

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: P931407

Luminaire Tested: DFN2DS-TR3F0-080DS830-FLL

Issue Date: 11/20/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P931407  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P333812)  
Test Lab: INNOVATION CENTER  
Issue Date: 11/20/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DS-TR3F0-080DS830-FLL  
Description: 3 foot, Triangle Define Geo, with Direct Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

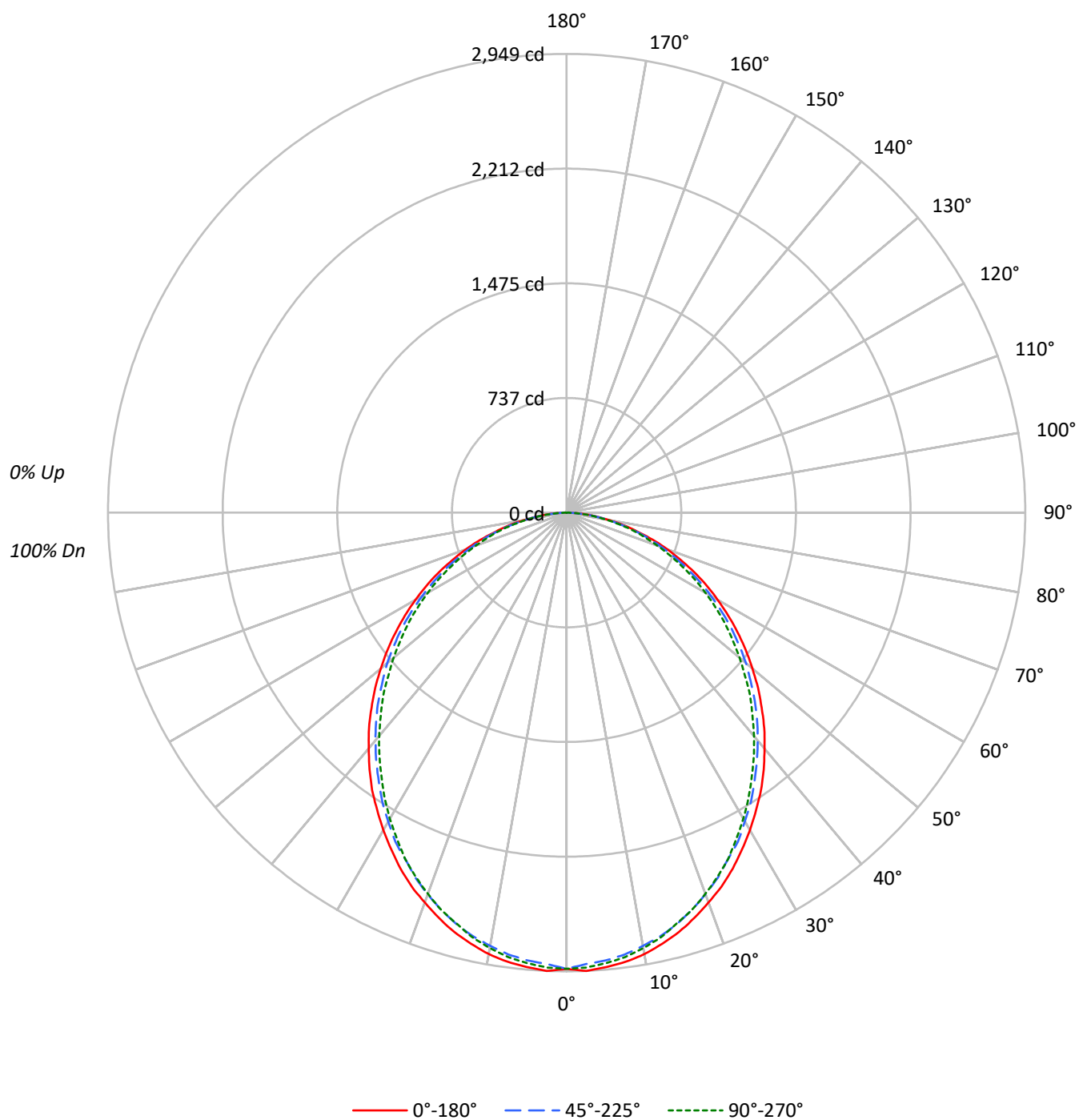
Lumens per Lamp: N/A  
Luminaire Lumens: 7460.7 lumens  
Efficiency: N/A  
Efficacy: 87.7 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular (W 3.16' x L: 2.74' x H: 0')  
CIE Type: Direct

Input Watts (W): 85.1  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9968  
Total Harmonic Distortion (THDi): 0.064  
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°  | 3654 | 3654 | 3654 |
| 5°  | 3668 | 3615 | 3637 |
| 10° | 3646 | 3579 | 3596 |
| 15° | 3601 | 3532 | 3529 |
| 20° | 3537 | 3462 | 3459 |
| 25° | 3473 | 3377 | 3377 |
| 30° | 3392 | 3299 | 3270 |
| 35° | 3316 | 3204 | 3157 |
| 40° | 3220 | 3110 | 3050 |
| 45° | 3126 | 3016 | 2942 |
| 50° | 3023 | 2919 | 2815 |
| 55° | 2916 | 2806 | 2702 |
| 60° | 2797 | 2670 | 2572 |
| 65° | 2669 | 2536 | 2420 |
| 70° | 2507 | 2373 | 2260 |
| 75° | 2280 | 2185 | 2131 |
| 80° | 2024 | 1963 | 1861 |
| 85° | 1651 | 1574 | 1411 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3126 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 276.0  | 3.7       |
| 10°-20°   | 776.5  | 10.4      |
| 20°-30°   | 1141.2 | 15.3      |
| 30°-40°   | 1325.4 | 17.8      |
| 40°-50°   | 1323.8 | 17.7      |
| 50°-60°   | 1154.3 | 15.5      |
| 60°-70°   | 853.3  | 11.4      |
| 70°-80°   | 482.8  | 6.5       |
| 80°-90°   | 127.4  | 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°    | 2193.7 | 29.4      |
| 0°-40°    | 3519.1 | 47.2      |
| 0°-60°    | 5997.2 | 80.4      |
| 0°-90°    | 7460.7 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 7460.7 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 2932 | 2932  | 2932 | 2932  | 2932 |      |
| 5°  | 2932 | 2921  | 2890 | 2913  | 2907 | 278  |
| 15° | 2791 | 2775  | 2738 | 2749  | 2735 | 786  |
| 25° | 2526 | 2504  | 2456 | 2461  | 2456 | 1163 |
| 35° | 2180 | 2152  | 2106 | 2089  | 2075 | 1361 |
| 45° | 1774 | 1754  | 1711 | 1681  | 1669 | 1369 |
| 55° | 1342 | 1325  | 1292 | 1258  | 1244 | 1200 |
| 65° | 905  | 888   | 860  | 835   | 821  | 895  |
| 75° | 474  | 468   | 454  | 437   | 443  | 505  |
| 85° | 116  | 113   | 110  | 102   | 99   | 136  |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

TEST NUMBER: P931407

CATALOG NUMBER: DFN2DS-TR3F0-080DS830-FLL

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 2932.3 | 2932.3 | 2932.3 | 2932.3 | 2932.3 |
| 2.5°  | 2949.3 | 2935.3 | 2904.2 | 2932.3 | 2926.9 |
| 5°    | 2932.3 | 2921.2 | 2890.2 | 2912.6 | 2907.2 |
| 7.5°  | 2912.6 | 2895.8 | 2864.7 | 2887.4 | 2881.8 |
| 10°   | 2881.8 | 2862.0 | 2828.2 | 2850.6 | 2842.3 |
| 12.5° | 2839.3 | 2822.5 | 2788.7 | 2802.7 | 2797.1 |
| 15°   | 2791.4 | 2774.7 | 2737.8 | 2749.2 | 2735.2 |
| 17.5° | 2732.2 | 2715.4 | 2678.6 | 2692.7 | 2678.6 |
| 20°   | 2667.3 | 2650.5 | 2611.0 | 2619.4 | 2608.3 |
| 22.5° | 2602.7 | 2577.2 | 2540.4 | 2540.4 | 2534.7 |
| 25°   | 2526.3 | 2503.9 | 2456.1 | 2461.4 | 2456.1 |
| 27.5° | 2441.7 | 2422.0 | 2385.4 | 2377.0 | 2363.0 |
| 30°   | 2357.4 | 2334.6 | 2292.5 | 2284.1 | 2272.7 |
| 32.5° | 2267.0 | 2250.2 | 2205.0 | 2188.0 | 2176.7 |
| 35°   | 2179.6 | 2151.5 | 2106.3 | 2089.3 | 2075.2 |
| 37.5° | 2080.9 | 2055.4 | 2010.3 | 1990.5 | 1976.5 |
| 40°   | 1979.5 | 1956.7 | 1911.6 | 1886.4 | 1875.1 |
| 42.5° | 1880.8 | 1858.0 | 1813.2 | 1784.7 | 1768.0 |
| 45°   | 1773.7 | 1753.9 | 1711.4 | 1680.6 | 1669.3 |
| 47.5° | 1669.3 | 1649.5 | 1604.3 | 1573.2 | 1556.5 |
| 50°   | 1559.2 | 1545.2 | 1505.6 | 1466.1 | 1452.1 |
| 52.5° | 1452.1 | 1432.3 | 1395.9 | 1364.8 | 1345.0 |
| 55°   | 1342.3 | 1325.2 | 1291.5 | 1257.7 | 1243.5 |
| 57.5° | 1232.2 | 1218.2 | 1181.4 | 1147.5 | 1136.1 |
| 60°   | 1122.1 | 1111.1 | 1071.5 | 1040.4 | 1032.1 |
| 62.5° | 1015.0 | 995.3  | 967.2  | 939.1  | 927.7  |
| 65°   | 905.3  | 888.2  | 860.0  | 834.6  | 820.6  |
| 67.5° | 792.4  | 778.1  | 752.9  | 733.3  | 721.9  |
| 70°   | 688.0  | 676.6  | 651.3  | 631.5  | 620.4  |
| 72.5° | 580.9  | 569.6  | 555.5  | 535.8  | 527.4  |
| 75°   | 473.5  | 468.2  | 453.9  | 437.1  | 442.7  |
| 77.5° | 377.8  | 366.4  | 360.8  | 352.4  | 344.0  |
| 80°   | 282.1  | 279.1  | 273.5  | 265.1  | 259.3  |
| 82.5° | 191.8  | 191.8  | 189.1  | 177.7  | 177.7  |
| 85°   | 115.5  | 112.8  | 110.1  | 101.5  | 98.7   |
| 87.5° | 50.9   | 45.2   | 39.5   | 31.1   | 28.2   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

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CATALOG NUMBER: DFN2DS-TR3F0-080DS830-FLL

**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 | 15.78            | 17.40 | 16.15 | 17.71 | 18.02 | 15.34          | 16.95 | 15.70 | 17.26 | 17.58 |
|                 | 3H   | 17.53            | 18.99 | 17.91 | 19.32 | 19.68 | 17.04          | 18.50 | 17.42 | 18.82 | 19.19 |
|                 | 4H   | 18.18            | 19.55 | 18.58 | 19.90 | 20.27 | 17.69          | 19.06 | 18.08 | 19.40 | 19.78 |
|                 | 6H   | 18.65            | 19.92 | 19.06 | 20.28 | 20.67 | 18.15          | 19.42 | 18.56 | 19.78 | 20.17 |
|                 | 8H   | 18.79            | 20.00 | 19.22 | 20.39 | 20.79 | 18.29          | 19.50 | 18.71 | 19.89 | 20.29 |
|                 | 12H  | 18.88            | 20.04 | 19.31 | 20.43 | 20.85 | 18.37          | 19.53 | 18.80 | 19.91 | 20.34 |
| 4H              | 2H   | 16.35            | 17.71 | 16.74 | 18.06 | 18.44 | 15.99          | 17.36 | 16.39 | 17.71 | 18.08 |
|                 | 3H   | 18.32            | 19.47 | 18.73 | 19.86 | 20.26 | 17.91          | 19.06 | 18.32 | 19.46 | 19.86 |
|                 | 4H   | 19.10            | 20.13 | 19.53 | 20.55 | 20.98 | 18.67          | 19.71 | 19.10 | 20.12 | 20.56 |
|                 | 6H   | 19.69            | 20.60 | 20.15 | 21.04 | 21.49 | 19.26          | 20.17 | 19.72 | 20.61 | 21.06 |
|                 | 8H   | 19.88            | 20.73 | 20.34 | 21.17 | 21.64 | 19.44          | 20.29 | 19.91 | 20.73 | 21.20 |
|                 | 12H  | 20.01            | 20.77 | 20.49 | 21.25 | 21.72 | 19.56          | 20.32 | 20.04 | 20.80 | 21.27 |
| 8H              | 4H   | 19.37            | 20.22 | 19.83 | 20.66 | 21.12 | 19.00          | 19.84 | 19.46 | 20.28 | 20.75 |
|                 | 6H   | 20.08            | 20.79 | 20.58 | 21.28 | 21.75 | 19.70          | 20.41 | 20.20 | 20.89 | 21.37 |
|                 | 8H   | 20.34            | 20.97 | 20.85 | 21.48 | 21.97 | 19.95          | 20.58 | 20.46 | 21.09 | 21.58 |
|                 | 12H  | 20.54            | 21.10 | 21.05 | 21.59 | 22.15 | 20.13          | 20.69 | 20.64 | 21.18 | 21.74 |
| 12H             | 4H   | 19.40            | 20.16 | 19.88 | 20.63 | 21.10 | 19.03          | 19.79 | 19.51 | 20.27 | 20.74 |
|                 | 6H   | 20.13            | 20.76 | 20.64 | 21.27 | 21.75 | 19.76          | 20.39 | 20.27 | 20.90 | 21.39 |
|                 | 8H   | 20.44            | 21.00 | 20.95 | 21.49 | 22.05 | 20.07          | 20.62 | 20.57 | 21.11 | 21.68 |

END OF REPORT