

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: P646636

Luminaire Tested: S123DR-S340D930-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2019
Report Number: P646636
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-S340D930-X4F0-XX-UDD-G-W
Description: DEFINE 3 DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 3000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1232.6 lumens
Efficiency: N/A
Efficacy: 103.6 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

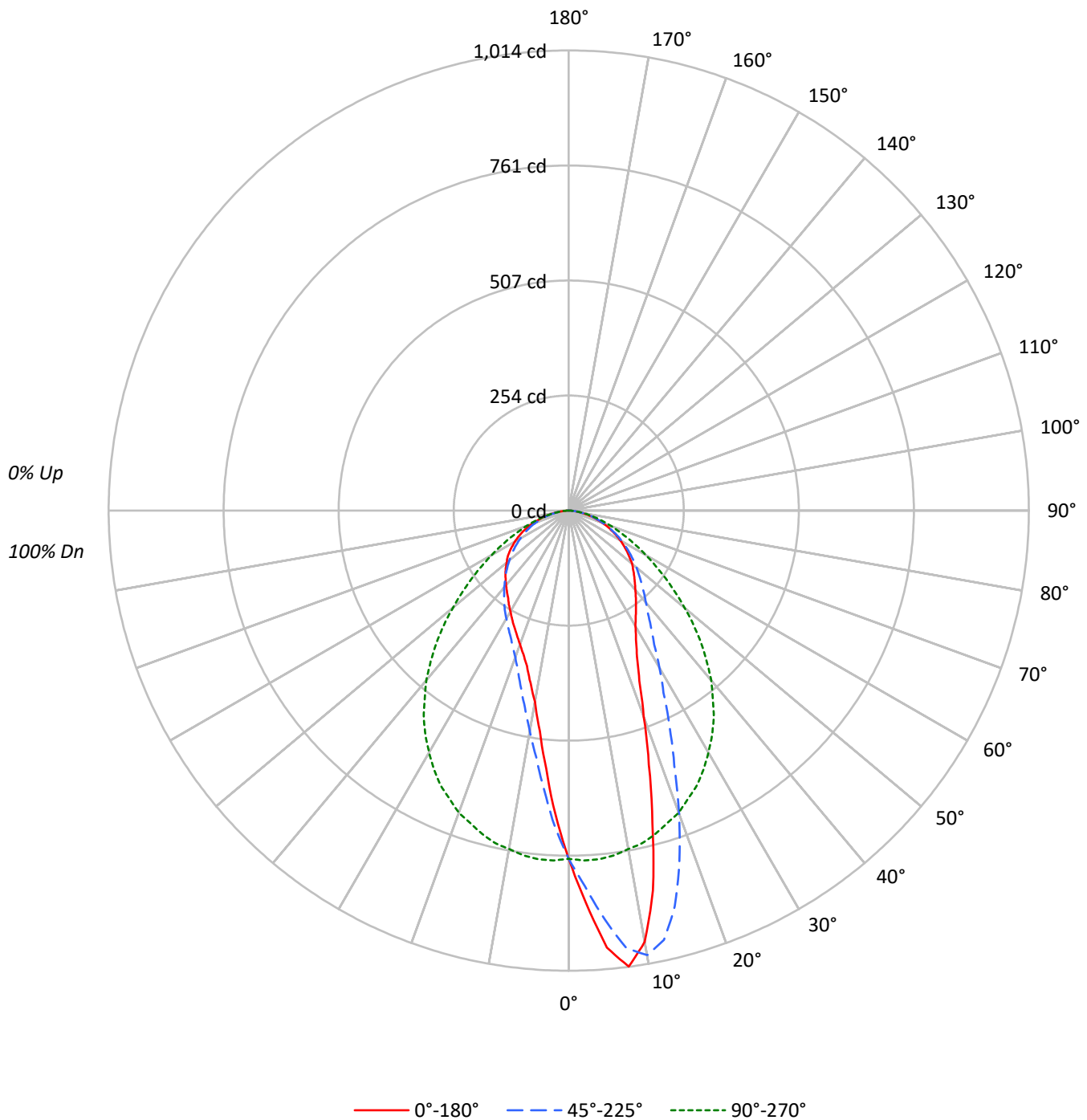
Input Watts (W): 11.9
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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°	9243	9243	9243	9243	9243
5°	11690	10932	9327	7478	6906
10°	11803	12169	9264	6040	5235
15°	8890	11262	9201	5062	4427
20°	6195	9107	9083	4413	4021
25°	4724	6985	8884	4047	3772
30°	4086	5553	8564	3823	3572
35°	3791	4650	8195	3645	3430
40°	3589	4160	7676	3478	3382
45°	3469	3865	7019	3330	3360
50°	3410	3650	6238	3204	3342
55°	3283	3447	5474	3088	3357
60°	3167	3261	4718	2976	3304
65°	2974	3054	4068	2851	3239
70°	2748	2836	3463	2695	3047
75°	2486	2570	2966	2467	2784
80°	2047	2200	2345	2151	2345
85°	1618	1770	1728	1866	1866

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°

Vertical Angle: 45°

Luminance: 8012 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	72.5	5.9
10°-20°	180.5	14.6
20°-30°	213.6	17.3
30°-40°	214.7	17.4
40°-50°	196.9	16.0
50°-60°	162.5	13.2
60°-70°	115.0	9.3
70°-80°	61.4	5.0
80°-90°	15.6	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°	466.6	37.9
0°-40°	681.2	55.3
0°-60°	1040.6	84.4
0°-90°	1232.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1232.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	767	767	767	767	767	
5°	966	904	771	618	571	92
15°	713	903	738	406	355	197
25°	355	525	668	304	284	168
35°	258	316	557	248	233	162
45°	204	227	412	195	197	158
55°	156	164	261	147	160	140
65°	104	107	143	100	114	104
75°	53	55	64	53	60	56
85°	12	13	12	14	14	14
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°	767.1	767.1	767.1	767.1	767.1	767.1	767.1	767.1	767.1	767.1	767.1
2.5°	864.7	862.9	854.0	848.3	849.7	836.9	829.1	822.7	818.4	808.1	802.7
5°	966.5	971.5	965.8	962.9	948.3	925.2	903.8	899.2	879.3	854.7	846.2
7.5°	1013.5	1016.3	1012.8	1012.8	1008.1	987.5	972.5	960.8	926.6	894.9	880.3
10°	964.7	971.1	985.0	991.4	1000.7	997.8	994.6	990.0	966.8	930.2	913.4
12.5°	857.6	865.4	893.2	897.1	928.7	959.4	969.3	980.7	982.9	951.9	933.7
15°	712.7	734.4	759.7	771.8	812.0	876.4	902.8	933.7	970.4	957.6	943.3
17.5°	587.0	595.2	622.3	647.9	688.1	762.5	811.3	857.6	936.2	949.0	940.1
20°	483.1	490.5	526.1	524.4	577.8	661.4	710.2	763.6	879.6	921.3	919.5
22.5°	405.8	417.6	437.5	448.5	487.0	561.4	607.7	674.2	815.2	881.0	888.2
25°	355.3	363.8	375.9	385.5	415.4	476.7	525.4	580.2	734.0	828.4	846.2
27.5°	320.7	324.3	336.4	342.1	362.0	414.7	452.4	502.6	658.9	769.3	794.2
30°	293.7	296.2	306.9	308.6	324.3	362.4	399.1	440.0	585.6	708.4	736.9
32.5°	274.8	276.6	284.8	285.5	297.2	325.0	350.6	389.1	516.2	643.3	678.5
35°	257.7	258.8	264.8	266.6	274.1	295.1	316.1	345.7	461.0	584.5	623.3
37.5°	242.8	244.2	247.8	249.9	255.9	272.7	286.9	311.5	408.0	523.3	566.4
40°	228.2	230.7	233.2	233.2	239.9	252.7	264.5	284.8	362.4	469.9	508.0
42.5°	215.7	218.2	219.3	219.6	223.2	234.9	244.9	258.8	327.9	422.5	459.9
45°	203.6	204.7	205.8	206.5	209.0	219.3	226.8	239.9	295.1	378.8	415.1
47.5°	192.6	192.6	193.3	194.4	196.1	203.6	210.0	219.6	267.0	339.6	369.5
50°	181.9	181.9	180.8	181.5	182.6	188.3	194.7	202.6	240.6	303.6	330.3
52.5°	169.1	169.1	169.4	168.4	169.4	174.4	179.4	187.2	218.2	270.5	293.3
55°	156.3	157.7	156.6	155.9	157.3	160.5	164.1	170.9	197.2	244.2	262.4
57.5°	143.5	144.2	143.8	144.9	144.2	147.0	150.2	154.9	178.3	214.7	231.7
60°	131.4	131.4	130.6	131.4	131.4	132.8	135.3	139.9	159.1	189.4	203.6
62.5°	117.8	118.2	118.5	118.2	117.8	119.6	121.7	124.9	142.4	164.8	175.5
65°	104.3	104.7	105.7	105.4	105.0	106.8	107.1	110.7	123.9	143.1	150.9
67.5°	92.2	91.5	91.8	92.6	92.9	93.3	94.0	97.5	106.8	122.5	128.9
70°	78.0	78.7	78.3	79.4	78.7	79.7	80.5	82.9	91.8	102.2	106.4
72.5°	65.1	65.5	65.5	66.6	66.2	67.3	68.0	69.1	75.5	84.7	86.5
75°	53.4	53.4	54.1	54.5	54.5	54.5	55.2	55.9	61.2	66.9	68.7
77.5°	40.6	42.4	42.0	42.4	42.7	43.8	43.1	44.5	47.7	50.9	52.0
80°	29.5	29.5	29.9	30.3	31.0	31.7	31.7	33.1	34.5	36.3	37.4
82.5°	18.9	19.2	20.3	20.6	21.0	22.1	22.1	22.1	23.9	24.6	24.6
85°	11.7	11.0	11.7	12.1	12.5	12.8	12.8	13.5	13.9	14.2	14.2
87.5°	5.7	5.7	5.7	5.7	6.1	6.1	6.1	6.1	6.4	6.4	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):

	80°	90°	100°	110°	112.5°	120°	130°	135°	140°	150°	157.5°
0°	767.1	767.1	767.1	767.1	767.1	767.1	767.1	767.1	767.1	767.1	767.1
2.5°	784.9	771.8	752.2	736.2	736.9	722.3	711.6	697.7	693.4	689.2	683.5
5°	801.3	771.1	730.5	698.1	688.1	663.9	633.3	618.3	609.4	593.8	587.7
7.5°	821.6	766.1	704.1	653.6	642.5	602.3	566.0	548.2	531.5	520.4	506.9
10°	834.8	757.2	677.4	610.5	599.8	553.9	506.6	493.7	472.7	459.2	446.4
12.5°	844.7	750.4	650.0	572.1	554.6	510.1	462.4	445.0	429.7	410.1	400.8
15°	853.6	737.6	621.9	531.8	513.7	465.6	421.5	405.8	391.9	374.8	366.7
17.5°	850.4	721.9	590.9	496.2	478.1	430.7	388.4	370.6	361.3	346.4	340.7
20°	846.5	708.4	561.7	462.4	442.5	398.3	357.0	344.2	335.0	325.4	320.4
22.5°	834.1	687.0	532.2	431.4	412.6	368.4	333.2	322.5	315.4	308.6	304.4
25°	813.1	668.2	503.4	400.5	385.5	344.2	314.3	304.4	299.7	293.0	289.1
27.5°	787.1	643.3	474.5	375.2	358.1	321.4	295.8	289.4	284.4	279.1	275.2
30°	754.3	615.5	446.4	350.6	335.0	302.6	280.5	274.8	270.2	264.8	260.2
32.5°	712.7	587.4	420.1	327.9	314.7	286.6	266.3	261.6	257.7	251.3	248.8
35°	666.0	557.1	394.1	306.1	293.7	269.1	252.4	247.8	243.8	238.5	236.4
37.5°	618.7	521.2	368.4	287.6	276.6	254.5	238.5	233.9	230.3	225.7	224.6
40°	568.5	488.0	343.2	268.8	259.2	240.3	224.6	221.1	217.5	214.7	213.9
42.5°	517.9	450.0	321.1	253.1	242.8	225.3	211.1	207.2	205.0	203.6	204.0
45°	470.2	411.9	298.3	234.9	227.8	211.8	198.6	195.4	193.7	192.6	194.0
47.5°	418.6	373.1	277.0	219.6	212.5	198.3	185.8	183.0	182.3	181.9	184.4
50°	373.1	332.8	253.8	204.0	197.9	183.3	173.4	170.9	170.2	171.2	174.8
52.5°	330.0	295.5	232.8	189.4	183.3	170.2	160.9	159.1	158.8	161.3	164.8
55°	287.3	260.6	210.0	173.4	167.3	155.9	148.8	147.0	146.7	151.6	154.9
57.5°	251.0	226.8	188.7	158.1	153.4	142.7	136.3	134.9	136.0	140.6	143.8
60°	215.4	195.8	169.1	141.7	138.1	128.9	123.9	123.5	124.6	129.9	133.1
62.5°	183.3	168.4	148.1	126.7	124.2	116.0	111.4	112.1	113.2	118.5	121.4
65°	155.9	142.7	127.4	111.8	108.6	102.9	99.7	100.0	102.2	106.8	109.6
67.5°	129.2	118.5	110.0	97.5	95.0	90.1	87.6	89.0	90.1	94.7	97.5
70°	106.8	98.3	91.8	82.6	80.8	76.5	74.8	76.5	77.6	81.5	85.1
72.5°	85.8	80.5	75.5	68.7	66.9	64.1	63.7	64.4	66.2	70.1	71.6
75°	66.6	63.7	59.4	55.2	54.1	52.7	52.3	53.0	54.8	57.0	58.4
77.5°	50.5	48.1	44.9	43.1	41.6	40.9	41.3	42.4	43.1	45.2	46.3
80°	36.7	33.8	33.1	30.6	30.3	29.9	30.6	31.0	32.0	33.5	34.2
82.5°	24.2	22.1	21.4	21.0	20.6	20.3	21.4	21.7	22.4	23.5	23.9
85°	13.2	12.5	12.5	12.1	12.5	13.2	13.2	13.5	13.5	13.9	13.5
87.5°	6.1	5.3	5.7	5.7	5.7	6.1	6.1	6.4	6.4	6.4	6.1
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):

	160°	170°	180°
0°	767.1	767.1	767.1
2.5°	683.1	680.6	670.7
5°	582.4	573.8	571.0
7.5°	505.5	504.8	489.8
10°	440.3	441.4	427.9
12.5°	399.4	390.5	389.4
15°	364.5	356.3	354.9
17.5°	338.5	333.6	332.1
20°	319.0	316.1	313.6
22.5°	303.3	299.7	297.6
25°	287.6	284.4	283.7
27.5°	274.1	270.2	270.2
30°	260.2	257.7	256.7
32.5°	247.8	245.6	245.6
35°	235.7	234.6	233.2
37.5°	224.6	224.6	223.9
40°	213.9	215.0	215.0
42.5°	204.7	205.8	205.8
45°	194.7	196.5	197.2
47.5°	184.8	187.6	188.3
50°	175.9	178.0	178.3
52.5°	166.2	168.7	170.5
55°	156.3	158.8	159.8
57.5°	145.6	148.1	148.4
60°	133.8	136.3	137.1
62.5°	123.2	124.6	125.3
65°	110.0	112.1	113.6
67.5°	97.9	99.7	99.7
70°	84.7	85.4	86.5
72.5°	72.3	72.6	72.6
75°	58.7	59.4	59.8
77.5°	46.3	46.6	46.6
80°	34.2	33.8	33.8
82.5°	23.9	22.8	22.8
85°	13.5	13.2	13.5
87.5°	6.1	6.1	6.1
90°	0.0	0.0	0.0

(END OF REPORT)