

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: P243414

Luminaire Tested: S123RDRP-H340D940-X4F0-XX-UDD-F-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243414
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-H340D940-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

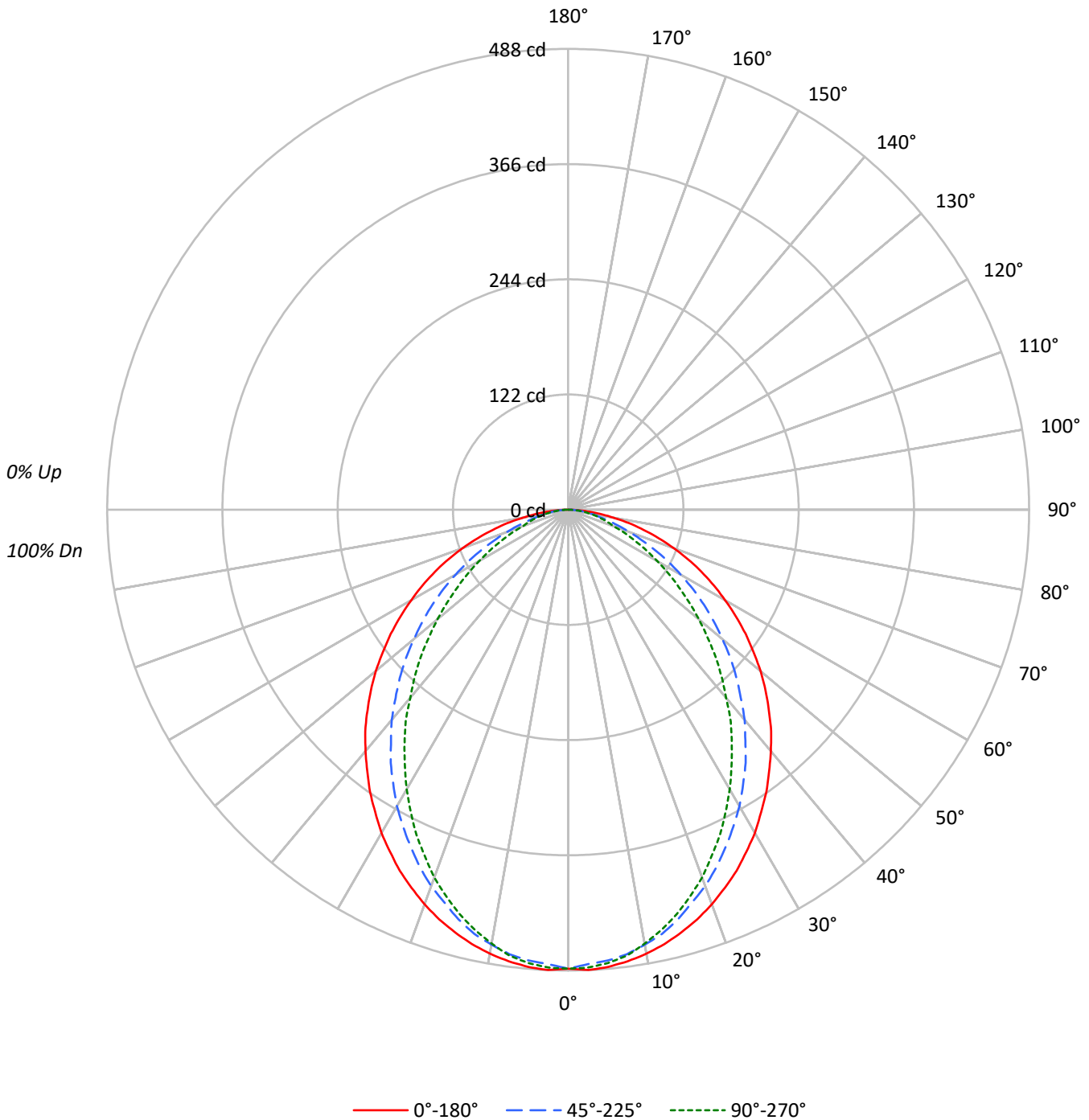
Lumens per Lamp: N/A
Luminaire Lumens: 1097.4 lumens
Efficiency: N/A
Efficacy: 98.0 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.07 / 1.22
Luminous Opening: Rectangular (W 0.23' x L: 3.88' x H: 0')
CIE Type: Direct

Input Watts (W): 11.2
Input Voltage (V): 120
Input Current (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	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°	5891	5891	5891
5°	5913	5832	5864
10°	5876	5757	5743
15°	5814	5636	5565
20°	5735	5471	5345
25°	5641	5272	5082
30°	5533	5074	4785
35°	5408	4845	4469
40°	5280	4595	4117
45°	5151	4320	3788
50°	5012	4020	3408
55°	4844	3707	3022
60°	4652	3338	2633
65°	4466	2923	2249
70°	4207	2449	1800
75°	3882	1939	1714
80°	3385	1717	1564
85°	2851	1502	1460

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 5151 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	45.7	4.2
10°-20°	127.3	11.6
20°-30°	183.3	16.7
30°-40°	206.4	18.8
40°-50°	197.2	18.0
50°-60°	161.2	14.7
60°-70°	108.3	9.9
70°-80°	54.0	4.9
80°-90°	14.0	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°	356.3	32.5
0°-40°	562.7	51.3
0°-60°	921.1	83.9
0°-90°	1097.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1097.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	486	486	486	486	486	
5°	486	484	479	483	482	46
15°	463	460	449	446	444	131
25°	422	412	394	386	380	194
35°	366	351	327	309	302	228
45°	300	283	252	230	221	232
55°	229	209	175	151	143	205
65°	156	134	102	83	78	154
75°	83	63	41	37	37	88
85°	20	12	11	10	10	24
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°	486.0	486.0	486.0	486.0	486.0	486.0	486.0	486.0	486.0	486.0	486.0
2.5°	487.9	486.8	485.3	485.7	486.0	486.4	486.4	486.0	484.9	483.4	481.6
5°	486.0	484.9	483.4	483.4	484.2	484.2	484.2	483.8	482.7	481.2	479.3
7.5°	482.3	481.6	479.7	480.1	480.4	480.4	480.4	480.1	478.6	476.7	474.8
10°	477.4	476.3	474.8	474.8	475.2	475.2	475.2	474.5	472.6	470.4	467.7
12.5°	471.1	470.0	468.5	468.5	468.5	468.5	468.5	467.4	464.4	462.1	459.9
15°	463.3	462.1	460.6	460.6	460.3	459.9	459.2	457.3	454.7	452.1	449.1
17.5°	454.7	453.2	451.3	450.9	450.6	450.2	449.1	448.0	444.2	440.5	436.0
20°	444.6	443.1	441.2	440.9	439.7	438.6	437.9	435.6	431.5	427.1	424.1
22.5°	433.4	431.9	430.0	429.3	427.1	426.3	425.2	421.8	417.3	413.2	409.9
25°	421.8	420.0	417.7	416.6	414.0	412.5	412.1	407.3	402.8	398.3	394.2
27.5°	408.4	406.9	405.0	402.8	400.2	398.3	397.6	393.1	387.5	382.3	378.5
30°	395.3	393.1	391.2	388.6	384.9	383.0	381.5	377.0	372.2	365.8	362.5
32.5°	380.0	378.5	376.3	373.7	369.9	368.4	366.2	360.6	354.3	349.8	344.6
35°	365.5	364.0	360.6	358.0	352.8	351.3	349.0	344.2	337.1	331.9	327.4
37.5°	349.4	347.5	344.9	341.2	336.7	334.8	331.9	327.0	318.8	313.6	308.0
40°	333.7	331.1	328.1	324.0	319.5	317.7	315.1	308.0	301.3	295.3	290.4
42.5°	318.0	315.1	311.3	307.6	302.7	300.1	297.1	290.4	283.0	277.4	270.6
45°	300.5	298.3	294.5	290.1	284.5	282.6	279.2	272.1	264.7	258.7	252.0
47.5°	283.3	280.7	277.0	272.5	266.9	264.3	260.9	253.8	246.4	238.9	232.9
50°	265.8	263.2	258.7	254.2	249.0	245.6	242.6	235.6	227.3	220.6	213.2
52.5°	247.1	244.9	241.2	236.7	230.0	227.3	224.4	216.5	208.7	200.8	194.1
55°	229.2	227.7	223.2	218.8	211.7	208.7	205.7	197.5	189.6	181.8	175.4
57.5°	210.5	209.4	204.9	199.7	193.4	190.4	186.6	178.4	171.0	163.1	156.4
60°	191.9	190.8	186.3	181.0	175.1	171.3	167.2	160.9	152.3	145.2	137.7
62.5°	174.0	172.5	168.7	163.1	156.4	152.7	148.9	141.5	133.6	126.2	119.5
65°	155.7	153.8	149.3	143.7	137.4	134.0	130.3	123.2	115.3	108.3	101.9
67.5°	137.4	135.5	130.7	126.2	118.7	115.3	112.0	104.9	97.4	90.3	84.4
70°	118.7	116.8	113.1	107.1	100.8	97.4	94.1	86.6	79.9	74.7	69.1
72.5°	100.4	98.9	95.2	89.6	83.6	80.3	76.5	70.2	64.2	58.6	54.5
75°	82.9	80.6	77.3	72.0	66.1	63.1	60.5	54.1	48.5	44.8	41.4
77.5°	66.1	63.5	59.7	55.6	50.0	47.0	44.4	39.2	35.5	32.9	32.1
80°	48.5	48.2	44.4	39.9	35.1	32.9	30.2	26.9	25.8	25.4	24.6
82.5°	34.0	32.5	29.5	25.4	21.7	20.2	19.4	18.7	17.9	17.9	17.2
85°	20.5	19.0	16.4	13.1	12.3	11.9	11.6	11.6	11.2	10.8	10.8
87.5°	9.0	7.5	5.6	5.2	4.9	4.9	5.2	5.2	5.2	4.9	4.9
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°	486.0	486.0	486.0	486.0	486.0	486.0	486.0	486.0	486.0	486.0
2.5°	482.3	484.2	485.3	485.7	485.7	485.7	486.0	486.0	485.7	485.3
5°	479.7	481.6	482.3	483.0	483.0	483.0	483.0	483.0	482.7	481.9
7.5°	475.6	476.7	477.8	477.4	477.4	477.1	476.7	477.1	476.3	476.3
10°	468.1	469.2	470.0	468.9	468.9	469.2	469.2	468.9	467.7	466.6
12.5°	459.5	460.6	459.5	459.9	459.2	458.4	458.0	457.7	456.5	455.8
15°	448.3	448.3	447.6	447.6	446.5	445.0	444.6	445.0	443.5	443.5
17.5°	436.0	435.3	434.1	433.4	433.0	433.0	431.5	431.5	429.7	429.3
20°	422.6	421.8	420.7	418.8	418.1	418.5	417.0	415.9	414.7	414.4
22.5°	408.4	406.5	405.4	403.5	402.0	402.0	400.9	399.1	397.9	396.8
25°	392.3	390.5	388.2	386.7	385.6	383.7	383.0	381.5	380.4	380.0
27.5°	375.9	372.9	369.9	368.4	367.7	365.5	364.3	363.6	361.4	361.0
30°	358.4	356.1	352.4	349.8	347.9	348.3	345.7	344.2	343.1	341.9
32.5°	341.6	337.8	334.1	330.7	328.5	328.1	325.5	324.0	322.9	321.8
35°	322.5	318.8	314.3	311.3	309.1	308.0	305.4	304.6	302.7	302.0
37.5°	303.5	299.4	294.9	291.2	289.7	287.1	285.9	284.1	282.6	282.6
40°	284.8	280.0	275.5	271.0	269.1	267.7	264.7	263.2	261.3	260.2
42.5°	265.4	259.8	255.7	251.6	249.0	247.9	244.5	242.6	240.8	240.4
45°	246.0	240.4	235.2	231.1	230.0	227.7	224.4	221.7	221.4	221.0
47.5°	226.2	220.6	215.8	211.3	209.8	207.2	204.9	203.1	200.8	199.7
50°	207.2	201.6	196.4	191.5	189.6	187.4	185.2	182.5	181.8	180.7
52.5°	188.1	181.8	176.2	171.7	170.2	168.4	165.7	163.5	162.4	161.6
55°	168.7	162.4	157.5	153.1	151.2	150.1	147.1	145.2	143.7	143.0
57.5°	149.7	143.3	138.9	135.5	132.9	131.8	128.8	126.9	126.2	125.8
60°	131.8	125.8	120.9	117.6	115.3	114.2	112.0	110.1	109.0	108.6
62.5°	113.9	108.6	104.2	100.8	99.3	97.8	95.9	94.4	93.3	93.3
65°	96.7	91.5	87.4	84.7	83.2	82.5	80.3	79.5	78.4	78.4
67.5°	79.9	76.2	73.2	69.8	68.7	68.7	66.4	65.7	65.0	65.0
70°	65.3	62.0	58.6	56.7	55.6	55.2	53.4	52.3	51.5	50.8
72.5°	51.1	48.2	45.2	44.8	44.8	44.4	44.4	43.7	43.7	44.0
75°	39.2	38.4	37.7	37.7	37.3	37.0	37.0	36.6	36.6	36.6
77.5°	31.4	31.0	30.6	30.2	30.2	29.9	29.5	29.5	29.5	29.5
80°	23.9	23.5	23.5	23.1	22.8	23.1	22.8	22.8	22.4	22.4
82.5°	16.8	16.8	16.8	16.4	16.4	16.4	16.4	16.1	16.1	16.4
85°	10.5	10.5	10.5	10.5	10.1	10.5	10.1	10.1	10.1	10.5
87.5°	4.5	4.9	4.5	4.9	4.9	4.5	4.5	4.5	4.5	4.5
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	17.69	19.24	18.05	19.55	19.87	14.88	16.43	15.25	16.75	17.06
	3H	19.51	20.91	19.89	21.24	21.60	15.96	17.35	16.33	17.68	18.04
	4H	20.20	21.51	20.60	21.86	22.24	16.35	17.66	16.75	18.01	18.39
	6H	20.70	21.91	21.11	22.28	22.67	16.67	17.89	17.09	18.25	18.64
	8H	20.86	22.01	21.28	22.40	22.80	16.78	17.94	17.21	18.33	18.73
	12H	20.96	22.06	21.39	22.44	22.87	16.86	17.97	17.29	18.35	18.78
4H	2H	17.93	19.24	18.33	19.59	19.96	15.60	16.91	16.00	17.26	17.64
	3H	19.92	21.01	20.33	21.41	21.81	16.82	17.91	17.23	18.31	18.71
	4H	20.71	21.69	21.14	22.10	22.54	17.31	18.29	17.74	18.70	19.14
	6H	21.32	22.18	21.78	22.62	23.08	17.73	18.58	18.19	19.03	19.48
	8H	21.53	22.33	21.99	22.77	23.24	17.87	18.67	18.34	19.12	19.58
	12H	21.67	22.39	22.15	22.86	23.33	17.99	18.70	18.47	19.18	19.65
8H	4H	20.74	21.54	21.21	21.99	22.45	17.63	18.42	18.09	18.87	19.33
	6H	21.41	22.07	21.91	22.56	23.04	18.14	18.80	18.64	19.29	19.77
	8H	21.65	22.24	22.16	22.75	23.24	18.34	18.94	18.86	19.45	19.93
	12H	21.84	22.37	22.35	22.86	23.42	18.52	19.04	19.03	19.54	20.10
12H	4H	20.73	21.45	21.21	21.92	22.39	17.66	18.38	18.14	18.86	19.33
	6H	21.40	21.99	21.91	22.50	22.99	18.20	18.79	18.71	19.30	19.79
	8H	21.67	22.20	22.18	22.69	23.25	18.45	18.98	18.96	19.47	20.03