

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



Scaled data based on original data using  
LM-79-2024 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P1056092

Luminaire Tested: S124R3DR-H1020D835-X4F0-XX-UDD-F-S

Issue Date: 7/25/2025

**Test Information**

Test Method: LM-79-2024  
Report Number: P1056092  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2503-402-9)  
Test Lab: INNOVATION CENTER  
Issue Date: 7/25/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S124R3DR-H1020D835-X4F0-XX-UDD-F-S  
Description: DEFINE 4, SILVER 3-INCH REGRESSED DIRECT RECESSED HOUSING WITH FROSTED LENS  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: 3500K CCT, 80 CRI LEDS  
Ballast/Driver: -

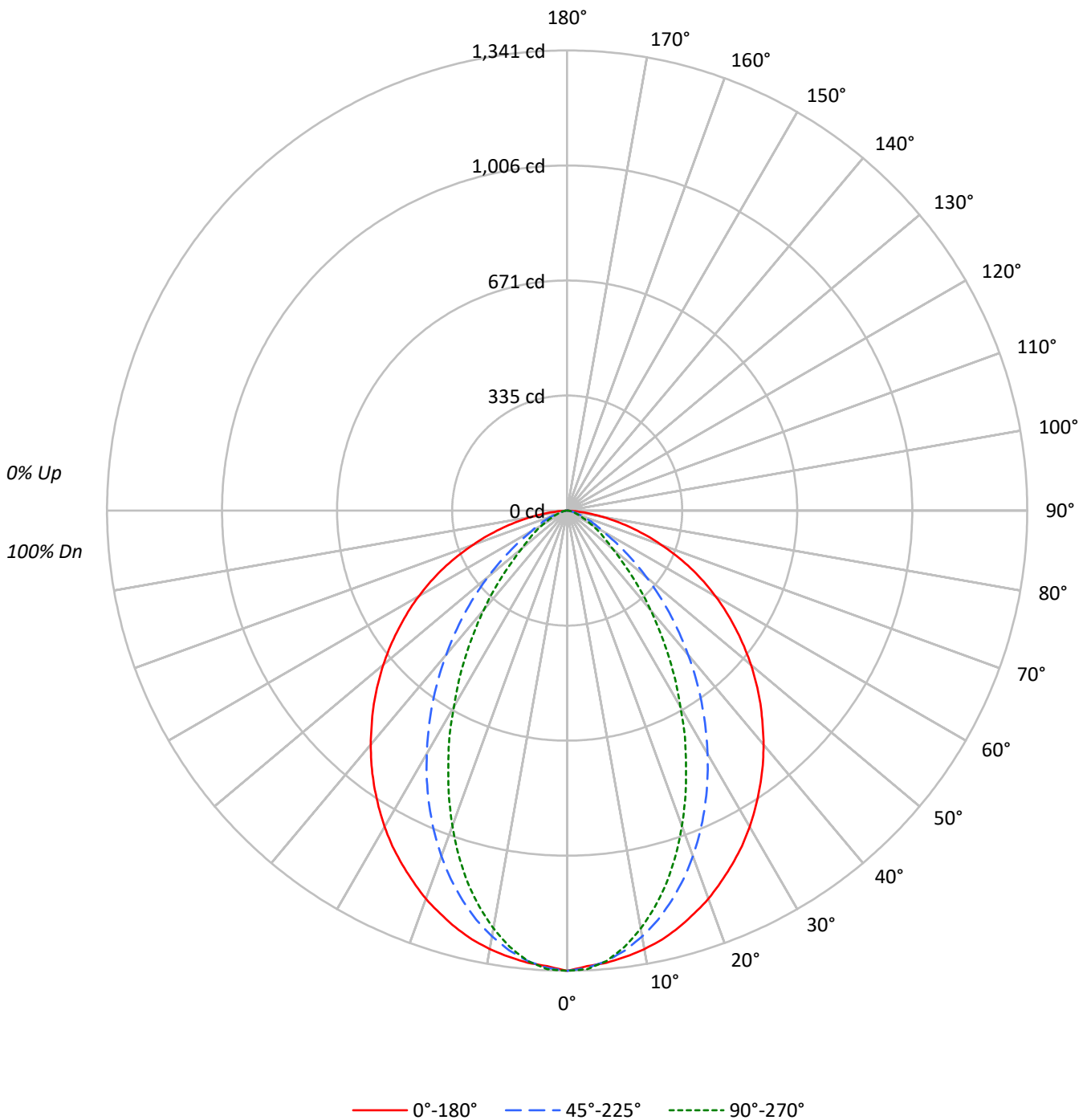
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2168.8 lumens  
Efficiency: N/A  
Efficacy: 70.2 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 0.87 / 1.03  
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<sub>in</sub>): 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   | 111 | 107 | 104 | 101 | 108 | 105 | 102 | 99  | 101 | 98  | 96  | 97  | 95  | 93  | 94  | 92  | 90  | 89  |
| 2   | 103 | 96  | 91  | 86  | 101 | 94  | 89  | 85  | 91  | 87  | 83  | 88  | 84  | 81  | 85  | 82  | 79  | 78  |
| 3   | 95  | 87  | 80  | 74  | 93  | 85  | 79  | 74  | 82  | 77  | 73  | 80  | 75  | 71  | 77  | 73  | 70  | 68  |
| 4   | 89  | 78  | 71  | 65  | 86  | 77  | 70  | 65  | 75  | 69  | 64  | 73  | 67  | 63  | 71  | 66  | 62  | 60  |
| 5   | 82  | 71  | 64  | 58  | 80  | 70  | 63  | 58  | 68  | 62  | 57  | 66  | 61  | 56  | 65  | 60  | 56  | 54  |
| 6   | 77  | 65  | 57  | 52  | 75  | 64  | 57  | 52  | 63  | 56  | 51  | 61  | 55  | 51  | 60  | 54  | 50  | 48  |
| 7   | 72  | 60  | 52  | 47  | 70  | 59  | 52  | 47  | 58  | 51  | 46  | 56  | 50  | 46  | 55  | 50  | 46  | 44  |
| 8   | 67  | 55  | 48  | 42  | 66  | 55  | 47  | 42  | 53  | 47  | 42  | 52  | 46  | 42  | 51  | 46  | 42  | 40  |
| 9   | 63  | 51  | 44  | 39  | 62  | 51  | 44  | 39  | 50  | 43  | 39  | 49  | 43  | 38  | 48  | 42  | 38  | 37  |
| 10  | 60  | 48  | 41  | 36  | 59  | 47  | 40  | 36  | 46  | 40  | 36  | 45  | 40  | 35  | 45  | 39  | 35  | 34  |

**AVERAGE LUMINANCE (cd/sqm):**

|     | 0°    | 45°   | 90°   |
|-----|-------|-------|-------|
| 0°  | 11859 | 11859 | 11859 |
| 5°  | 11737 | 11693 | 11693 |
| 10° | 11650 | 11313 | 11100 |
| 15° | 11511 | 10768 | 10265 |
| 20° | 11327 | 10082 | 9200  |
| 25° | 11099 | 9272  | 7992  |
| 30° | 10863 | 8351  | 6732  |
| 35° | 10581 | 7373  | 5540  |
| 40° | 10277 | 6327  | 4367  |
| 45° | 9963  | 5263  | 3263  |
| 50° | 9620  | 4140  | 2388  |
| 55° | 9239  | 3061  | 1905  |
| 60° | 8833  | 2120  | 1457  |
| 65° | 8308  | 1646  | 1071  |
| 70° | 7522  | 1163  | 840   |
| 75° | 6569  | 810   | 639   |
| 80° | 5280  | 636   | 570   |
| 85° | 2911  | 507   | 507   |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 9963 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 124.4  | 5.7       |
| 10°-20°   | 332.4  | 15.3      |
| 20°-30°   | 443.4  | 20.4      |
| 30°-40°   | 446.4  | 20.6      |
| 40°-50°   | 366.1  | 16.9      |
| 50°-60°   | 250.3  | 11.5      |
| 60°-70°   | 139.8  | 6.4       |
| 70°-80°   | 55.4   | 2.6       |
| 80°-90°   | 10.5   | 0.5       |
| 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°    | 900.2  | 41.5      |
| 0°-40°    | 1346.6 | 62.1      |
| 0°-60°    | 1963.0 | 90.5      |
| 0°-90°    | 2168.8 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2168.8 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1341 | 1341  | 1341 | 1341  | 1341 |      |
| 5°  | 1322 | 1338  | 1318 | 1311  | 1318 | 125  |
| 15° | 1258 | 1244  | 1176 | 1135  | 1122 | 354  |
| 25° | 1138 | 1082  | 950  | 854   | 819  | 524  |
| 35° | 980  | 877   | 683  | 553   | 513  | 613  |
| 45° | 797  | 651   | 421  | 296   | 261  | 614  |
| 55° | 599  | 421   | 199  | 132   | 124  | 536  |
| 65° | 397  | 200   | 79   | 56    | 51   | 392  |
| 75° | 192  | 52    | 24   | 20    | 19   | 206  |
| 85° | 29   | 5     | 5    | 5     | 5    | 41   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1341.3 | 1341.3 | 1341.3 | 1341.3 | 1341.3 |
| 2.5°  | 1328.8 | 1345.0 | 1333.8 | 1335.0 | 1337.5 |
| 5°    | 1322.5 | 1337.5 | 1317.5 | 1311.3 | 1317.5 |
| 7.5°  | 1311.3 | 1322.5 | 1292.6 | 1280.1 | 1282.6 |
| 10°   | 1297.6 | 1301.3 | 1260.1 | 1238.9 | 1236.4 |
| 12.5° | 1280.1 | 1275.1 | 1221.4 | 1190.1 | 1182.7 |
| 15°   | 1257.6 | 1243.9 | 1176.4 | 1135.2 | 1121.5 |
| 17.5° | 1231.4 | 1207.6 | 1126.5 | 1072.8 | 1052.8 |
| 20°   | 1203.9 | 1168.9 | 1071.5 | 1002.8 | 977.8  |
| 22.5° | 1171.4 | 1127.7 | 1012.8 | 929.1  | 900.4  |
| 25°   | 1137.7 | 1081.5 | 950.4  | 854.2  | 819.2  |
| 27.5° | 1102.7 | 1034.0 | 885.4  | 778.0  | 743.1  |
| 30°   | 1064.0 | 982.8  | 818.0  | 701.9  | 659.4  |
| 32.5° | 1022.8 | 930.4  | 750.6  | 626.9  | 587.0  |
| 35°   | 980.3  | 876.7  | 683.1  | 553.2  | 513.3  |
| 37.5° | 936.6  | 821.7  | 615.7  | 483.3  | 443.3  |
| 40°   | 890.4  | 765.5  | 548.2  | 417.1  | 378.4  |
| 42.5° | 843.0  | 708.1  | 483.3  | 354.7  | 318.5  |
| 45°   | 796.8  | 650.6  | 420.9  | 296.0  | 261.0  |
| 47.5° | 748.1  | 593.2  | 359.7  | 241.0  | 211.1  |
| 50°   | 699.4  | 535.8  | 301.0  | 193.6  | 173.6  |
| 52.5° | 649.4  | 478.3  | 247.3  | 158.6  | 144.9  |
| 55°   | 599.4  | 420.9  | 198.6  | 132.4  | 123.6  |
| 57.5° | 549.5  | 363.4  | 153.6  | 112.4  | 102.4  |
| 60°   | 499.5  | 307.2  | 119.9  | 91.2   | 82.4   |
| 62.5° | 448.3  | 251.0  | 98.7   | 72.4   | 64.9   |
| 65°   | 397.1  | 199.8  | 78.7   | 56.2   | 51.2   |
| 67.5° | 345.9  | 152.4  | 59.9   | 43.7   | 40.0   |
| 70°   | 291.0  | 108.6  | 45.0   | 33.7   | 32.5   |
| 72.5° | 243.5  | 73.7   | 32.5   | 26.2   | 25.0   |
| 75°   | 192.3  | 52.5   | 23.7   | 20.0   | 18.7   |
| 77.5° | 148.6  | 33.7   | 17.5   | 16.2   | 15.0   |
| 80°   | 103.7  | 18.7   | 12.5   | 11.2   | 11.2   |
| 82.5° | 63.7   | 10.0   | 8.7    | 7.5    | 7.5    |
| 85°   | 28.7   | 5.0    | 5.0    | 5.0    | 5.0    |
| 87.5° | 5.0    | 2.5    | 2.5    | 2.5    | 2.5    |
| 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 | 19.32            | 20.72 | 19.68 | 21.04 | 21.35 | 10.41          | 11.81 | 10.77 | 12.13 | 12.44 |
|                 | 3H   | 20.90            | 22.15 | 21.28 | 22.48 | 22.85 | 11.00          | 12.25 | 11.38 | 12.58 | 12.94 |
|                 | 4H   | 21.50            | 22.67 | 21.90 | 23.02 | 23.40 | 11.16          | 12.32 | 11.56 | 12.67 | 13.06 |
|                 | 6H   | 21.93            | 23.00 | 22.34 | 23.37 | 23.77 | 11.26          | 12.34 | 11.68 | 12.71 | 13.10 |
|                 | 8H   | 22.04            | 23.06 | 22.47 | 23.45 | 23.86 | 11.28          | 12.30 | 11.71 | 12.69 | 13.10 |
|                 | 12H  | 22.08            | 23.06 | 22.52 | 23.44 | 23.87 | 11.29          | 12.27 | 11.72 | 12.65 | 13.08 |
| 4H              | 2H   | 19.17            | 20.34 | 19.57 | 20.69 | 21.07 | 10.99          | 12.16 | 11.39 | 12.51 | 12.89 |
|                 | 3H   | 20.82            | 21.78 | 21.23 | 22.18 | 22.58 | 11.70          | 12.66 | 12.11 | 13.06 | 13.47 |
|                 | 4H   | 21.42            | 22.28 | 21.86 | 22.70 | 23.14 | 11.91          | 12.76 | 12.34 | 13.18 | 13.62 |
|                 | 6H   | 21.92            | 22.66 | 22.38 | 23.10 | 23.57 | 12.07          | 12.81 | 12.53 | 13.26 | 13.72 |
|                 | 8H   | 22.06            | 22.75 | 22.53 | 23.20 | 23.67 | 12.10          | 12.80 | 12.57 | 13.24 | 13.71 |
|                 | 12H  | 22.13            | 22.75 | 22.62 | 23.23 | 23.70 | 12.13          | 12.74 | 12.62 | 13.23 | 13.70 |
| 8H              | 4H   | 21.32            | 22.01 | 21.78 | 22.45 | 22.92 | 12.18          | 12.87 | 12.64 | 13.32 | 13.79 |
|                 | 6H   | 21.80            | 22.36 | 22.30 | 22.86 | 23.34 | 12.38          | 12.95 | 12.88 | 13.44 | 13.92 |
|                 | 8H   | 21.94            | 22.45 | 22.46 | 22.96 | 23.45 | 12.44          | 12.95 | 12.96 | 13.46 | 13.95 |
|                 | 12H  | 22.03            | 22.48 | 22.55 | 22.98 | 23.54 | 12.50          | 12.95 | 13.01 | 13.44 | 14.01 |
| 12H             | 4H   | 21.28            | 21.89 | 21.76 | 22.37 | 22.85 | 12.21          | 12.82 | 12.69 | 13.30 | 13.77 |
|                 | 6H   | 21.74            | 22.25 | 22.26 | 22.77 | 23.26 | 12.41          | 12.92 | 12.93 | 13.43 | 13.92 |
|                 | 8H   | 21.91            | 22.36 | 22.42 | 22.85 | 23.42 | 12.50          | 12.95 | 13.01 | 13.44 | 14.01 |