

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: P997579

Luminaire Tested: SA2XXDP-B290DB2750-4F0-XX-W2A-F\_3500K

Issue Date: 5/2/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P997579  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-10)  
Test Lab: INNOVATION CENTER  
Issue Date: 5/2/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: SA2XXDP-B290DB2750-4F0-XX-W2A-F\_3500K  
Description: Define 2 Direct Recessed with 3500K BioUP LEDs {m-DER=0.721} {m-EER=0.792}  
Light Source: -  
Ballast/Driver: -

**Summary**

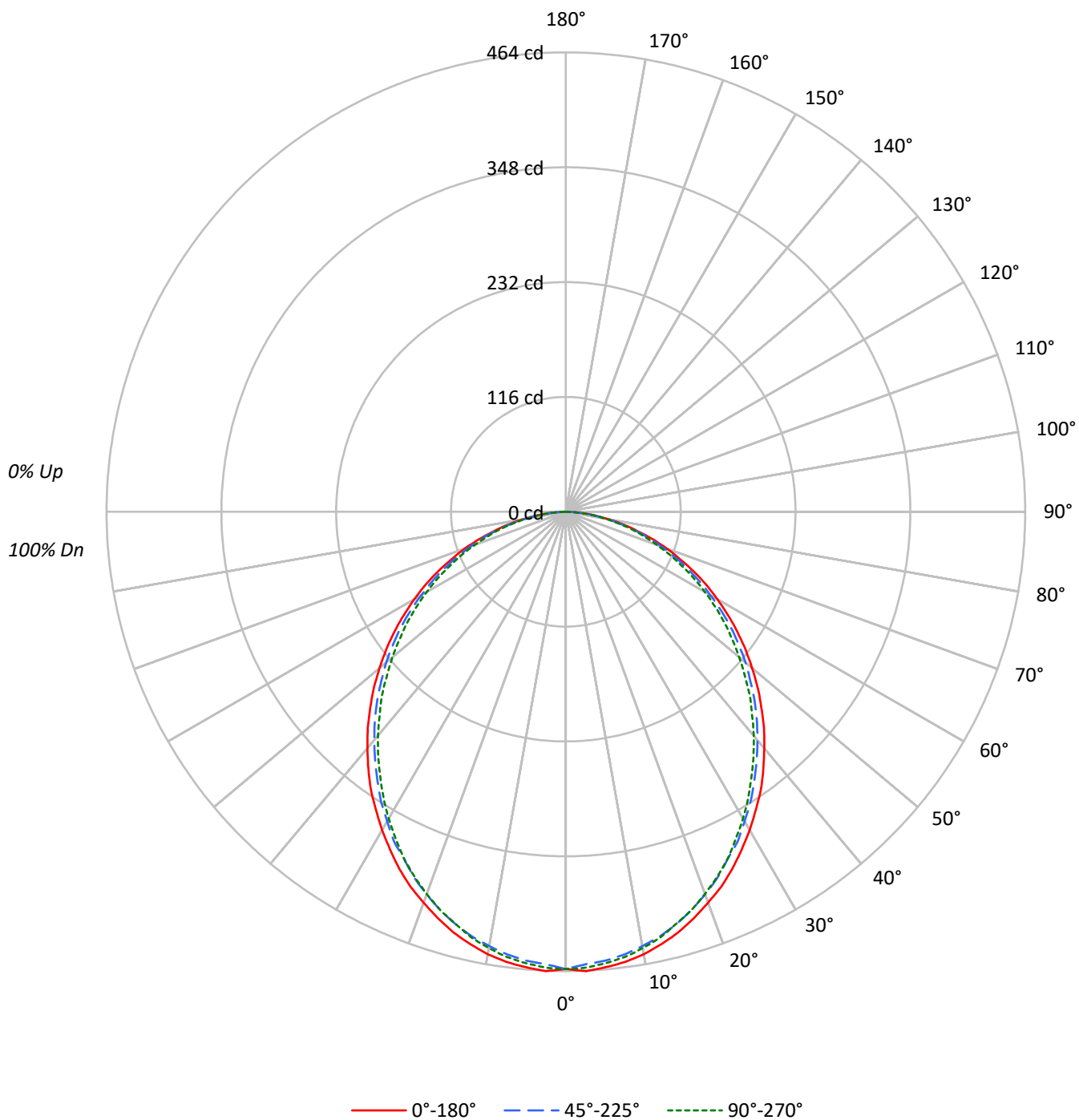
Lumens per Lamp: N/A  
Luminaire Lumens: 1175.0 lumens  
Efficiency: N/A  
Efficacy: 90.4 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular (W 0.17' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 13  
Input Voltage (V):  
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  |
| RCR |     |     |     |     |     |     |     |     |     |     |     |  |     |     |     |  |     |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 |  | 106 | 106 | 106 |  | 102 |
| 1   | 109 | 104 | 100 | 96  | 106 | 102 | 98  | 95  | 98  | 95  | 92  |  | 94  | 91  | 89  |  | 90  |
| 2   | 99  | 91  | 85  | 79  | 97  | 89  | 83  | 78  | 86  | 81  | 76  |  | 83  | 78  | 74  |  | 80  |
| 3   | 91  | 80  | 72  | 66  | 88  | 79  | 71  | 65  | 76  | 69  | 64  |  | 73  | 68  | 63  |  | 71  |
| 4   | 83  | 71  | 63  | 56  | 81  | 70  | 62  | 56  | 68  | 61  | 55  |  | 65  | 59  | 54  |  | 63  |
| 5   | 77  | 64  | 55  | 49  | 75  | 63  | 55  | 48  | 61  | 53  | 48  |  | 59  | 52  | 47  |  | 57  |
| 6   | 71  | 58  | 49  | 43  | 69  | 57  | 48  | 42  | 55  | 48  | 42  |  | 53  | 47  | 42  |  | 52  |
| 7   | 66  | 52  | 44  | 38  | 64  | 52  | 43  | 38  | 50  | 43  | 37  |  | 49  | 42  | 37  |  | 47  |
| 8   | 61  | 48  | 40  | 34  | 60  | 47  | 39  | 34  | 46  | 39  | 33  |  | 45  | 38  | 33  |  | 44  |
| 9   | 57  | 44  | 36  | 30  | 56  | 43  | 36  | 30  | 42  | 35  | 30  |  | 41  | 35  | 30  |  | 40  |
| 10  | 54  | 41  | 33  | 28  | 53  | 40  | 33  | 28  | 39  | 32  | 27  |  | 38  | 32  | 27  |  | 37  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 7310 | 7310 | 7310 |
| 5°  | 7338 | 7233 | 7274 |
| 10° | 7294 | 7159 | 7194 |
| 15° | 7204 | 7066 | 7060 |
| 20° | 7077 | 6927 | 6920 |
| 25° | 6950 | 6756 | 6756 |
| 30° | 6785 | 6598 | 6542 |
| 35° | 6634 | 6410 | 6315 |
| 40° | 6441 | 6222 | 6102 |
| 45° | 6252 | 6035 | 5885 |
| 50° | 6048 | 5839 | 5632 |
| 55° | 5834 | 5613 | 5404 |
| 60° | 5594 | 5341 | 5145 |
| 65° | 5337 | 5071 | 4839 |
| 70° | 5017 | 4749 | 4522 |
| 75° | 4563 | 4373 | 4263 |
| 80° | 4047 | 3929 | 3728 |
| 85° | 3305 | 3142 | 2815 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 6252 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 43.5   | 3.7       |
| 10°-20°   | 122.3  | 10.4      |
| 20°-30°   | 179.7  | 15.3      |
| 30°-40°   | 208.7  | 17.8      |
| 40°-50°   | 208.5  | 17.7      |
| 50°-60°   | 181.8  | 15.5      |
| 60°-70°   | 134.4  | 11.4      |
| 70°-80°   | 76.0   | 6.5       |
| 80°-90°   | 20.1   | 1.7       |
| 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°    | 345.5  | 29.4      |
| 0°-40°    | 554.2  | 47.2      |
| 0°-60°    | 944.5  | 80.4      |
| 0°-90°    | 1175.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1175.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 462 | 462   | 462 | 462   | 462 |      |
| 5°  | 462 | 460   | 455 | 459   | 458 | 44   |
| 15° | 440 | 437   | 431 | 433   | 431 | 124  |
| 25° | 398 | 394   | 387 | 388   | 387 | 183  |
| 35° | 343 | 339   | 332 | 329   | 327 | 214  |
| 45° | 279 | 276   | 270 | 265   | 263 | 216  |
| 55° | 211 | 209   | 203 | 198   | 196 | 189  |
| 65° | 142 | 140   | 135 | 131   | 129 | 141  |
| 75° | 75  | 74    | 72  | 69    | 70  | 80   |
| 85° | 18  | 18    | 17  | 16    | 16  | 21   |
| 90° | 0   | 0     | 0   | 0     | 0   |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 461.8 | 461.8 | 461.8 | 461.8 | 461.8 |
| 2.5°  | 464.5 | 462.3 | 457.4 | 461.8 | 461.0 |
| 5°    | 461.8 | 460.1 | 455.2 | 458.7 | 457.8 |
| 7.5°  | 458.7 | 456.1 | 451.2 | 454.7 | 453.8 |
| 10°   | 453.8 | 450.7 | 445.4 | 449.0 | 447.6 |
| 12.5° | 447.2 | 444.5 | 439.2 | 441.4 | 440.5 |
| 15°   | 439.6 | 437.0 | 431.2 | 433.0 | 430.8 |
| 17.5° | 430.3 | 427.6 | 421.9 | 424.1 | 421.9 |
| 20°   | 420.1 | 417.4 | 411.2 | 412.5 | 410.8 |
| 22.5° | 409.9 | 405.9 | 400.1 | 400.1 | 399.2 |
| 25°   | 397.9 | 394.3 | 386.8 | 387.7 | 386.8 |
| 27.5° | 384.6 | 381.5 | 375.7 | 374.4 | 372.1 |
| 30°   | 371.2 | 367.7 | 361.0 | 359.7 | 357.9 |
| 32.5° | 357.0 | 354.4 | 347.3 | 344.6 | 342.8 |
| 35°   | 343.3 | 338.8 | 331.7 | 329.1 | 326.8 |
| 37.5° | 327.7 | 323.7 | 316.6 | 313.5 | 311.3 |
| 40°   | 311.7 | 308.2 | 301.1 | 297.1 | 295.3 |
| 42.5° | 296.2 | 292.6 | 285.5 | 281.1 | 278.4 |
| 45°   | 279.3 | 276.2 | 269.6 | 264.7 | 262.9 |
| 47.5° | 262.9 | 259.8 | 252.7 | 247.8 | 245.1 |
| 50°   | 245.6 | 243.4 | 237.1 | 230.9 | 228.7 |
| 52.5° | 228.7 | 225.6 | 219.8 | 214.9 | 211.8 |
| 55°   | 211.4 | 208.7 | 203.4 | 198.1 | 195.8 |
| 57.5° | 194.1 | 191.8 | 186.1 | 180.7 | 179.0 |
| 60°   | 176.7 | 175.0 | 168.7 | 163.9 | 162.5 |
| 62.5° | 159.9 | 156.8 | 152.3 | 147.9 | 146.1 |
| 65°   | 142.5 | 139.9 | 135.4 | 131.4 | 129.2 |
| 67.5° | 124.8 | 122.6 | 118.6 | 115.5 | 113.7 |
| 70°   | 108.4 | 106.6 | 102.6 | 99.5  | 97.7  |
| 72.5° | 91.5  | 89.7  | 87.5  | 84.4  | 83.0  |
| 75°   | 74.6  | 73.7  | 71.5  | 68.8  | 69.7  |
| 77.5° | 59.5  | 57.7  | 56.8  | 55.5  | 54.2  |
| 80°   | 44.4  | 44.0  | 43.1  | 41.7  | 40.9  |
| 82.5° | 30.2  | 30.2  | 29.8  | 28.0  | 28.0  |
| 85°   | 18.2  | 17.8  | 17.3  | 16.0  | 15.5  |
| 87.5° | 8.0   | 7.1   | 6.2   | 4.9   | 4.4   |
| 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 | 18.19            | 19.80 | 18.56 | 20.12 | 20.43 | 17.75          | 19.36 | 18.11 | 19.67 | 19.99 |
|                 | 3H   | 19.94            | 21.40 | 20.32 | 21.73 | 22.09 | 19.45          | 20.91 | 19.83 | 21.23 | 21.59 |
|                 | 4H   | 20.59            | 21.96 | 20.99 | 22.31 | 22.68 | 20.10          | 21.46 | 20.49 | 21.81 | 22.19 |
|                 | 6H   | 21.06            | 22.33 | 21.47 | 22.69 | 23.08 | 20.56          | 21.83 | 20.97 | 22.19 | 22.58 |
|                 | 8H   | 21.20            | 22.41 | 21.63 | 22.80 | 23.20 | 20.70          | 21.91 | 21.12 | 22.30 | 22.70 |
|                 | 12H  | 21.29            | 22.45 | 21.72 | 22.83 | 23.26 | 20.78          | 21.94 | 21.21 | 22.32 | 22.75 |
| 4H              | 2H   | 18.75            | 20.12 | 19.15 | 20.47 | 20.85 | 18.40          | 19.77 | 18.80 | 20.12 | 20.49 |
|                 | 3H   | 20.73            | 21.88 | 21.14 | 22.27 | 22.67 | 20.32          | 21.47 | 20.73 | 21.87 | 22.27 |
|                 | 4H   | 21.51            | 22.54 | 21.94 | 22.96 | 23.39 | 21.08          | 22.12 | 21.51 | 22.53 | 22.97 |
|                 | 6H   | 22.10            | 23.01 | 22.56 | 23.45 | 23.90 | 21.67          | 22.57 | 22.12 | 23.02 | 23.47 |
|                 | 8H   | 22.29            | 23.14 | 22.75 | 23.58 | 24.05 | 21.85          | 22.70 | 22.31 | 23.14 | 23.61 |
|                 | 12H  | 22.42            | 23.18 | 22.90 | 23.66 | 24.13 | 21.97          | 22.73 | 22.45 | 23.21 | 23.68 |
| 8H              | 4H   | 21.78            | 22.63 | 22.24 | 23.07 | 23.53 | 21.40          | 22.25 | 21.87 | 22.69 | 23.16 |
|                 | 6H   | 22.49            | 23.20 | 22.99 | 23.69 | 24.16 | 22.11          | 22.81 | 22.61 | 23.30 | 23.78 |
|                 | 8H   | 22.75            | 23.38 | 23.26 | 23.89 | 24.38 | 22.36          | 22.99 | 22.87 | 23.50 | 23.98 |
|                 | 12H  | 22.95            | 23.51 | 23.46 | 24.00 | 24.56 | 22.54          | 23.10 | 23.05 | 23.59 | 24.15 |
| 12H             | 4H   | 21.81            | 22.57 | 22.29 | 23.04 | 23.51 | 21.44          | 22.20 | 21.92 | 22.68 | 23.15 |
|                 | 6H   | 22.54            | 23.17 | 23.05 | 23.68 | 24.16 | 22.17          | 22.80 | 22.68 | 23.31 | 23.80 |
|                 | 8H   | 22.85            | 23.41 | 23.36 | 23.90 | 24.46 | 22.48          | 23.03 | 22.98 | 23.52 | 24.08 |