

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: P646615

Luminaire Tested: S123DR-S1000D840-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2019
Report Number: P646615
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-S1000D840-X4F0-XX-UDD-G-W
Description: DEFINE 3 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: 4459.1 lumens
Efficiency: N/A
Efficacy: 129.2 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

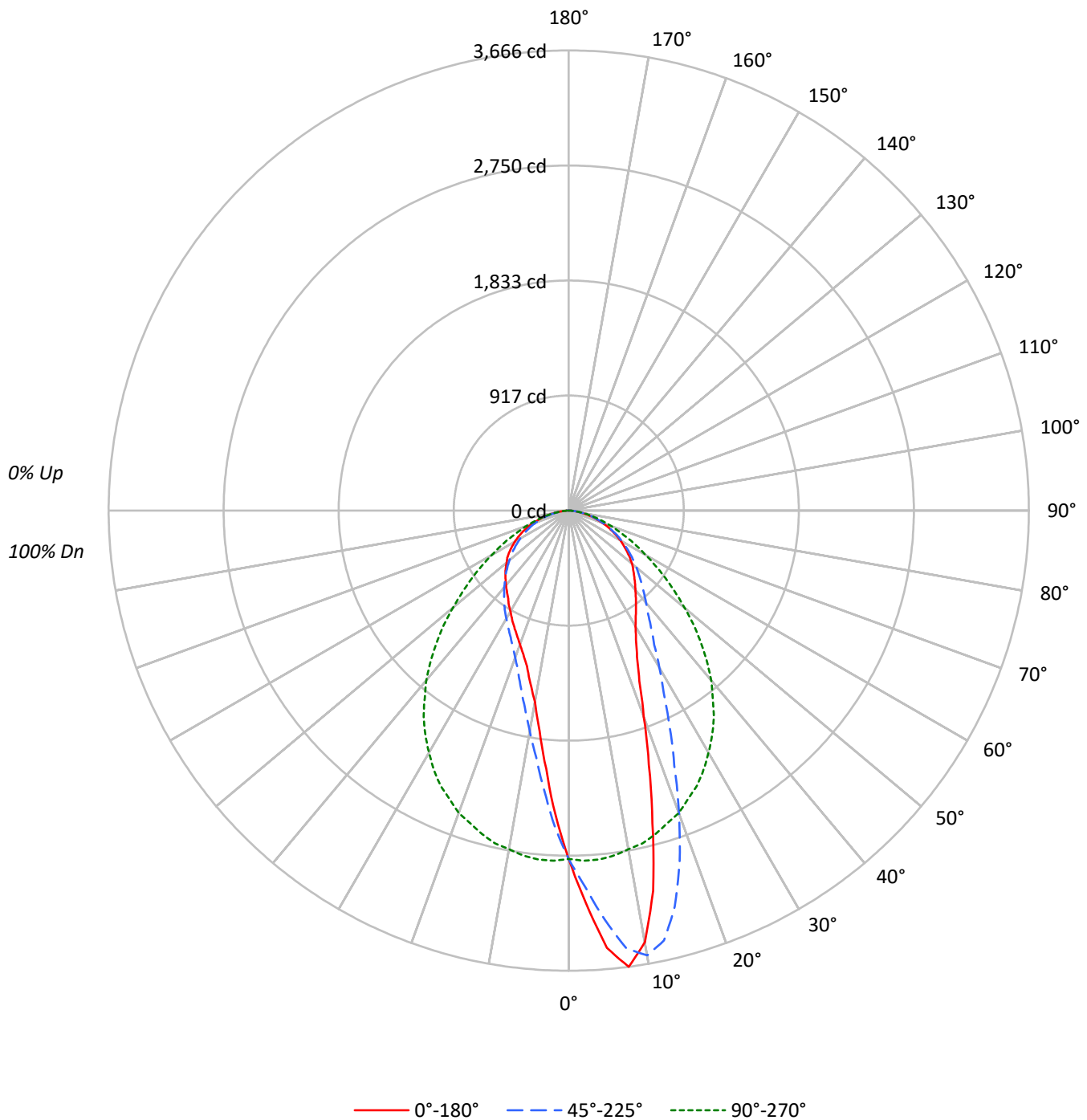
Input Watts (W): 34.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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
RCR																					
0	119	119	119	119		116	116	116	116		111	111	111		106	106	106		102	102	102
1	110	106	102	98		107	103	100	97		99	96	94		95	93	91		92	90	88
2	101	94	88	82		99	92	86	82		88	84	80		85	81	78		82	79	76
3	93	84	76	70		91	82	75	70		79	73	69		77	72	67		74	70	66
4	86	75	67	61		84	74	67	61		72	65	60		69	64	59		67	62	58
5	80	68	60	54		78	67	59	54		65	58	53		63	57	52		61	56	52
6	74	62	54	48		73	61	53	48		60	53	47		58	52	47		56	51	47
7	70	57	49	43		68	56	49	43		55	48	43		53	47	43		52	47	42
8	65	53	45	39		64	52	44	39		51	44	39		49	43	39		48	43	39
9	61	49	41	36		60	48	41	36		47	40	36		46	40	36		45	40	35
10	58	45	38	33		57	45	38	33		44	37	33		43	37	33		42	37	33

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	33440	33440	33440	33440	33440
5°	42291	39549	33738	27057	24985
10°	42700	44024	33514	21854	18940
15°	32161	40740	33286	18313	16017
20°	22409	32943	32861	15968	14548
25°	17088	25271	32138	14639	13646
30°	14783	20086	30981	13832	12918
35°	13715	16822	29647	13184	12407
40°	12984	15051	27771	12579	12234
45°	12552	13978	25390	12047	12158
50°	12336	13204	22571	11588	12094
55°	11877	12472	19803	11174	12146
60°	11452	11794	17069	10770	11948
65°	10757	11051	14723	10318	11712
70°	9935	10252	12521	9755	11023
75°	8994	9292	10731	8934	10074
80°	7418	7952	8486	7772	8486
85°	5876	6415	6235	6760	6760

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°

Vertical Angle: 45°

Luminance: 28989 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	262.4	5.9
10°-20°	652.8	14.6
20°-30°	772.7	17.3
30°-40°	776.6	17.4
40°-50°	712.2	16.0
50°-60°	587.8	13.2
60°-70°	416.0	9.3
70°-80°	222.2	5.0
80°-90°	56.4	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°	1688.0	37.9
0°-40°	2464.6	55.3
0°-60°	3764.6	84.4
0°-90°	4459.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4459.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	2775	2775	2775	2775	2775	
5°	3496	3270	2789	2237	2066	333
15°	2578	3266	2668	1468	1284	712
25°	1285	1901	2417	1101	1026	607
35°	932	1144	2016	896	844	586
45°	737	820	1490	707	714	570
55°	565	594	943	532	578	506
65°	377	388	516	362	411	375
75°	193	200	230	192	216	203
85°	42	46	45	49	49	50
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°	2775.3	2775.3	2775.3	2775.3	2775.3	2775.3	2775.3	2775.3	2775.3	2775.3	2775.3
2.5°	3128.1	3121.7	3089.5	3068.9	3074.0	3027.7	2999.4	2976.2	2960.7	2923.4	2904.1
5°	3496.5	3514.5	3493.9	3483.6	3430.8	3347.1	3269.8	3253.1	3180.9	3092.1	3061.2
7.5°	3666.4	3676.8	3663.9	3663.9	3647.1	3572.4	3518.3	3475.8	3352.2	3237.6	3184.8
10°	3490.0	3513.2	3563.4	3586.6	3620.1	3609.8	3598.2	3581.5	3497.7	3365.1	3304.6
12.5°	3102.4	3130.7	3231.2	3245.3	3359.9	3470.7	3506.8	3548.0	3555.7	3443.7	3378.0
15°	2578.2	2656.8	2748.2	2792.0	2937.5	3170.6	3265.9	3378.0	3510.6	3464.3	3412.7
17.5°	2123.6	2153.2	2251.1	2343.8	2489.4	2758.5	2935.0	3102.4	3387.0	3433.4	3401.2
20°	1747.6	1774.6	1903.4	1897.0	2090.1	2392.8	2569.2	2762.4	3182.2	3332.9	3326.5
22.5°	1468.1	1510.6	1582.7	1622.7	1761.7	2030.9	2198.3	2439.1	2949.1	3187.4	3213.1
25°	1285.3	1316.2	1359.9	1394.7	1502.9	1724.4	1900.8	2099.2	2655.5	2996.8	3061.2
27.5°	1160.3	1173.2	1217.0	1237.6	1309.7	1500.3	1636.8	1818.4	2383.8	2783.0	2873.1
30°	1062.5	1071.5	1110.1	1116.5	1173.2	1311.0	1443.7	1591.8	2118.5	2562.8	2665.8
32.5°	994.2	1000.6	1030.3	1032.8	1075.3	1175.8	1268.5	1407.6	1867.4	2327.1	2454.6
35°	932.4	936.3	958.1	964.6	991.6	1067.6	1143.6	1250.5	1667.7	2114.6	2255.0
37.5°	878.3	883.5	896.3	904.1	925.9	986.5	1038.0	1126.9	1475.9	1893.1	2048.9
40°	825.5	834.5	843.5	843.5	868.0	914.4	956.9	1030.3	1311.0	1699.9	1837.7
42.5°	780.4	789.4	793.3	794.6	807.5	850.0	886.0	936.3	1186.1	1528.7	1663.9
45°	736.6	740.5	744.4	746.9	756.0	793.3	820.3	868.0	1067.6	1370.2	1501.6
47.5°	696.7	696.7	699.3	703.2	709.6	736.6	759.8	794.6	965.9	1228.6	1336.8
50°	658.1	658.1	654.2	656.8	660.7	681.3	704.4	732.8	870.6	1098.5	1195.1
52.5°	611.7	611.7	613.0	609.1	613.0	631.0	649.1	677.4	789.4	978.7	1061.2
55°	565.4	570.5	566.6	564.1	569.2	580.8	593.7	618.2	713.5	883.5	949.1
57.5°	519.0	521.6	520.3	524.1	521.6	531.9	543.5	560.2	645.2	776.6	838.4
60°	475.2	475.2	472.6	475.2	475.2	480.4	489.4	506.1	575.7	685.1	736.6
62.5°	426.3	427.6	428.8	427.6	426.3	432.7	440.4	452.0	515.1	596.3	634.9
65°	377.3	378.6	382.5	381.2	379.9	386.3	387.6	400.5	448.2	517.7	546.0
67.5°	333.5	331.0	332.3	334.8	336.1	337.4	340.0	352.9	386.3	443.0	466.2
70°	282.0	284.6	283.3	287.2	284.6	288.5	291.0	300.1	332.3	369.6	385.1
72.5°	235.7	237.0	237.0	240.8	239.5	243.4	246.0	249.8	273.0	306.5	312.9
75°	193.2	193.2	195.7	197.0	197.0	197.0	199.6	202.2	221.5	242.1	248.6
77.5°	146.8	153.3	152.0	153.3	154.5	158.4	155.8	161.0	172.6	184.2	188.0
80°	106.9	106.9	108.2	109.5	112.0	114.6	114.6	119.8	124.9	131.4	135.2
82.5°	68.3	69.5	73.4	74.7	76.0	79.8	79.8	79.8	86.3	88.9	88.9
85°	42.5	39.9	42.5	43.8	45.1	46.4	46.4	48.9	50.2	51.5	51.5
87.5°	20.6	20.6	20.6	20.6	21.9	21.9	21.9	21.9	23.2	23.2	23.2
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°	2775.3	2775.3	2775.3	2775.3	2775.3	2775.3	2775.3	2775.3	2775.3	2775.3	2775.3
2.5°	2839.7	2792.0	2721.2	2663.2	2665.8	2613.0	2574.4	2524.1	2508.7	2493.2	2472.6
5°	2898.9	2789.4	2642.6	2525.4	2489.4	2401.8	2291.0	2237.0	2204.8	2148.1	2126.2
7.5°	2972.3	2771.4	2547.3	2364.5	2324.5	2179.0	2047.6	1983.3	1922.7	1882.8	1833.9
10°	3020.0	2739.2	2450.7	2208.6	2170.0	2003.9	1832.6	1786.2	1710.2	1661.3	1614.9
12.5°	3056.0	2714.7	2351.6	2069.5	2006.4	1845.5	1672.9	1609.8	1554.4	1483.6	1450.1
15°	3088.2	2668.4	2249.8	1924.0	1858.3	1684.5	1524.8	1468.1	1417.9	1356.1	1326.5
17.5°	3076.6	2611.7	2137.8	1795.2	1729.6	1558.3	1405.0	1340.6	1307.1	1253.1	1232.5
20°	3062.5	2562.8	2032.2	1672.9	1600.8	1441.1	1291.7	1245.3	1211.8	1177.1	1159.0
22.5°	3017.4	2485.5	1925.3	1560.8	1492.6	1332.9	1205.4	1166.8	1141.0	1116.5	1101.1
25°	2941.4	2417.3	1821.0	1448.8	1394.7	1245.3	1137.2	1101.1	1084.4	1059.9	1045.7
27.5°	2847.4	2327.1	1716.7	1357.4	1295.6	1162.9	1070.2	1047.0	1029.0	1009.7	995.5
30°	2728.9	2226.7	1614.9	1268.5	1211.8	1094.7	1014.8	994.2	977.5	958.1	941.4
32.5°	2578.2	2124.9	1519.6	1186.1	1138.4	1036.7	963.3	946.6	932.4	909.2	900.2
35°	2409.5	2015.5	1425.6	1107.5	1062.5	973.6	913.1	896.3	882.2	862.8	855.1
37.5°	2238.2	1885.4	1332.9	1040.6	1000.6	920.8	862.8	846.1	833.2	816.5	812.6
40°	2056.7	1765.6	1241.5	972.3	937.5	869.3	812.6	799.7	786.9	776.6	774.0
42.5°	1873.8	1627.8	1161.6	915.6	878.3	815.2	763.7	749.5	741.8	736.6	737.9
45°	1701.2	1490.0	1079.2	850.0	824.2	766.3	718.6	707.0	700.6	696.7	701.9
47.5°	1514.5	1349.6	1001.9	794.6	768.8	717.3	672.2	661.9	659.4	658.1	667.1
50°	1349.6	1204.1	918.2	737.9	716.0	663.2	627.2	618.2	615.6	619.4	632.3
52.5°	1193.8	1068.9	842.2	685.1	663.2	615.6	582.1	575.7	574.4	583.4	596.3
55°	1039.3	942.7	759.8	627.2	605.3	564.1	538.3	531.9	530.6	548.6	560.2
57.5°	907.9	820.3	682.5	571.8	555.1	516.4	493.2	488.1	492.0	508.7	520.3
60°	779.1	708.3	611.7	512.6	499.7	466.2	448.2	446.9	450.7	470.1	481.6
62.5°	663.2	609.1	535.7	458.5	449.5	419.8	403.1	405.7	409.5	428.8	439.1
65°	564.1	516.4	461.0	404.4	392.8	372.2	360.6	361.9	369.6	386.3	396.7
67.5°	467.5	428.8	397.9	352.9	343.9	325.8	316.8	322.0	325.8	342.6	352.9
70°	386.3	355.4	332.3	298.8	292.3	276.9	270.4	276.9	280.7	294.9	307.8
72.5°	310.4	291.0	273.0	248.6	242.1	231.8	230.5	233.1	239.5	253.7	258.9
75°	240.8	230.5	215.1	199.6	195.7	190.6	189.3	191.9	198.3	206.1	211.2
77.5°	182.9	173.9	162.3	155.8	150.7	148.1	149.4	153.3	155.8	163.6	167.4
80°	132.6	122.3	119.8	110.8	109.5	108.2	110.8	112.0	115.9	121.1	123.6
82.5°	87.6	79.8	77.3	76.0	74.7	73.4	77.3	78.6	81.1	85.0	86.3
85°	47.6	45.1	45.1	43.8	45.1	47.6	47.6	48.9	48.9	50.2	48.9
87.5°	21.9	19.3	20.6	20.6	20.6	21.9	21.9	23.2	23.2	23.2	21.9
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):

	160°	170°	180°
0°	2775.3	2775.3	2775.3
2.5°	2471.3	2462.3	2426.3
5°	2106.9	2076.0	2065.7
7.5°	1828.7	1826.1	1772.1
10°	1593.0	1596.9	1548.0
12.5°	1444.9	1412.7	1408.9
15°	1318.7	1289.1	1284.0
17.5°	1224.7	1206.7	1201.5
20°	1153.9	1143.6	1134.6
22.5°	1097.2	1084.4	1076.6
25°	1040.6	1029.0	1026.4
27.5°	991.6	977.5	977.5
30°	941.4	932.4	928.5
32.5°	896.3	888.6	888.6
35°	852.5	848.7	843.5
37.5°	812.6	812.6	810.0
40°	774.0	777.8	777.8
42.5°	740.5	744.4	744.4
45°	704.4	710.9	713.5
47.5°	668.4	678.7	681.3
50°	636.2	643.9	645.2
52.5°	601.4	610.4	616.9
55°	565.4	574.4	578.2
57.5°	526.7	535.7	537.0
60°	484.2	493.2	495.8
62.5°	445.6	450.7	453.3
65°	397.9	405.7	410.8
67.5°	354.2	360.6	360.6
70°	306.5	309.1	312.9
72.5°	261.4	262.7	262.7
75°	212.5	215.1	216.4
77.5°	167.4	168.7	168.7
80°	123.6	122.3	122.3
82.5°	86.3	82.4	82.4
85°	48.9	47.6	48.9
87.5°	21.9	21.9	21.9
90°	0.0	0.0	0.0

(END OF REPORT)