

Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P646678

Luminaire Tested: S123RDR-S340D840-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2019
Report Number: P646678
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2301-905-2)
Test Lab: INNOVATION CENTER
Issue Date: 3/20/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123RDR-S340D840-X4F0-XX-UDD-G-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

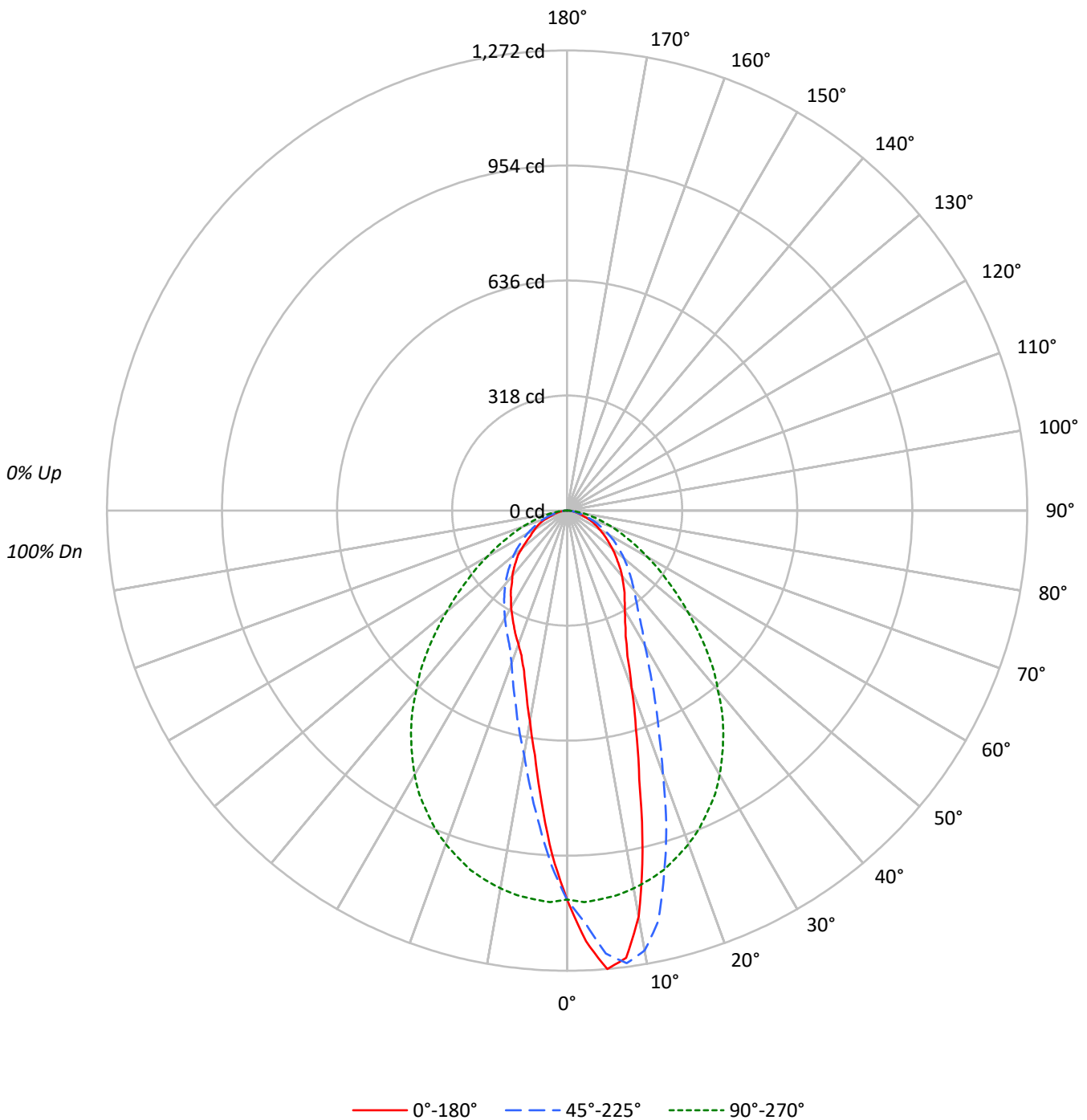
Lumens per Lamp: N/A
Luminaire Lumens: 1424.8 lumens
Efficiency: N/A
Efficacy: 119.7 lumens/watt
Spacing Criteria (0/90/45): 0.55 / 1.17 / 0.79
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

Input Watts (W): 11.9
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	0		
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100					100			
1	111	107	103	100	108	104	101	98	100	97	95	96	94	92	93	91	89					87				
2	102	95	89	84	100	93	88	83	90	85	81	87	83	80	84	81	78					76				
3	94	85	78	73	92	84	77	72	81	75	71	78	74	70	76	72	69					67				
4	88	77	69	64	85	76	69	63	73	67	62	71	66	62	69	65	61					59				
5	82	70	62	56	80	69	62	56	67	61	56	65	60	55	63	58	54					53				
6	76	64	56	51	74	63	56	50	62	55	50	60	54	50	59	53	49					47				
7	71	59	51	46	70	58	51	46	57	50	45	56	50	45	54	49	45					43				
8	67	55	47	42	65	54	47	42	53	46	41	52	46	41	51	45	41					39				
9	63	51	43	38	62	50	43	38	49	43	38	48	42	38	47	42	38					36				
10	60	47	40	36	58	47	40	35	46	40	35	45	39	35	44	39	35					33				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	12958	12958	12958	12958	12958
5°	15386	14864	13040	10576	9786
10°	13941	15105	12974	8372	7246
15°	9598	12937	12837	6876	5732
20°	6677	9922	12580	5761	5038
25°	5088	7615	12205	5146	4643
30°	4430	5987	11736	4785	4301
35°	4067	5039	11072	4463	3989
40°	3710	4522	10202	4189	3704
45°	3352	4141	9265	3892	3418
50°	3042	3843	8158	3620	3067
55°	2752	3529	7096	3307	2630
60°	2465	3210	6162	3029	2487
65°	2275	2854	5306	2691	2352
70°	1850	2438	4629	2438	1909
75°	1620	1969	3920	2034	1685
80°	1471	1651	3213	1714	1589
85°	1341	1396	2433	1521	1465

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°
 Vertical Angle: 45°
 Luminance: 9776 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	98.0	6.9
10°-20°	226.8	15.9
20°-30°	260.2	18.3
30°-40°	256.3	18.0
40°-50°	225.9	15.9
50°-60°	173.8	12.2
60°-70°	114.3	8.0
70°-80°	55.5	3.9
80°-90°	14.0	1.0
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°	585.0	41.1
0°-40°	841.2	59.0
0°-60°	1241.0	87.1
0°-90°	1424.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1424.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1075	1075	1075	1075	1075	
5°	1272	1229	1078	874	809	116
15°	769	1037	1029	551	460	217
25°	383	573	918	387	349	181
35°	276	343	753	303	271	172
45°	197	243	544	228	201	153
55°	131	168	338	157	125	117
65°	80	100	186	94	82	78
75°	35	42	84	44	36	38
85°	10	10	18	11	11	11
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	10°	20°	22.5°	30°	40°	45°	50°	60°	67.5°	70°
0°	1075.4	1075.4	1075.4	1075.4	1075.4	1075.4	1075.4	1075.4	1075.4	1075.4	1075.4
2.5°	1191.8	1184.3	1182.1	1179.5	1175.1	1159.2	1141.1	1142.9	1140.7	1127.0	1119.5
5°	1272.1	1273.0	1270.8	1269.0	1261.5	1242.1	1228.9	1220.9	1204.2	1178.6	1170.7
7.5°	1247.4	1261.5	1264.2	1267.2	1271.2	1266.8	1261.9	1258.9	1245.2	1217.4	1204.6
10°	1139.4	1138.5	1154.4	1167.1	1201.5	1225.8	1234.6	1247.4	1258.9	1239.5	1225.3
12.5°	963.0	964.3	1016.3	1016.3	1060.9	1122.6	1162.3	1189.2	1238.6	1239.9	1231.5
15°	769.4	791.0	837.3	847.0	904.4	987.2	1037.1	1092.6	1188.3	1218.3	1216.5
17.5°	631.9	641.1	685.6	698.4	749.1	843.1	911.8	978.9	1112.9	1176.0	1187.4
20°	520.7	529.1	561.3	571.0	622.2	711.7	773.8	846.1	1021.6	1118.2	1138.5
22.5°	434.8	451.1	472.7	487.7	516.8	608.0	661.4	730.6	915.8	1053.4	1077.2
25°	382.7	390.2	408.7	415.8	451.1	511.5	572.8	633.6	821.9	972.3	1014.1
27.5°	347.5	349.7	363.3	369.5	390.7	446.7	490.8	547.2	726.2	888.9	937.9
30°	318.4	322.3	332.9	334.2	352.7	392.4	430.3	482.4	642.4	808.2	858.5
32.5°	295.9	298.1	306.9	309.5	321.4	352.7	383.6	421.5	564.8	724.0	781.8
35°	276.5	276.9	283.5	287.0	297.6	323.6	342.6	374.4	502.7	654.3	705.0
37.5°	254.4	257.5	262.4	265.4	274.7	295.9	313.1	337.8	445.3	588.2	635.4
40°	235.9	238.5	244.3	245.6	254.0	273.4	287.5	309.5	396.0	524.7	572.8
42.5°	217.4	219.1	224.9	227.5	236.8	252.2	265.0	282.2	356.7	468.3	515.4
45°	196.7	201.1	207.2	208.6	217.4	233.3	243.0	258.8	321.4	419.3	461.2
47.5°	179.5	181.7	187.0	189.2	199.3	213.4	223.6	237.2	291.0	374.8	415.8
50°	162.3	163.1	168.0	171.1	179.0	195.3	205.0	217.4	263.2	338.6	367.3
52.5°	145.9	148.2	153.0	155.2	160.5	177.3	186.1	198.9	236.8	301.6	330.3
55°	131.0	132.3	135.8	138.5	144.6	159.2	168.0	179.0	213.9	267.6	292.8
57.5°	116.8	118.6	121.3	123.5	129.2	142.0	150.8	161.8	192.2	236.8	256.2
60°	102.3	104.5	107.6	108.5	113.8	125.2	133.2	142.9	170.2	208.1	225.3
62.5°	91.7	92.2	94.8	96.1	99.2	108.5	116.8	126.1	150.4	180.3	194.5
65°	79.8	81.1	82.5	83.3	86.0	93.9	100.1	107.1	131.0	157.0	166.7
67.5°	67.5	68.8	71.0	71.9	74.1	79.4	84.7	91.7	111.6	133.6	142.4
70°	52.5	52.5	56.0	57.8	61.3	65.3	69.2	75.4	92.6	111.6	118.2
72.5°	42.8	43.2	43.7	43.7	46.7	53.4	55.6	59.5	73.2	91.3	97.0
75°	34.8	35.3	35.7	36.2	36.6	38.8	42.3	45.9	56.0	69.2	74.5
77.5°	27.8	28.2	28.7	28.7	29.5	30.4	31.3	33.1	40.1	49.8	54.2
80°	21.2	21.6	22.0	22.0	22.5	23.4	23.8	24.7	26.9	33.5	35.7
82.5°	15.4	15.4	15.4	15.9	16.3	16.3	17.2	17.2	18.5	20.3	21.6
85°	9.7	9.7	10.1	10.1	10.1	10.6	10.1	10.6	11.0	11.5	12.3
87.5°	4.4	4.0	4.4	4.4	4.4	4.9	4.9	4.9	4.9	5.3	5.3
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):

	80°	90°	100°	110°	112.5°	120°	130°	135°	140°	150°	157.5°
0°	1075.4	1075.4	1075.4	1075.4	1075.4	1075.4	1075.4	1075.4	1075.4	1075.4	1075.4
2.5°	1098.8	1083.4	1057.4	1041.0	1034.9	1015.9	997.8	982.8	975.3	974.5	960.8
5°	1120.4	1078.1	1024.3	979.3	968.7	935.7	892.9	874.4	850.1	840.4	829.0
7.5°	1138.0	1071.9	992.5	924.6	904.8	855.0	800.3	776.0	757.5	728.4	711.2
10°	1150.4	1060.4	953.7	866.0	837.8	779.6	713.4	684.3	667.1	633.6	619.9
12.5°	1155.2	1045.9	914.9	805.1	780.4	711.2	646.4	616.4	590.8	560.4	547.2
15°	1153.5	1029.1	875.2	749.1	718.3	648.2	579.4	551.2	527.4	496.9	479.7
17.5°	1141.6	1005.3	832.0	694.9	665.4	593.1	523.4	497.4	476.2	446.7	433.4
20°	1121.7	981.1	794.1	645.5	612.0	542.8	477.1	449.3	430.8	414.9	405.2
22.5°	1094.4	952.4	747.8	596.6	567.5	497.8	434.8	412.3	401.2	388.5	381.4
25°	1052.9	918.0	705.9	555.6	526.5	457.2	402.1	387.1	376.1	367.7	360.2
27.5°	1008.4	884.9	664.0	514.1	486.8	420.6	376.6	365.1	355.4	344.8	338.2
30°	956.8	843.5	624.4	477.5	451.1	391.1	354.5	343.9	336.0	324.5	317.9
32.5°	896.0	798.1	587.3	442.3	417.6	365.5	334.2	322.8	316.1	305.1	298.5
35°	832.9	752.7	546.8	409.6	387.1	343.0	314.4	303.4	296.3	285.3	278.7
37.5°	771.2	704.2	510.6	381.0	360.7	320.6	293.7	284.4	277.8	266.3	258.4
40°	705.9	648.6	475.3	354.1	335.1	300.7	274.7	266.3	257.5	247.4	239.4
42.5°	637.6	599.7	442.7	330.3	312.6	281.3	255.7	246.9	239.4	227.5	224.0
45°	573.7	543.7	408.3	305.1	291.0	261.9	237.2	228.4	220.0	209.9	206.4
47.5°	516.8	489.0	377.0	283.1	269.0	243.0	218.7	209.4	203.3	195.3	190.0
50°	458.1	435.2	342.6	261.5	248.2	222.7	199.3	193.1	186.1	176.4	172.4
52.5°	403.5	385.8	314.4	240.7	228.4	205.5	181.7	175.5	168.9	160.5	154.8
55°	355.4	337.8	282.2	217.4	208.1	186.5	165.3	157.4	152.1	142.4	135.4
57.5°	306.0	297.6	251.3	198.0	189.2	167.6	148.6	142.4	135.8	125.2	118.2
60°	265.4	255.7	222.7	176.8	168.4	150.4	131.8	125.7	119.5	109.4	106.3
62.5°	227.1	220.0	194.9	157.0	149.9	132.3	116.0	110.2	104.1	97.4	95.2
65°	192.2	186.1	167.1	136.7	131.0	115.5	100.5	94.4	90.4	87.3	85.1
67.5°	159.6	156.1	141.5	117.7	113.3	99.7	86.4	81.6	79.4	75.8	74.1
70°	130.1	131.4	118.2	100.5	95.7	84.7	73.2	69.2	66.6	63.5	60.0
72.5°	106.3	105.8	97.9	82.0	78.5	69.7	60.8	58.2	55.1	48.9	45.0
75°	82.5	84.2	76.7	67.9	64.4	55.6	47.2	43.7	40.6	38.4	37.0
77.5°	63.1	63.9	60.4	52.0	48.9	41.4	34.8	33.1	31.7	30.4	30.0
80°	45.0	46.3	42.8	37.5	34.8	28.7	25.1	24.7	24.3	23.4	22.9
82.5°	29.1	30.9	29.1	23.4	22.0	19.0	18.1	18.1	17.6	17.2	16.8
85°	15.9	17.6	16.8	13.7	12.8	11.9	11.5	11.0	11.0	11.0	11.0
87.5°	6.2	8.4	7.1	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
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):

	160°	170°	180°
0°	1075.4	1075.4	1075.4
2.5°	957.7	953.3	951.5
5°	825.9	812.2	809.1
7.5°	705.9	700.2	681.2
10°	617.7	600.1	592.2
12.5°	538.4	522.1	519.4
15°	474.9	463.4	459.5
17.5°	433.0	425.1	420.2
20°	402.1	396.4	392.9
22.5°	378.8	374.4	371.7
25°	358.0	351.4	349.2
27.5°	336.9	331.1	328.9
30°	317.0	312.2	309.1
32.5°	296.3	290.6	288.8
35°	276.5	272.9	271.2
37.5°	257.1	252.7	250.0
40°	239.0	236.8	235.5
42.5°	222.7	218.7	218.3
45°	205.5	201.5	200.6
47.5°	189.2	185.6	185.2
50°	172.0	167.1	163.6
52.5°	151.2	146.8	143.7
55°	132.7	127.9	125.2
57.5°	117.3	115.1	113.8
60°	105.4	104.1	103.2
62.5°	94.8	93.5	93.5
65°	85.1	83.8	82.5
67.5°	73.2	70.5	70.1
70°	58.6	54.7	54.2
72.5°	44.5	44.1	43.2
75°	37.0	36.2	36.2
77.5°	30.0	29.1	29.1
80°	22.9	22.5	22.9
82.5°	16.8	16.8	16.3
85°	11.0	10.6	10.6
87.5°	5.3	5.3	5.3
90°	0.0	0.0	0.0

(END OF REPORT)