

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: P646637

Luminaire Tested: S123DR-S340D935-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2019
Report Number: P646637
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-S340D935-X4F0-XX-UDD-G-W
Description: DEFINE 3 DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 3500K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1301.7 lumens
Efficiency: N/A
Efficacy: 109.4 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

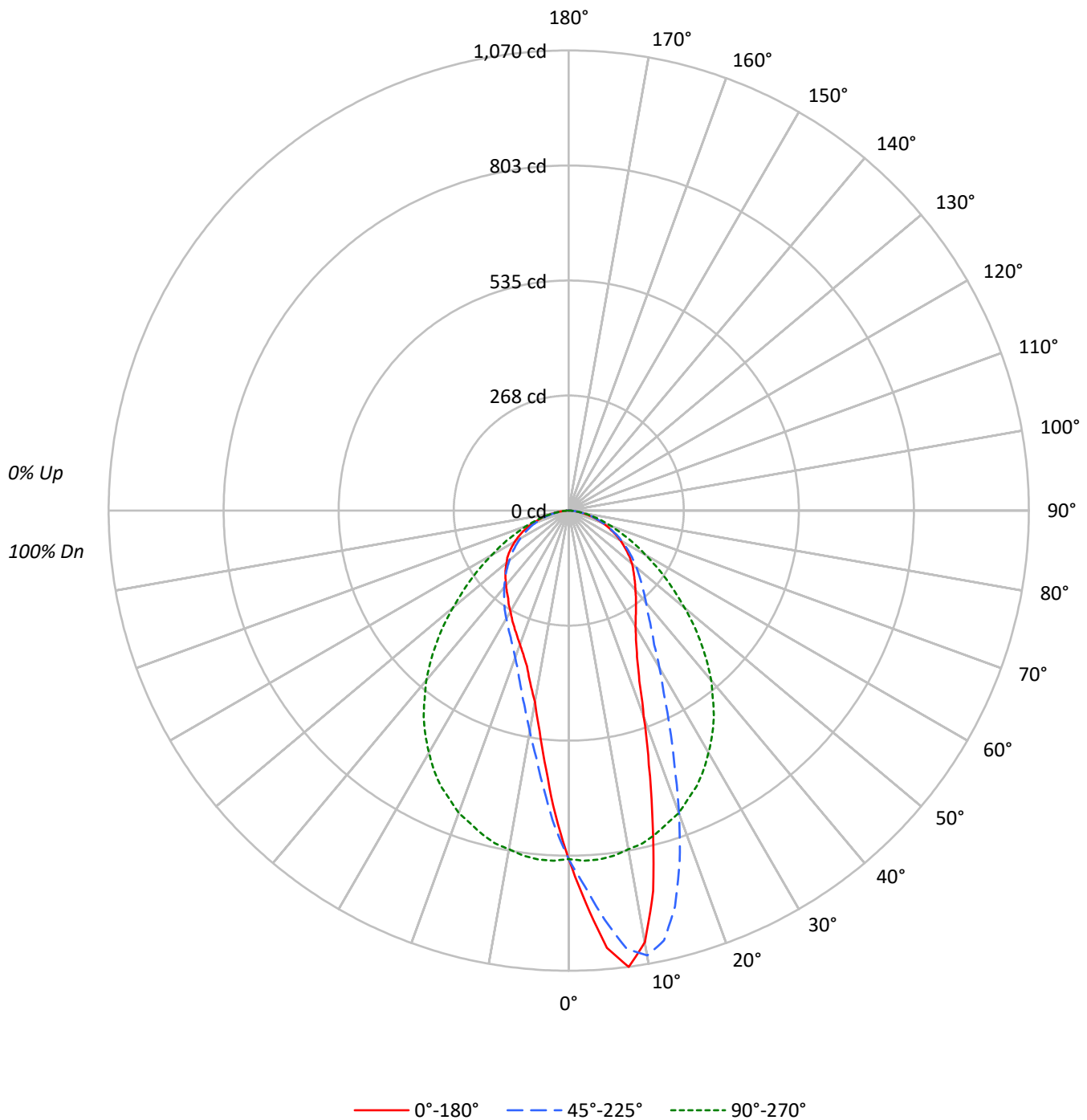
Input Watts (W): 11.9
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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	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°	9761	9761	9761	9761	9761
5°	12346	11545	9849	7898	7293
10°	12465	12852	9783	6379	5529
15°	9388	11893	9716	5346	4675
20°	6541	9617	9592	4661	4247
25°	4988	7377	9381	4273	3983
30°	4314	5863	9044	4038	3770
35°	4004	4910	8653	3848	3621
40°	3791	4393	8107	3673	3572
45°	3664	4081	7412	3517	3549
50°	3601	3854	6589	3382	3530
55°	3466	3641	5781	3262	3546
60°	3342	3444	4984	3142	3487
65°	3139	3227	4297	3011	3418
70°	2899	2995	3657	2847	3220
75°	2626	2714	3133	2607	2942
80°	2165	2325	2477	2269	2477
85°	1714	1866	1825	1977	1977

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°

Vertical Angle: 45°

Luminance: 8462 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	76.6	5.9
10°-20°	190.6	14.6
20°-30°	225.6	17.3
30°-40°	226.7	17.4
40°-50°	207.9	16.0
50°-60°	171.6	13.2
60°-70°	121.4	9.3
70°-80°	64.9	5.0
80°-90°	16.5	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°	492.7	37.9
0°-40°	719.4	55.3
0°-60°	1098.9	84.4
0°-90°	1301.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1301.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	810	810	810	810	810	
5°	1021	954	814	653	603	97
15°	753	953	779	429	375	208
25°	375	555	706	321	300	177
35°	272	334	588	262	246	171
45°	215	240	435	206	208	167
55°	165	173	275	155	169	148
65°	110	113	151	106	120	109
75°	56	58	67	56	63	59
85°	12	14	13	14	14	15
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°	810.1	810.1	810.1	810.1	810.1	810.1	810.1	810.1	810.1	810.1	810.1
2.5°	913.1	911.3	901.9	895.8	897.4	883.8	875.5	868.8	864.3	853.4	847.7
5°	1020.7	1025.9	1019.9	1016.9	1001.5	977.0	954.5	949.6	928.6	902.6	893.6
7.5°	1070.3	1073.3	1069.5	1069.5	1064.6	1042.8	1027.0	1014.6	978.6	945.1	929.7
10°	1018.8	1025.5	1040.2	1047.0	1056.7	1053.7	1050.4	1045.5	1021.0	982.3	964.6
12.5°	905.6	913.9	943.2	947.3	980.8	1013.1	1023.7	1035.7	1037.9	1005.2	986.1
15°	752.6	775.5	802.2	815.0	857.5	925.5	953.4	986.1	1024.8	1011.3	996.2
17.5°	619.9	628.6	657.1	684.2	726.7	805.2	856.7	905.6	988.7	1002.2	992.8
20°	510.1	518.0	555.6	553.7	610.1	698.5	750.0	806.4	928.9	972.9	971.0
22.5°	428.6	441.0	462.0	473.7	514.3	592.8	641.7	712.0	860.9	930.4	938.0
25°	375.2	384.2	397.0	407.1	438.7	503.4	554.9	612.8	775.2	874.8	893.6
27.5°	338.7	342.5	355.3	361.3	382.3	438.0	477.8	530.8	695.9	812.4	838.7
30°	310.1	312.8	324.1	325.9	342.5	382.7	421.4	464.7	618.4	748.1	778.2
32.5°	290.2	292.1	300.7	301.5	313.9	343.2	370.3	410.9	545.1	679.3	716.5
35°	272.2	273.3	279.7	281.6	289.5	311.6	333.8	365.0	486.8	617.3	658.3
37.5°	256.4	257.9	261.6	263.9	270.3	288.0	303.0	328.9	430.8	552.6	598.1
40°	241.0	243.6	246.2	246.2	253.4	266.9	279.3	300.7	382.7	496.2	536.5
42.5°	227.8	230.4	231.6	232.0	235.7	248.1	258.6	273.3	346.2	446.2	485.7
45°	215.0	216.2	217.3	218.0	220.7	231.6	239.5	253.4	311.6	400.0	438.3
47.5°	203.4	203.4	204.1	205.3	207.1	215.0	221.8	232.0	281.9	358.6	390.2
50°	192.1	192.1	191.0	191.7	192.9	198.9	205.6	213.9	254.1	320.7	348.9
52.5°	178.6	178.6	178.9	177.8	178.9	184.2	189.5	197.7	230.4	285.7	309.8
55°	165.0	166.5	165.4	164.7	166.2	169.5	173.3	180.4	208.3	257.9	277.1
57.5°	151.5	152.3	151.9	153.0	152.3	155.3	158.6	163.5	188.3	226.7	244.7
60°	138.7	138.7	138.0	138.7	138.7	140.2	142.9	147.7	168.0	200.0	215.0
62.5°	124.4	124.8	125.2	124.8	124.4	126.3	128.6	132.0	150.4	174.1	185.3
65°	110.1	110.5	111.7	111.3	110.9	112.8	113.2	116.9	130.8	151.1	159.4
67.5°	97.4	96.6	97.0	97.7	98.1	98.5	99.2	103.0	112.8	129.3	136.1
70°	82.3	83.1	82.7	83.8	83.1	84.2	85.0	87.6	97.0	107.9	112.4
72.5°	68.8	69.2	69.2	70.3	69.9	71.1	71.8	72.9	79.7	89.5	91.4
75°	56.4	56.4	57.1	57.5	57.5	57.5	58.3	59.0	64.7	70.7	72.6
77.5°	42.9	44.7	44.4	44.7	45.1	46.2	45.5	47.0	50.4	53.8	54.9
80°	31.2	31.2	31.6	32.0	32.7	33.5	33.5	35.0	36.5	38.3	39.5
82.5°	19.9	20.3	21.4	21.8	22.2	23.3	23.3	23.3	25.2	25.9	25.9
85°	12.4	11.7	12.4	12.8	13.2	13.5	13.5	14.3	14.7	15.0	15.0
87.5°	6.0	6.0	6.0	6.0	6.4	6.4	6.4	6.4	6.8	6.8	6.8
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°	810.1	810.1	810.1	810.1	810.1	810.1	810.1	810.1	810.1	810.1	810.1
2.5°	828.9	815.0	794.3	777.4	778.2	762.8	751.5	736.8	732.3	727.8	721.8
5°	846.2	814.3	771.4	737.2	726.7	701.1	668.8	653.0	643.6	627.1	620.7
7.5°	867.7	809.0	743.6	690.2	678.6	636.1	597.7	578.9	561.3	549.6	535.3
10°	881.6	799.6	715.4	644.7	633.4	585.0	535.0	521.4	499.2	485.0	471.4
12.5°	892.1	792.5	686.5	604.1	585.7	538.7	488.3	469.9	453.8	433.1	423.3
15°	901.5	778.9	656.8	561.6	542.5	491.7	445.1	428.6	413.9	395.9	387.2
17.5°	898.1	762.4	624.0	524.0	504.9	454.9	410.1	391.3	381.6	365.8	359.8
20°	894.0	748.1	593.2	488.3	467.3	420.7	377.1	363.5	353.8	343.6	338.3
22.5°	880.8	725.5	562.0	455.6	435.7	389.1	351.9	340.6	333.1	325.9	321.4
25°	858.6	705.6	531.6	422.9	407.1	363.5	331.9	321.4	316.5	309.4	305.3
27.5°	831.2	679.3	501.1	396.2	378.2	339.5	312.4	305.6	300.4	294.7	290.6
30°	796.6	650.0	471.4	370.3	353.8	319.5	296.2	290.2	285.3	279.7	274.8
32.5°	752.6	620.3	443.6	346.2	332.3	302.6	281.2	276.3	272.2	265.4	262.8
35°	703.4	588.3	416.2	323.3	310.1	284.2	266.5	261.6	257.5	251.9	249.6
37.5°	653.4	550.4	389.1	303.8	292.1	268.8	251.9	247.0	243.2	238.3	237.2
40°	600.4	515.4	362.4	283.8	273.7	253.8	237.2	233.5	229.7	226.7	225.9
42.5°	547.0	475.2	339.1	267.3	256.4	238.0	222.9	218.8	216.5	215.0	215.4
45°	496.6	435.0	315.0	248.1	240.6	223.7	209.8	206.4	204.5	203.4	204.9
47.5°	442.1	394.0	292.5	232.0	224.4	209.4	196.2	193.2	192.5	192.1	194.7
50°	394.0	351.5	268.0	215.4	209.0	193.6	183.1	180.4	179.7	180.8	184.6
52.5°	348.5	312.0	245.9	200.0	193.6	179.7	169.9	168.0	167.7	170.3	174.1
55°	303.4	275.2	221.8	183.1	176.7	164.7	157.1	155.3	154.9	160.1	163.5
57.5°	265.0	239.5	199.2	166.9	162.0	150.7	144.0	142.5	143.6	148.5	151.9
60°	227.4	206.8	178.6	149.6	145.9	136.1	130.8	130.4	131.6	137.2	140.6
62.5°	193.6	177.8	156.4	133.8	131.2	122.6	117.7	118.4	119.5	125.2	128.2
65°	164.7	150.7	134.6	118.0	114.7	108.6	105.3	105.6	107.9	112.8	115.8
67.5°	136.5	125.2	116.2	103.0	100.4	95.1	92.5	94.0	95.1	100.0	103.0
70°	112.8	103.8	97.0	87.2	85.3	80.8	78.9	80.8	82.0	86.1	89.8
72.5°	90.6	85.0	79.7	72.6	70.7	67.7	67.3	68.0	69.9	74.1	75.6
75°	70.3	67.3	62.8	58.3	57.1	55.6	55.3	56.0	57.9	60.1	61.7
77.5°	53.4	50.8	47.4	45.5	44.0	43.2	43.6	44.7	45.5	47.7	48.9
80°	38.7	35.7	35.0	32.3	32.0	31.6	32.3	32.7	33.8	35.3	36.1
82.5°	25.6	23.3	22.6	22.2	21.8	21.4	22.6	22.9	23.7	24.8	25.2
85°	13.9	13.2	13.2	12.8	13.2	13.9	13.9	14.3	14.3	14.7	14.3
87.5°	6.4	5.6	6.0	6.0	6.0	6.4	6.4	6.8	6.8	6.8	6.4
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°	810.1	810.1	810.1
2.5°	721.4	718.8	708.3
5°	615.0	606.0	603.0
7.5°	533.8	533.1	517.3
10°	465.0	466.2	451.9
12.5°	421.8	412.4	411.3
15°	385.0	376.3	374.8
17.5°	357.5	352.2	350.7
20°	336.8	333.8	331.2
22.5°	320.3	316.5	314.3
25°	303.8	300.4	299.6
27.5°	289.5	285.3	285.3
30°	274.8	272.2	271.0
32.5°	261.6	259.4	259.4
35°	248.9	247.7	246.2
37.5°	237.2	237.2	236.5
40°	225.9	227.1	227.1
42.5°	216.2	217.3	217.3
45°	205.6	207.5	208.3
47.5°	195.1	198.1	198.9
50°	185.7	188.0	188.3
52.5°	175.6	178.2	180.1
55°	165.0	167.7	168.8
57.5°	153.8	156.4	156.8
60°	141.4	144.0	144.7
62.5°	130.1	131.6	132.3
65°	116.2	118.4	119.9
67.5°	103.4	105.3	105.3
70°	89.5	90.2	91.4
72.5°	76.3	76.7	76.7
75°	62.0	62.8	63.2
77.5°	48.9	49.2	49.2
80°	36.1	35.7	35.7
82.5°	25.2	24.1	24.1
85°	14.3	13.9	14.3
87.5°	6.4	6.4	6.4
90°	0.0	0.0	0.0

(END OF REPORT)