.3	372.3	366.3	362.5	360.9	356.0	353.3	350.6	350.0
45°	358.2	350.0	342.4	336.5	334.8	331.6	326.7	322.9	322.3	321.8
47.5°	329.4	321.2	314.2	307.6	305.5	301.7	298.4	295.7	292.4	290.8
50°	301.7	293.5	285.9	278.8	276.1	272.9	269.6	265.8	264.7	263.1
52.5°	273.9	264.7	256.6	250.0	247.9	245.1	241.3	238.1	236.4	235.4
55°	245.7	236.4	229.4	222.9	220.1	218.5	214.2	211.4	209.3	208.2
57.5°	218.0	208.7	202.2	197.3	193.5	191.9	187.5	184.8	183.7	183.2
60°	191.9	183.2	176.1	171.2	168.0	166.3	163.1	160.3	158.7	158.2
62.5°	165.8	158.2	151.6	146.8	144.6	142.4	139.7	137.5	135.9	135.9
65°	140.8	133.2	127.2	123.4	121.2	120.1	116.9	115.8	114.1	114.1
67.5°	116.3	110.9	106.5	101.6	100.0	100.0	96.8	95.7	94.6	94.6
70°	95.1	90.2	85.3	82.6	81.0	80.4	77.7	76.1	75.0	73.9
72.5°	74.5	70.1	65.8	65.2	65.2	64.7	64.7	63.6	63.6	64.1
75°	57.1	56.0	54.9	54.9	54.4	53.8	53.8	53.3	53.3	53.3
77.5°	45.7	45.1	44.6	44.0	44.0	43.5	42.9	42.9	42.9	42.9
80°	34.8	34.2	34.2	33.7	33.2	33.7	33.2	33.2	32.6	32.6
82.5°	24.5	24.5	24.5	23.9	23.9	23.9	23.9	23.4	23.4	23.9
85°	15.2	15.2	15.2	15.2	14.7	15.2	14.7	14.7	14.7	15.2
87.5°	6.5	7.1	6.5	7.1	7.1	6.5	6.5	6.5	6.5	6.5
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	18.99	20.55	19.36	20.86	21.17	16.19	17.74	16.55	18.05	18.37
	3H	20.82	22.22	21.20	22.54	22.90	17.26	18.66	17.64	18.98	19.35
	4H	21.51	22.82	21.90	23.16	23.54	17.66	18.97	18.06	19.32	19.70
	6H	22.00	23.22	22.42	23.58	23.97	17.98	19.19	18.39	19.56	19.95
	8H	22.16	23.32	22.59	23.71	24.11	18.09	19.24	18.51	19.63	20.03
	12H	22.26	23.37	22.69	23.75	24.18	18.16	19.27	18.59	19.65	20.08
4H	2H	19.23	20.54	19.63	20.89	21.27	16.90	18.21	17.30	18.56	18.94
	3H	21.22	22.31	21.63	22.71	23.11	18.13	19.22	18.54	19.62	20.02
	4H	22.01	22.99	22.44	23.41	23.85	18.61	19.60	19.05	20.01	20.45
	6H	22.63	23.48	23.09	23.93	24.38	19.03	19.89	19.49	20.33	20.79
	8H	22.83	23.63	23.29	24.07	24.54	19.18	19.98	19.64	20.42	20.89
	12H	22.98	23.69	23.46	24.17	24.64	19.29	20.01	19.77	20.48	20.95
8H	4H	22.05	22.85	22.51	23.29	23.76	18.93	19.73	19.39	20.17	20.64
	6H	22.72	23.38	23.21	23.87	24.34	19.45	20.11	19.94	20.60	21.07
	8H	22.96	23.55	23.47	24.06	24.55	19.65	20.24	20.16	20.75	21.24
	12H	23.15	23.67	23.66	24.16	24.73	19.82	20.35	20.33	20.84	21.40
12H	4H	22.04	22.75	22.52	23.23	23.70	18.97	19.68	19.45	20.16	20.63
	6H	22.70	23.29	23.21	23.80	24.29	19.50	20.09	20.01	20.60	21.09
	8H	22.98	23.50	23.49	23.99	24.56	19.76	20.28	20.27	20.77	21.34