

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



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: P1056105

Luminaire Tested: S124R3DR-H1020D930-X4F0-XX-UDD-FLL-W

Issue Date: 7/25/2025

Test Information

Test Method: LM-79-2019
Report Number: P1056105
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2503-402-7)
Test Lab: INNOVATION CENTER
Issue Date: 7/25/2025
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S124R3DR-H1020D930-X4F0-XX-UDD-FLL-W
Description: DEFINE 4, WHITE 3-INCH REGRESSED DIRECT RECESSED HOUSING WITH FROSTED LENS
HIGH PERFORMANCE LIGHT ENGINE
Light Source: 3000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

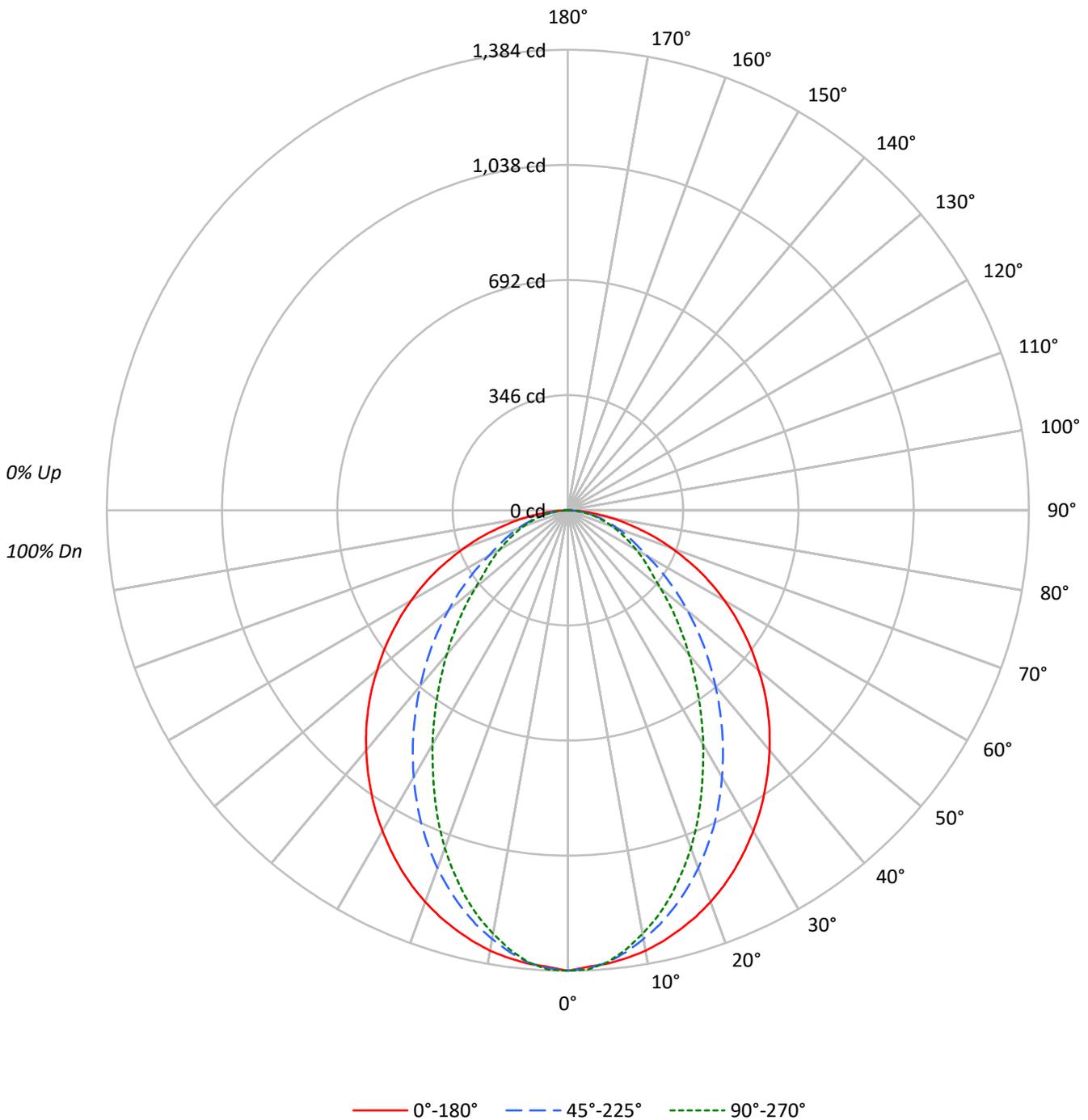
Lumens per Lamp: N/A
Luminaire Lumens: 2756.0 lumens
Efficiency: N/A
Efficacy: 89.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.95 / 1.12
Luminous Opening: Rectangular (W 0.31' x L: 3.9' x H: 0')
CIE Type: Direct

Input Watts (W): 30.9
Input Voltage (V): 120
Input Current (A_{in}): 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 | 0 |
| RCR | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |
| 1 | 110 | 105 | 102 | 98 | 107 | 103 | 100 | 97 | 99 | 96 | 93 | 95 | 93 | 91 | 92 | 90 | 88 | 86 |
| 2 | 101 | 93 | 87 | 82 | 98 | 91 | 86 | 81 | 88 | 83 | 79 | 85 | 81 | 77 | 82 | 78 | 76 | 73 |
| 3 | 93 | 83 | 75 | 69 | 90 | 81 | 74 | 69 | 79 | 73 | 68 | 76 | 71 | 67 | 73 | 69 | 65 | 63 |
| 4 | 85 | 74 | 66 | 60 | 83 | 73 | 65 | 60 | 71 | 64 | 59 | 68 | 63 | 58 | 66 | 61 | 57 | 55 |
| 5 | 79 | 67 | 59 | 53 | 77 | 66 | 58 | 52 | 64 | 57 | 52 | 62 | 56 | 51 | 60 | 55 | 51 | 49 |
| 6 | 73 | 61 | 53 | 47 | 72 | 60 | 52 | 46 | 58 | 51 | 46 | 57 | 50 | 46 | 55 | 50 | 45 | 43 |
| 7 | 68 | 56 | 47 | 42 | 67 | 55 | 47 | 42 | 53 | 46 | 41 | 52 | 46 | 41 | 51 | 45 | 41 | 39 |
| 8 | 64 | 51 | 43 | 38 | 62 | 51 | 43 | 38 | 49 | 42 | 37 | 48 | 42 | 37 | 47 | 41 | 37 | 35 |
| 9 | 60 | 47 | 39 | 34 | 59 | 47 | 39 | 34 | 46 | 39 | 34 | 45 | 38 | 34 | 44 | 38 | 34 | 32 |
| 10 | 56 | 44 | 36 | 31 | 55 | 43 | 36 | 31 | 42 | 36 | 31 | 41 | 35 | 31 | 41 | 35 | 31 | 29 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|-------|-------|-------|
| 0° | 12234 | 12234 | 12234 |
| 5° | 12136 | 12109 | 12099 |
| 10° | 12066 | 11747 | 11600 |
| 15° | 11939 | 11305 | 10960 |
| 20° | 11784 | 10767 | 10164 |
| 25° | 11591 | 10151 | 9237 |
| 30° | 11362 | 9449 | 8295 |
| 35° | 11121 | 8715 | 7385 |
| 40° | 10870 | 7956 | 6534 |
| 45° | 10604 | 7218 | 5742 |
| 50° | 10279 | 6443 | 4957 |
| 55° | 9965 | 5666 | 4504 |
| 60° | 9614 | 4861 | 4177 |
| 65° | 9180 | 4410 | 3897 |
| 70° | 8528 | 4079 | 3684 |
| 75° | 7720 | 3758 | 3478 |
| 80° | 6741 | 3472 | 3264 |
| 85° | 5163 | 3206 | 2993 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 10604 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 128.8 | 4.7 |
| 10°-20° | 349.4 | 12.7 |
| 20°-30° | 483.8 | 17.6 |
| 30°-40° | 519.3 | 18.8 |
| 40°-50° | 472.3 | 17.1 |
| 50°-60° | 371.9 | 13.5 |
| 60°-70° | 254.5 | 9.2 |
| 70°-80° | 137.0 | 5.0 |
| 80°-90° | 38.8 | 1.4 |
| 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° | 962.1 | 34.9 |
| 0°-40° | 1481.4 | 53.8 |
| 0°-60° | 2325.6 | 84.4 |
| 0°-90° | 2756.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2756.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1384 | 1384 | 1384 | 1384 | 1384 | |
| 5° | 1367 | 1383 | 1364 | 1357 | 1363 | 130 |
| 15° | 1304 | 1290 | 1235 | 1202 | 1197 | 368 |
| 25° | 1188 | 1139 | 1041 | 965 | 947 | 547 |
| 35° | 1030 | 950 | 807 | 710 | 684 | 645 |
| 45° | 848 | 740 | 577 | 478 | 459 | 654 |
| 55° | 646 | 523 | 368 | 296 | 292 | 578 |
| 65° | 439 | 314 | 211 | 187 | 186 | 433 |
| 75° | 226 | 138 | 110 | 101 | 102 | 241 |
| 85° | 51 | 35 | 32 | 30 | 30 | 61 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1383.7 | 1383.7 | 1383.7 | 1383.7 | 1383.7 |
| 2.5° | 1373.5 | 1389.8 | 1377.6 | 1379.6 | 1381.7 |
| 5° | 1367.4 | 1382.7 | 1364.4 | 1357.2 | 1363.3 |
| 7.5° | 1357.2 | 1367.4 | 1338.9 | 1325.7 | 1331.8 |
| 10° | 1344.0 | 1346.0 | 1308.4 | 1289.0 | 1292.1 |
| 12.5° | 1325.7 | 1320.6 | 1274.8 | 1247.3 | 1249.3 |
| 15° | 1304.3 | 1290.0 | 1235.1 | 1201.5 | 1197.4 |
| 17.5° | 1279.9 | 1256.4 | 1191.3 | 1148.5 | 1140.4 |
| 20° | 1252.4 | 1220.8 | 1144.4 | 1089.5 | 1080.3 |
| 22.5° | 1221.8 | 1181.1 | 1093.5 | 1028.4 | 1015.1 |
| 25° | 1188.2 | 1139.3 | 1040.6 | 965.2 | 946.9 |
| 27.5° | 1151.6 | 1094.5 | 983.6 | 901.1 | 877.7 |
| 30° | 1112.9 | 1047.7 | 925.5 | 836.9 | 812.5 |
| 32.5° | 1073.2 | 999.9 | 866.5 | 772.8 | 747.3 |
| 35° | 1030.4 | 950.0 | 807.4 | 709.7 | 684.2 |
| 37.5° | 986.6 | 898.0 | 747.3 | 648.6 | 622.1 |
| 40° | 941.8 | 846.1 | 689.3 | 587.5 | 566.1 |
| 42.5° | 896.0 | 793.2 | 632.3 | 530.5 | 511.1 |
| 45° | 848.1 | 740.2 | 577.3 | 477.5 | 459.2 |
| 47.5° | 799.3 | 686.3 | 521.3 | 427.6 | 410.3 |
| 50° | 747.3 | 632.3 | 468.4 | 378.8 | 360.4 |
| 52.5° | 697.5 | 577.3 | 417.5 | 330.9 | 321.7 |
| 55° | 646.5 | 523.3 | 367.6 | 296.3 | 292.2 |
| 57.5° | 595.6 | 469.4 | 321.7 | 268.8 | 264.7 |
| 60° | 543.7 | 416.4 | 274.9 | 240.3 | 236.2 |
| 62.5° | 491.8 | 364.5 | 240.3 | 212.8 | 210.8 |
| 65° | 438.8 | 313.6 | 210.8 | 187.3 | 186.3 |
| 67.5° | 382.8 | 264.7 | 184.3 | 164.9 | 163.9 |
| 70° | 329.9 | 215.9 | 157.8 | 142.5 | 142.5 |
| 72.5° | 280.0 | 171.1 | 133.4 | 121.2 | 121.2 |
| 75° | 226.0 | 137.5 | 110.0 | 100.8 | 101.8 |
| 77.5° | 178.2 | 107.9 | 88.6 | 82.5 | 82.5 |
| 80° | 132.4 | 80.4 | 68.2 | 63.1 | 64.1 |
| 82.5° | 89.6 | 56.0 | 48.9 | 45.8 | 45.8 |
| 85° | 50.9 | 34.6 | 31.6 | 29.5 | 29.5 |
| 87.5° | 18.3 | 16.3 | 15.3 | 13.2 | 14.3 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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CIE UGR TABLE:

| Reflectances: | | | | | | | | | | | |
|-----------------|------|------------------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|
| Ceiling | | 0.7 | 0.7 | 0.5 | 0.5 | 0.3 | 0.7 | 0.7 | 0.5 | 0.5 | 0.3 |
| Wall | | 0.5 | 0.3 | 0.5 | 0.3 | 0.3 | 0.5 | 0.3 | 0.5 | 0.3 | 0.3 |
| Reference plane | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Room dimensions | | Viewed crosswise | | | | | Viewed endwise | | | | |
| X=2H | Y=2H | 19.84 | 21.37 | 20.21 | 21.68 | 22.00 | 15.62 | 17.14 | 15.98 | 17.46 | 17.77 |
| | 3H | 21.62 | 22.99 | 22.00 | 23.32 | 23.68 | 17.23 | 18.60 | 17.61 | 18.93 | 19.29 |
| | 4H | 22.29 | 23.57 | 22.69 | 23.92 | 24.30 | 17.86 | 19.15 | 18.26 | 19.50 | 19.87 |
| | 6H | 22.80 | 23.99 | 23.21 | 24.35 | 24.75 | 18.36 | 19.55 | 18.77 | 19.92 | 20.31 |
| | 8H | 22.96 | 24.09 | 23.39 | 24.48 | 24.88 | 18.53 | 19.66 | 18.96 | 20.05 | 20.45 |
| | 12H | 23.06 | 24.14 | 23.49 | 24.53 | 24.96 | 18.65 | 19.74 | 19.08 | 20.12 | 20.55 |
| 4H | 2H | 19.94 | 21.22 | 20.34 | 21.57 | 21.95 | 16.34 | 17.62 | 16.74 | 17.97 | 18.35 |
| | 3H | 21.88 | 22.95 | 22.29 | 23.35 | 23.75 | 18.15 | 19.22 | 18.56 | 19.61 | 20.02 |
| | 4H | 22.64 | 23.60 | 23.07 | 24.02 | 24.46 | 18.88 | 19.85 | 19.31 | 20.26 | 20.70 |
| | 6H | 23.27 | 24.11 | 23.73 | 24.55 | 25.01 | 19.50 | 20.34 | 19.96 | 20.78 | 21.24 |
| | 8H | 23.49 | 24.28 | 23.96 | 24.72 | 25.19 | 19.71 | 20.50 | 20.18 | 20.94 | 21.41 |
| | 12H | 23.65 | 24.35 | 24.13 | 24.83 | 25.30 | 19.88 | 20.58 | 20.36 | 21.06 | 21.53 |
| 8H | 4H | 22.70 | 23.48 | 23.16 | 23.92 | 24.39 | 19.27 | 20.06 | 19.73 | 20.50 | 20.97 |
| | 6H | 23.39 | 24.04 | 23.89 | 24.53 | 25.01 | 20.00 | 20.65 | 20.50 | 21.14 | 21.62 |
| | 8H | 23.66 | 24.24 | 24.18 | 24.75 | 25.24 | 20.29 | 20.87 | 20.80 | 21.38 | 21.87 |
| | 12H | 23.88 | 24.40 | 24.39 | 24.89 | 25.45 | 20.54 | 21.05 | 21.05 | 21.54 | 22.11 |
| 12H | 4H | 22.69 | 23.39 | 23.17 | 23.87 | 24.34 | 19.33 | 20.03 | 19.81 | 20.51 | 20.98 |
| | 6H | 23.39 | 23.97 | 23.90 | 24.48 | 24.97 | 20.09 | 20.67 | 20.60 | 21.18 | 21.67 |
| | 8H | 23.70 | 24.21 | 24.21 | 24.70 | 25.27 | 20.43 | 20.95 | 20.94 | 21.44 | 22.01 |