

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: P646638

Luminaire Tested: S123DR-S340D940-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2019
Report Number: P646638
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2301-905-1)
Test Lab: INNOVATION CENTER
Issue Date: 3/20/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123DR-S340D940-X4F0-XX-UDD-G-W
Description: DEFINE 3 DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1348.1 lumens
Efficiency: N/A
Efficacy: 113.3 lumens/watt
Spacing Criteria (0/90/45): 0.65 / 1.19 / 0.89
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

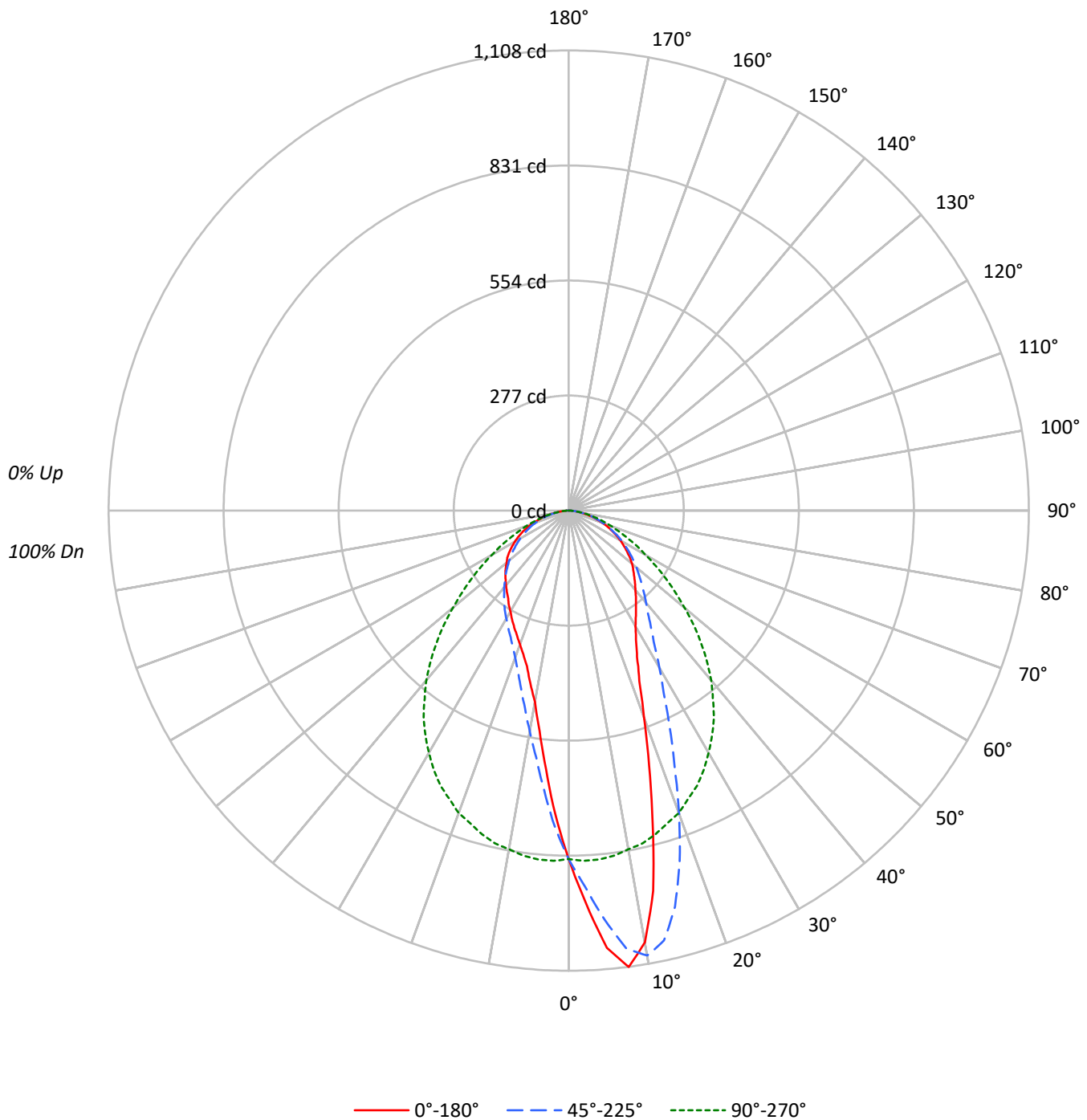
Input Watts (W): 11.9
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



TEST NUMBER: P646638

CATALOG NUMBER: S123DR-S340D940-X4F0-XX-UDD-G-W

Luminous Intensity Polar Plot





TEST NUMBER: P646638

CATALOG NUMBER: S123DR-S340D940-X4F0-XX-UDD-G-W

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	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	100							
1	110	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88	86							
2	101	94	88	82	99	92	86	82	88	84	80	85	81	78	82	79	76	74							
3	93	84	76	70	91	82	75	70	79	73	69	77	72	67	74	70	66	64							
4	86	75	67	61	84	74	67	61	72	65	60	69	64	59	67	62	58	56							
5	80	68	60	54	78	67	59	54	65	58	53	63	57	52	61	56	52	50							
6	74	62	54	48	73	61	53	48	60	53	47	58	52	47	56	51	47	45							
7	70	57	49	43	68	56	49	43	55	48	43	53	47	43	52	47	42	40							
8	65	53	45	39	64	52	44	39	51	44	39	49	43	39	48	43	39	37							
9	61	49	41	36	60	48	41	36	47	40	36	46	40	36	45	40	35	34							
10	58	45	38	33	57	45	38	33	44	37	33	43	37	33	42	37	33	31							

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	10109	10109	10109	10109	10109
5°	12786	11956	10200	8180	7553
10°	12909	13309	10132	6607	5726
15°	9724	12317	10063	5537	4842
20°	6774	9959	9935	4828	4398
25°	5166	7641	9716	4426	4125
30°	4469	6073	9366	4182	3905
35°	4147	5085	8962	3986	3751
40°	3926	4550	8396	3803	3699
45°	3795	4226	7677	3641	3676
50°	3730	3993	6823	3503	3657
55°	3590	3771	5987	3378	3672
60°	3463	3567	5159	3256	3612
65°	3253	3341	4451	3119	3541
70°	3005	3100	3787	2949	3333
75°	2719	2807	3245	2700	3045
80°	2241	2408	2567	2352	2567
85°	1770	1935	1880	2046	2046

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°

Vertical Angle: 45°

Luminance: 8764 cd/sqm



TEST NUMBER: P646638

CATALOG NUMBER: S123DR-S340D940-X4F0-XX-UDD-G-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	79.3	5.9
10°-20°	197.4	14.6
20°-30°	233.6	17.3
30°-40°	234.8	17.4
40°-50°	215.3	16.0
50°-60°	177.7	13.2
60°-70°	125.8	9.3
70°-80°	67.2	5.0
80°-90°	17.0	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°	510.3	37.9
0°-40°	745.1	55.3
0°-60°	1138.1	84.4
0°-90°	1348.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1348.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	839	839	839	839	839	
5°	1057	988	843	676	624	101
15°	780	987	807	444	388	215
25°	389	575	731	333	310	183
35°	282	346	609	271	255	177
45°	223	248	450	214	216	172
55°	171	180	285	161	175	153
65°	114	117	156	109	124	113
75°	58	60	70	58	65	61
85°	13	14	14	15	15	15
90°	0	0	0	0	0	

TEST NUMBER: P646638

CATALOG NUMBER: S123DR-S340D940-X4F0-XX-UDD-G-W

CANDELA DISTRIBUTION (FULL):

	0°	10°	20°	22.5°	30°	40°	45°	50°	60°	67.5°	70°
0°	839.0	839.0	839.0	839.0	839.0	839.0	839.0	839.0	839.0	839.0	839.0
2.5°	945.7	943.8	934.0	927.8	929.4	915.3	906.8	899.8	895.1	883.8	878.0
5°	1057.1	1062.5	1056.3	1053.2	1037.2	1011.9	988.5	983.5	961.7	934.8	925.5
7.5°	1108.5	1111.6	1107.7	1107.7	1102.6	1080.0	1063.7	1050.8	1013.5	978.8	962.8
10°	1055.1	1062.1	1077.3	1084.3	1094.4	1091.3	1087.8	1082.8	1057.5	1017.4	999.1
12.5°	937.9	946.5	976.9	981.1	1015.8	1049.3	1060.2	1072.6	1075.0	1041.1	1021.2
15°	779.5	803.2	830.9	844.1	888.1	958.6	987.4	1021.2	1061.3	1047.3	1031.8
17.5°	642.0	651.0	680.6	708.6	752.6	834.0	887.3	937.9	1024.0	1038.0	1028.3
20°	528.3	536.5	575.4	573.5	631.9	723.4	776.7	835.1	962.1	1007.6	1005.7
22.5°	443.9	456.7	478.5	490.6	532.6	614.0	664.6	737.4	891.6	963.6	971.4
25°	388.6	397.9	411.1	421.7	454.4	521.3	574.7	634.6	802.8	906.0	925.5
27.5°	350.8	354.7	367.9	374.2	396.0	453.6	494.9	549.8	720.7	841.4	868.6
30°	321.2	323.9	335.6	337.6	354.7	396.4	436.5	481.2	640.5	774.8	805.9
32.5°	300.6	302.5	311.5	312.3	325.1	355.5	383.5	425.6	564.5	703.5	742.1
35°	281.9	283.1	289.7	291.6	299.8	322.8	345.7	378.1	504.2	639.3	681.7
37.5°	265.5	267.1	271.0	273.3	279.9	298.2	313.8	340.7	446.2	572.3	619.4
40°	249.6	252.3	255.0	255.0	262.4	276.4	289.3	311.5	396.4	513.9	555.6
42.5°	235.9	238.7	239.8	240.2	244.1	257.0	267.9	283.1	358.6	462.1	503.0
45°	222.7	223.9	225.0	225.8	228.5	239.8	248.0	262.4	322.8	414.3	454.0
47.5°	210.6	210.6	211.4	212.6	214.5	222.7	229.7	240.2	292.0	371.4	404.1
50°	199.0	199.0	197.8	198.6	199.7	206.0	213.0	221.5	263.2	332.1	361.3
52.5°	184.9	184.9	185.3	184.2	185.3	190.8	196.2	204.8	238.7	295.9	320.8
55°	170.9	172.5	171.3	170.5	172.1	175.6	179.5	186.9	215.7	267.1	286.9
57.5°	156.9	157.7	157.3	158.5	157.7	160.8	164.3	169.4	195.1	234.8	253.5
60°	143.7	143.7	142.9	143.7	143.7	145.2	148.0	153.0	174.0	207.1	222.7
62.5°	128.9	129.3	129.7	129.3	128.9	130.8	133.2	136.7	155.7	180.3	191.9
65°	114.1	114.5	115.6	115.2	114.9	116.8	117.2	121.1	135.5	156.5	165.1
67.5°	100.8	100.1	100.5	101.2	101.6	102.0	102.8	106.7	116.8	133.9	140.9
70°	85.3	86.0	85.7	86.8	86.0	87.2	88.0	90.7	100.5	111.7	116.4
72.5°	71.2	71.6	71.6	72.8	72.4	73.6	74.4	75.5	82.5	92.7	94.6
75°	58.4	58.4	59.2	59.6	59.6	59.6	60.3	61.1	67.0	73.2	75.1
77.5°	44.4	46.3	45.9	46.3	46.7	47.9	47.1	48.7	52.2	55.7	56.8
80°	32.3	32.3	32.7	33.1	33.9	34.7	34.7	36.2	37.8	39.7	40.9
82.5°	20.6	21.0	22.2	22.6	23.0	24.1	24.1	24.1	26.1	26.9	26.9
85°	12.8	12.1	12.8	13.2	13.6	14.0	14.0	14.8	15.2	15.6	15.6
87.5°	6.2	6.2	6.2	6.2	6.6	6.6	6.6	6.6	7.0	7.0	7.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TEST NUMBER: P646638

CATALOG NUMBER: S123DR-S340D940-X4F0-XX-UDD-G-W

CANDELA DISTRIBUTION (continued):

	80°	90°	100°	110°	112.5°	120°	130°	135°	140°	150°	157.5°
0°	839.0	839.0	839.0	839.0	839.0	839.0	839.0	839.0	839.0	839.0	839.0
2.5°	858.5	844.1	822.7	805.2	805.9	790.0	778.3	763.1	758.4	753.8	747.5
5°	876.4	843.3	798.9	763.5	752.6	726.1	692.6	676.3	666.6	649.4	642.8
7.5°	898.6	837.9	770.1	714.8	702.8	658.8	619.1	599.6	581.3	569.2	554.4
10°	913.0	828.1	740.9	667.7	656.0	605.8	554.0	540.0	517.0	502.3	488.2
12.5°	923.9	820.7	710.9	625.7	606.6	557.9	505.8	486.7	469.9	448.5	438.4
15°	933.6	806.7	680.2	581.7	561.8	509.3	461.0	443.9	428.7	410.0	401.0
17.5°	930.1	789.6	646.3	542.7	522.9	471.1	424.8	405.3	395.2	378.8	372.6
20°	925.9	774.8	614.4	505.8	484.0	435.7	390.5	376.5	366.4	355.9	350.4
22.5°	912.2	751.4	582.1	471.9	451.2	403.0	364.4	352.7	345.0	337.6	332.9
25°	889.3	730.8	550.5	438.0	421.7	376.5	343.8	332.9	327.8	320.4	316.1
27.5°	860.8	703.5	519.0	410.4	391.7	351.6	323.5	316.5	311.1	305.2	301.0
30°	825.0	673.2	488.2	383.5	366.4	330.9	306.8	300.6	295.5	289.7	284.6
32.5°	779.5	642.4	459.4	358.6	344.2	313.4	291.2	286.2	281.9	274.9	272.2
35°	728.5	609.3	431.0	334.8	321.2	294.3	276.0	271.0	266.7	260.9	258.5
37.5°	676.7	570.0	403.0	314.6	302.5	278.4	260.9	255.8	251.9	246.8	245.7
40°	621.8	533.8	375.3	294.0	283.4	262.8	245.7	241.8	237.9	234.8	234.0
42.5°	566.5	492.1	351.2	276.8	265.5	246.5	230.9	226.6	224.3	222.7	223.1
45°	514.3	450.5	326.3	257.0	249.2	231.7	217.3	213.7	211.8	210.6	212.2
47.5°	457.9	408.0	302.9	240.2	232.4	216.9	203.2	200.1	199.3	199.0	201.7
50°	408.0	364.0	277.6	223.1	216.5	200.5	189.6	186.9	186.1	187.3	191.2
52.5°	360.9	323.2	254.6	207.1	200.5	186.1	176.0	174.0	173.6	176.4	180.3
55°	314.2	285.0	229.7	189.6	183.0	170.5	162.7	160.8	160.4	165.9	169.4
57.5°	274.5	248.0	206.4	172.9	167.8	156.1	149.1	147.6	148.7	153.8	157.3
60°	235.6	214.1	184.9	155.0	151.1	140.9	135.5	135.1	136.3	142.1	145.6
62.5°	200.5	184.2	162.0	138.6	135.9	126.9	121.9	122.6	123.8	129.7	132.8
65°	170.5	156.1	139.4	122.3	118.7	112.5	109.0	109.4	111.7	116.8	119.9
67.5°	141.3	129.7	120.3	106.7	104.0	98.5	95.8	97.3	98.5	103.6	106.7
70°	116.8	107.5	100.5	90.3	88.4	83.7	81.8	83.7	84.9	89.2	93.1
72.5°	93.8	88.0	82.5	75.1	73.2	70.1	69.7	70.5	72.4	76.7	78.3
75°	72.8	69.7	65.0	60.3	59.2	57.6	57.2	58.0	60.0	62.3	63.9
77.5°	55.3	52.6	49.1	47.1	45.6	44.8	45.2	46.3	47.1	49.4	50.6
80°	40.1	37.0	36.2	33.5	33.1	32.7	33.5	33.9	35.0	36.6	37.4
82.5°	26.5	24.1	23.4	23.0	22.6	22.2	23.4	23.7	24.5	25.7	26.1
85°	14.4	13.6	13.6	13.2	13.6	14.4	14.4	14.8	14.8	15.2	14.8
87.5°	6.6	5.8	6.2	6.2	6.2	6.6	6.6	7.0	7.0	7.0	6.6
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P646638

CATALOG NUMBER: S123DR-S340D940-X4F0-XX-UDD-G-W

CANDELA DISTRIBUTION (continued):

	160°	170°	180°
0°	839.0	839.0	839.0
2.5°	747.1	744.4	733.5
5°	637.0	627.6	624.5
7.5°	552.9	552.1	535.7
10°	481.6	482.8	468.0
12.5°	436.8	427.1	425.9
15°	398.7	389.7	388.2
17.5°	370.3	364.8	363.3
20°	348.9	345.7	343.0
22.5°	331.7	327.8	325.5
25°	314.6	311.1	310.3
27.5°	299.8	295.5	295.5
30°	284.6	281.9	280.7
32.5°	271.0	268.6	268.6
35°	257.7	256.6	255.0
37.5°	245.7	245.7	244.9
40°	234.0	235.2	235.2
42.5°	223.9	225.0	225.0
45°	213.0	214.9	215.7
47.5°	202.1	205.2	206.0
50°	192.3	194.7	195.1
52.5°	181.8	184.5	186.5
55°	170.9	173.6	174.8
57.5°	159.2	162.0	162.4
60°	146.4	149.1	149.9
62.5°	134.7	136.3	137.0
65°	120.3	122.6	124.2
67.5°	107.1	109.0	109.0
70°	92.7	93.4	94.6
72.5°	79.0	79.4	79.4
75°	64.2	65.0	65.4
77.5°	50.6	51.0	51.0
80°	37.4	37.0	37.0
82.5°	26.1	24.9	24.9
85°	14.8	14.4	14.8
87.5°	6.6	6.6	6.6
90°	0.0	0.0	0.0

(END OF REPORT)