

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: P1056160

Luminaire Tested: S124R3DR-H350D935-X4F0-XX-UDD-FLL-B

Issue Date: 7/25/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P1056160  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2503-402-8)  
Test Lab: INNOVATION CENTER  
Issue Date: 7/25/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S124R3DR-H350D935-X4F0-XX-UDD-FLL-B  
Description: DEFINE 4, BLACK 3-INCH REGRESSED DIRECT RECESSED HOUSING WITH FROSTED LENS  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: 3500K CCT, 90 CRI LEDS  
Ballast/Driver: -

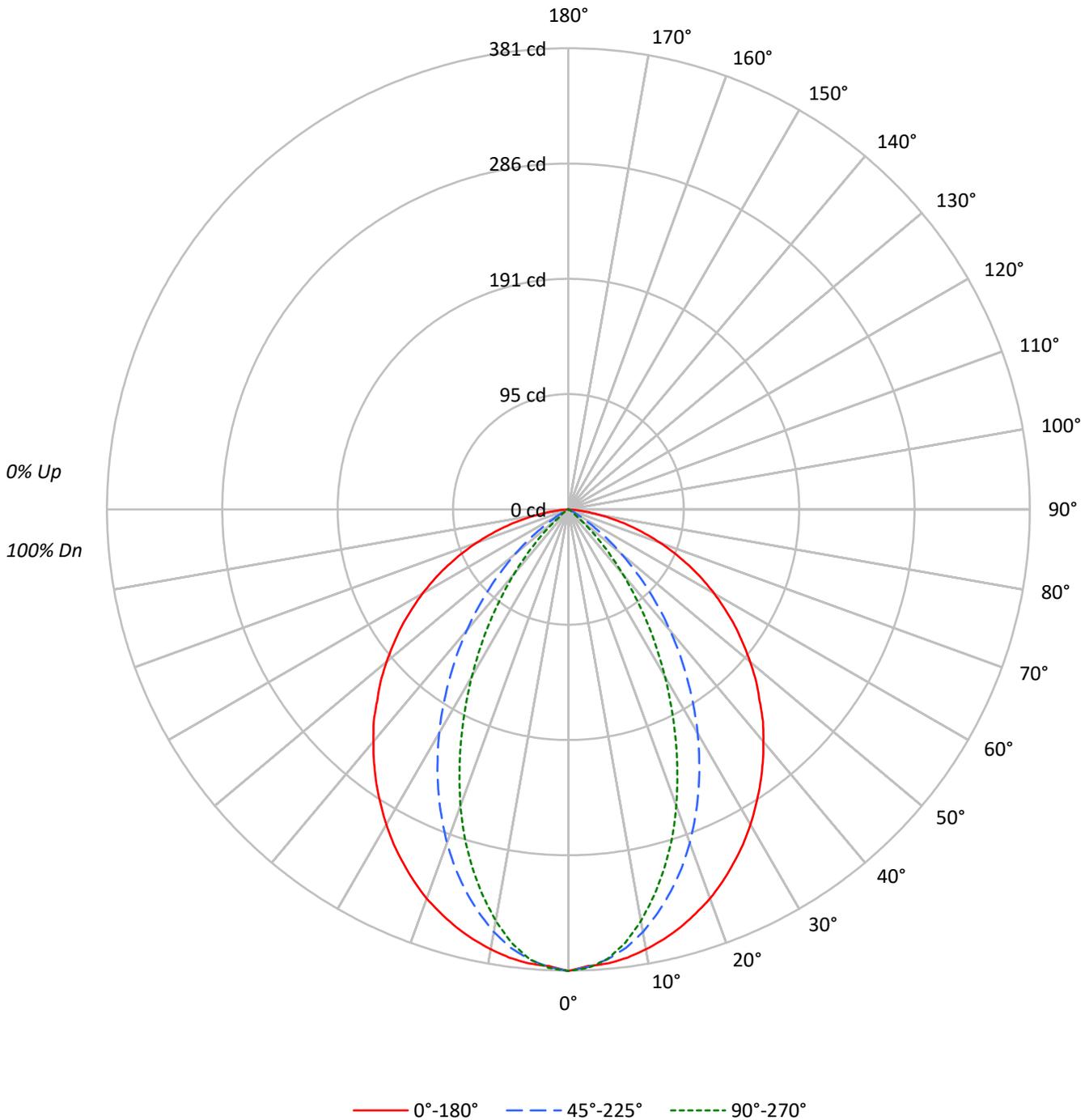
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 533.0 lumens  
Efficiency: N/A  
Efficacy: 45.6 lumens/watt  
Spacing Criteria (0/90/45): 1.18 / 0.81 / 0.97  
Luminous Opening: Rectangular (W 0.31' x L: 3.9' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 11.7  
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  |
| 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   | 112 | 108 | 105 | 102 | 109 | 106 | 103 | 100 | 102 | 99  | 97  | 98  | 96  | 94  | 95  | 93  | 92  |
| 2   | 104 | 98  | 93  | 88  | 102 | 96  | 91  | 87  | 93  | 89  | 85  | 90  | 86  | 83  | 87  | 84  | 82  |
| 3   | 97  | 89  | 82  | 77  | 95  | 87  | 81  | 77  | 84  | 79  | 75  | 82  | 78  | 74  | 79  | 76  | 73  |
| 4   | 90  | 81  | 74  | 68  | 88  | 80  | 73  | 68  | 77  | 72  | 67  | 75  | 70  | 66  | 73  | 69  | 65  |
| 5   | 84  | 74  | 66  | 61  | 83  | 73  | 66  | 61  | 71  | 65  | 60  | 69  | 64  | 60  | 67  | 63  | 59  |
| 6   | 79  | 68  | 60  | 55  | 77  | 67  | 60  | 55  | 65  | 59  | 54  | 64  | 58  | 54  | 62  | 57  | 54  |
| 7   | 74  | 63  | 55  | 50  | 73  | 62  | 55  | 50  | 60  | 54  | 50  | 59  | 53  | 49  | 58  | 53  | 49  |
| 8   | 70  | 58  | 51  | 46  | 68  | 57  | 50  | 46  | 56  | 50  | 45  | 55  | 49  | 45  | 54  | 49  | 45  |
| 9   | 66  | 54  | 47  | 42  | 64  | 53  | 47  | 42  | 52  | 46  | 42  | 51  | 46  | 42  | 50  | 45  | 41  |
| 10  | 62  | 50  | 43  | 39  | 61  | 50  | 43  | 39  | 49  | 43  | 39  | 48  | 42  | 39  | 47  | 42  | 38  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3371 | 3371 | 3371 |
| 5°  | 3341 | 3311 | 3308 |
| 10° | 3313 | 3182 | 3098 |
| 15° | 3271 | 2990 | 2805 |
| 20° | 3219 | 2758 | 2452 |
| 25° | 3147 | 2484 | 2046 |
| 30° | 3069 | 2180 | 1626 |
| 35° | 2982 | 1848 | 1211 |
| 40° | 2891 | 1506 | 807  |
| 45° | 2791 | 1150 | 444  |
| 50° | 2695 | 787  | 124  |
| 55° | 2588 | 427  | 80   |
| 60° | 2460 | 133  | 46   |
| 65° | 2299 | 86   | 23   |
| 70° | 2078 | 39   | 10   |
| 75° | 1787 | 14   | 0    |
| 80° | 1349 | 0    | 0    |
| 85° | 568  | 0    | 0    |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2791 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 35.2   | 6.6       |
| 10°-20°   | 92.4   | 17.3      |
| 20°-30°   | 119.3  | 22.4      |
| 30°-40°   | 114.1  | 21.4      |
| 40°-50°   | 85.3   | 16.0      |
| 50°-60°   | 50.8   | 9.5       |
| 60°-70°   | 25.8   | 4.8       |
| 70°-80°   | 9.0    | 1.7       |
| 80°-90°   | 1.2    | 0.2       |
| 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°    | 246.9  | 46.3      |
| 0°-40°    | 360.9  | 67.7      |
| 0°-60°    | 497.0  | 93.3      |
| 0°-90°    | 533.0  | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 533.0  | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 381 | 381   | 381 | 381   | 381 |      |
| 5°  | 376 | 379   | 373 | 371   | 373 | 36   |
| 15° | 357 | 350   | 327 | 311   | 306 | 101  |
| 25° | 323 | 300   | 255 | 221   | 210 | 149  |
| 35° | 276 | 238   | 171 | 128   | 112 | 173  |
| 45° | 223 | 171   | 92  | 49    | 36  | 173  |
| 55° | 168 | 104   | 28  | 6     | 5   | 150  |
| 65° | 110 | 42    | 4   | 2     | 1   | 109  |
| 75° | 52  | 6     | 0   | 0     | 0   | 56   |
| 85° | 6   | 0     | 0   | 0     | 0   | 9    |
| 90° | 0   | 0     | 0   | 0     | 0   |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 381.3 | 381.3 | 381.3 | 381.3 | 381.3 |
| 2.5°  | 377.6 | 382.1 | 378.3 | 378.7 | 379.1 |
| 5°    | 376.5 | 379.4 | 373.1 | 371.2 | 372.7 |
| 7.5°  | 373.5 | 374.6 | 365.2 | 360.4 | 360.8 |
| 10°   | 369.0 | 367.9 | 354.4 | 346.2 | 345.1 |
| 12.5° | 363.7 | 360.0 | 341.3 | 329.4 | 326.7 |
| 15°   | 357.4 | 349.9 | 326.7 | 311.4 | 306.5 |
| 17.5° | 349.9 | 339.1 | 310.7 | 290.5 | 284.5 |
| 20°   | 342.1 | 327.1 | 293.1 | 268.0 | 260.6 |
| 22.5° | 332.7 | 313.7 | 274.0 | 244.5 | 235.1 |
| 25°   | 322.6 | 300.2 | 254.6 | 220.9 | 209.7 |
| 27.5° | 312.2 | 285.6 | 234.0 | 197.0 | 183.9 |
| 30°   | 300.6 | 270.3 | 213.5 | 172.7 | 159.3 |
| 32.5° | 288.6 | 254.6 | 192.2 | 150.3 | 135.3 |
| 35°   | 276.3 | 238.1 | 171.2 | 127.5 | 112.2 |
| 37.5° | 263.6 | 221.7 | 151.0 | 105.8 | 90.1  |
| 40°   | 250.5 | 204.9 | 130.5 | 85.2  | 69.9  |
| 42.5° | 237.8 | 188.0 | 111.0 | 65.8  | 51.6  |
| 45°   | 223.2 | 171.2 | 92.0  | 49.0  | 35.5  |
| 47.5° | 210.1 | 154.8 | 73.6  | 33.3  | 20.9  |
| 50°   | 195.9 | 137.2 | 57.2  | 19.4  | 9.0   |
| 52.5° | 181.7 | 120.7 | 41.9  | 8.6   | 6.7   |
| 55°   | 167.9 | 104.3 | 27.7  | 6.4   | 5.2   |
| 57.5° | 153.3 | 87.9  | 15.0  | 4.9   | 3.7   |
| 60°   | 139.1 | 71.8  | 7.5   | 3.7   | 2.6   |
| 62.5° | 124.5 | 56.4  | 6.0   | 2.2   | 1.5   |
| 65°   | 109.9 | 42.2  | 4.1   | 1.5   | 1.1   |
| 67.5° | 95.3  | 28.8  | 2.6   | 0.7   | 0.4   |
| 70°   | 80.4  | 17.6  | 1.5   | 0.4   | 0.4   |
| 72.5° | 66.2  | 9.0   | 0.7   | 0.4   | 0.4   |
| 75°   | 52.3  | 5.6   | 0.4   | 0.4   | 0.0   |
| 77.5° | 38.9  | 3.0   | 0.4   | 0.4   | 0.0   |
| 80°   | 26.5  | 1.1   | 0.0   | 0.0   | 0.0   |
| 82.5° | 15.3  | 0.4   | 0.0   | 0.0   | 0.0   |
| 85°   | 5.6   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 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 | 14.68            | 16.01 | 15.05 | 16.32 | 16.64 | 0.00           | 0.00 | 0.00 | 0.00 | 0.00 |
|                 | 3H   | 16.22            | 17.40 | 16.60 | 17.73 | 18.09 | 0.00           | 0.00 | 0.00 | 0.00 | 0.00 |
|                 | 4H   | 16.82            | 17.91 | 17.22 | 18.26 | 18.64 | 0.00           | 0.00 | 0.00 | 0.00 | 0.00 |
|                 | 6H   | 17.23            | 18.24 | 17.65 | 18.61 | 19.00 | 0.00           | 0.00 | 0.00 | 0.00 | 0.00 |
|                 | 8H   | 17.33            | 18.28 | 17.76 | 18.67 | 19.08 | 0.00           | 0.00 | 0.00 | 0.00 | 0.00 |
|                 | 12H  | 17.35            | 18.26 | 17.78 | 18.64 | 19.07 | 0.00           | 0.00 | 0.00 | 0.00 | 0.00 |
| 4H              | 2H   | 14.46            | 15.55 | 14.86 | 15.90 | 16.29 | 0.00           | 0.00 | 0.00 | 0.00 | 0.00 |
|                 | 3H   | 16.02            | 16.91 | 16.43 | 17.32 | 17.72 | 0.00           | 0.00 | 0.00 | 0.00 | 0.00 |
|                 | 4H   | 16.60            | 17.40 | 17.04 | 17.82 | 18.26 | 0.00           | 0.00 | 0.00 | 0.00 | 0.00 |
|                 | 6H   | 17.06            | 17.75 | 17.53 | 18.20 | 18.66 | 0.00           | 0.00 | 0.00 | 0.00 | 0.00 |
|                 | 8H   | 17.18            | 17.82 | 17.65 | 18.27 | 18.74 | 0.00           | 0.00 | 0.00 | 0.00 | 0.00 |
|                 | 12H  | 17.22            | 17.79 | 17.71 | 18.27 | 18.75 | 0.00           | 0.00 | 0.00 | 0.00 | 0.00 |
| 8H              | 4H   | 16.47            | 17.11 | 16.94 | 17.56 | 18.03 | 0.00           | 0.00 | 0.00 | 0.00 | 0.00 |
|                 | 6H   | 16.91            | 17.43 | 17.41 | 17.93 | 18.41 | 0.00           | 0.00 | 0.00 | 0.00 | 0.00 |
|                 | 8H   | 17.02            | 17.49 | 17.55 | 18.01 | 18.50 | 0.00           | 0.00 | 0.00 | 0.00 | 0.00 |
|                 | 12H  | 17.07            | 17.49 | 17.59 | 17.98 | 18.55 | 0.00           | 0.00 | 0.00 | 0.00 | 0.00 |
| 12H             | 4H   | 16.42            | 16.99 | 16.91 | 17.47 | 17.94 | 0.00           | 0.00 | 0.00 | 0.00 | 0.00 |
|                 | 6H   | 16.85            | 17.31 | 17.37 | 17.83 | 18.32 | 0.00           | 0.00 | 0.00 | 0.00 | 0.00 |
|                 | 8H   | 16.98            | 17.39 | 17.50 | 17.89 | 18.46 | 0.00           | 0.00 | 0.00 | 0.00 | 0.00 |