

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: P930743

Luminaire Tested: DFN2DS-PN4F0-100DS835-FLL

Issue Date: 11/20/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P930743  
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-PN4F0-100DS835-FLL  
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens  
Light Source: -  
Ballast/Driver: -

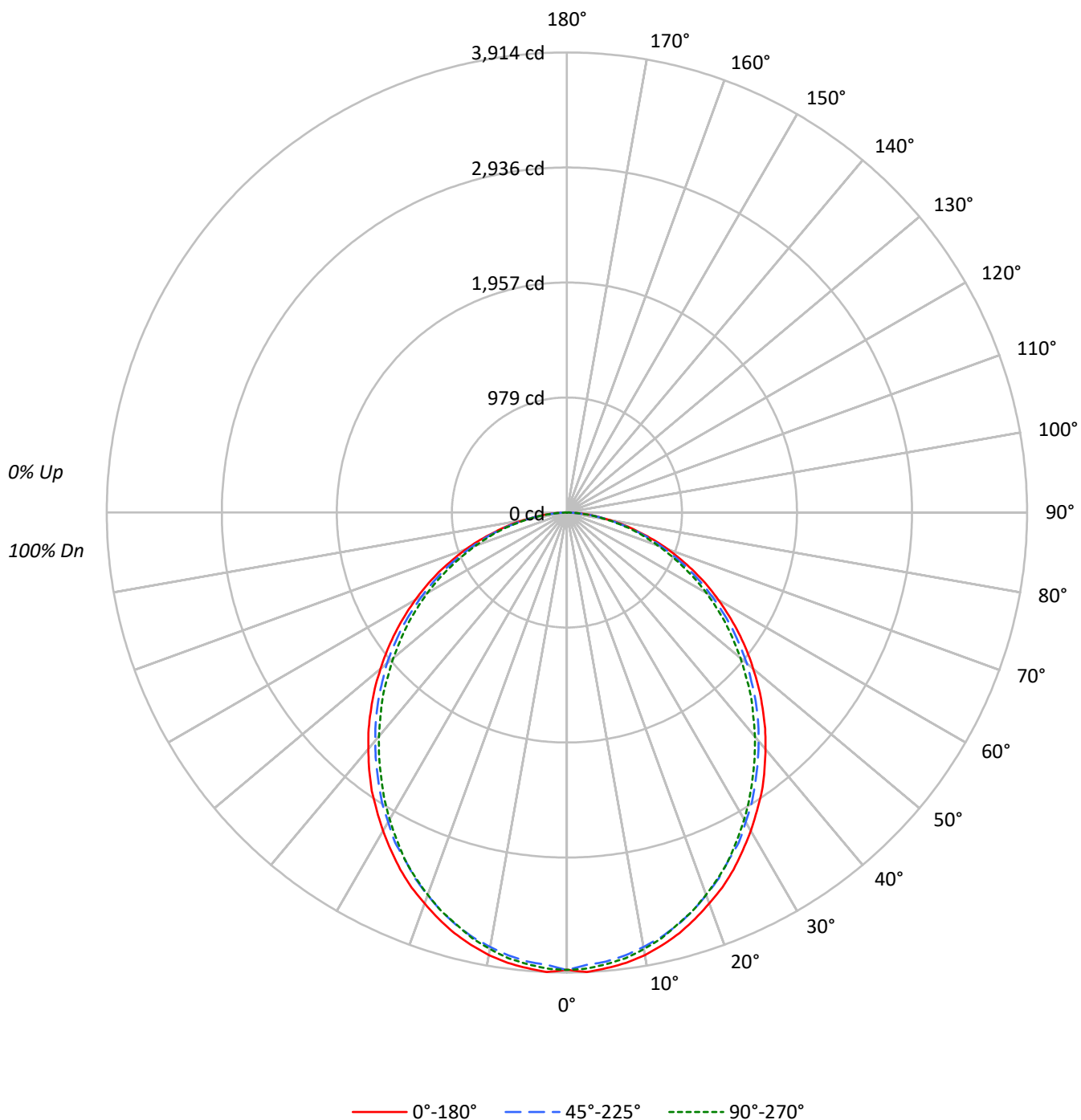
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 9900.0 lumens  
Efficiency: N/A  
Efficacy: 93.7 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular (W 3.94' x L: 3.74' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 105.7  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9952  
Total Harmonic Distortion (THDi): 0.069  
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°  | 2840 | 2840 | 2840 |
| 5°  | 2851 | 2810 | 2827 |
| 10° | 2834 | 2782 | 2796 |
| 15° | 2799 | 2745 | 2743 |
| 20° | 2749 | 2691 | 2689 |
| 25° | 2700 | 2625 | 2625 |
| 30° | 2637 | 2564 | 2542 |
| 35° | 2577 | 2491 | 2454 |
| 40° | 2503 | 2417 | 2371 |
| 45° | 2430 | 2344 | 2287 |
| 50° | 2350 | 2269 | 2188 |
| 55° | 2267 | 2181 | 2100 |
| 60° | 2174 | 2076 | 1999 |
| 65° | 2075 | 1971 | 1881 |
| 70° | 1949 | 1844 | 1757 |
| 75° | 1772 | 1698 | 1657 |
| 80° | 1573 | 1525 | 1447 |
| 85° | 1283 | 1224 | 1097 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2430 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 366.2  | 3.7       |
| 10°-20°   | 1030.4 | 10.4      |
| 20°-30°   | 1514.3 | 15.3      |
| 30°-40°   | 1758.8 | 17.8      |
| 40°-50°   | 1756.6 | 17.7      |
| 50°-60°   | 1531.7 | 15.5      |
| 60°-70°   | 1132.3 | 11.4      |
| 70°-80°   | 640.6  | 6.5       |
| 80°-90°   | 169.1  | 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°    | 2911.0 | 29.4      |
| 0°-40°    | 4669.7 | 47.2      |
| 0°-60°    | 7958.0 | 80.4      |
| 0°-90°    | 9900.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 9900.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 3891 | 3891  | 3891 | 3891  | 3891 |      |
| 5°  | 3891 | 3876  | 3835 | 3865  | 3858 | 369  |
| 15° | 3704 | 3682  | 3633 | 3648  | 3630 | 1043 |
| 25° | 3352 | 3323  | 3259 | 3266  | 3259 | 1543 |
| 35° | 2892 | 2855  | 2795 | 2772  | 2754 | 1806 |
| 45° | 2354 | 2327  | 2271 | 2230  | 2215 | 1816 |
| 55° | 1781 | 1759  | 1714 | 1669  | 1650 | 1592 |
| 65° | 1201 | 1179  | 1141 | 1108  | 1089 | 1188 |
| 75° | 628  | 621   | 602  | 580   | 588  | 671  |
| 85° | 153  | 150   | 146  | 135   | 131  | 180  |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 3891.1 | 3891.1 | 3891.1 | 3891.1 | 3891.1 |
| 2.5°  | 3913.7 | 3895.0 | 3853.7 | 3891.1 | 3883.9 |
| 5°    | 3891.1 | 3876.4 | 3835.1 | 3864.9 | 3857.7 |
| 7.5°  | 3864.9 | 3842.6 | 3801.3 | 3831.5 | 3824.0 |
| 10°   | 3824.0 | 3797.8 | 3752.9 | 3782.7 | 3771.6 |
| 12.5° | 3767.6 | 3745.4 | 3700.5 | 3719.2 | 3711.6 |
| 15°   | 3704.1 | 3681.9 | 3633.0 | 3648.1 | 3629.5 |
| 17.5° | 3625.5 | 3603.3 | 3554.4 | 3573.1 | 3554.4 |
| 20°   | 3539.3 | 3517.1 | 3464.7 | 3475.8 | 3461.1 |
| 22.5° | 3453.6 | 3419.9 | 3371.0 | 3371.0 | 3363.5 |
| 25°   | 3352.4 | 3322.6 | 3259.1 | 3266.2 | 3259.1 |
| 27.5° | 3240.0 | 3213.8 | 3165.4 | 3154.3 | 3135.6 |
| 30°   | 3128.1 | 3097.9 | 3041.9 | 3030.8 | 3015.7 |
| 32.5° | 3008.2 | 2986.0 | 2926.0 | 2903.4 | 2888.3 |
| 35°   | 2892.3 | 2855.0 | 2795.0 | 2772.4 | 2753.7 |
| 37.5° | 2761.3 | 2727.5 | 2667.6 | 2641.4 | 2622.7 |
| 40°   | 2626.7 | 2596.5 | 2536.6 | 2503.3 | 2488.2 |
| 42.5° | 2495.7 | 2465.5 | 2406.0 | 2368.3 | 2346.1 |
| 45°   | 2353.6 | 2327.4 | 2271.0 | 2230.1 | 2215.1 |
| 47.5° | 2215.1 | 2188.9 | 2128.9 | 2087.6 | 2065.4 |
| 50°   | 2069.0 | 2050.3 | 1997.9 | 1945.5 | 1926.9 |
| 52.5° | 1926.9 | 1900.7 | 1852.2 | 1811.0 | 1784.8 |
| 55°   | 1781.2 | 1758.6 | 1713.7 | 1668.8 | 1650.2 |
| 57.5° | 1635.1 | 1616.4 | 1567.6 | 1522.8 | 1507.7 |
| 60°   | 1489.0 | 1474.3 | 1421.9 | 1380.6 | 1369.5 |
| 62.5° | 1346.9 | 1320.7 | 1283.4 | 1246.1 | 1231.0 |
| 65°   | 1201.2 | 1178.6 | 1141.3 | 1107.5 | 1088.9 |
| 67.5° | 1051.6 | 1032.5 | 999.2  | 973.0  | 957.9  |
| 70°   | 913.0  | 897.9  | 864.2  | 838.0  | 823.3  |
| 72.5° | 770.9  | 755.8  | 737.2  | 711.0  | 699.8  |
| 75°   | 628.4  | 621.3  | 602.2  | 580.0  | 587.5  |
| 77.5° | 501.4  | 486.3  | 478.7  | 467.6  | 456.5  |
| 80°   | 374.3  | 370.4  | 362.8  | 351.7  | 344.2  |
| 82.5° | 254.5  | 254.5  | 250.9  | 235.8  | 235.8  |
| 85°   | 153.2  | 149.7  | 146.1  | 134.6  | 131.0  |
| 87.5° | 67.5   | 59.9   | 52.4   | 41.3   | 37.3   |
| 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 | 14.91            | 16.52 | 15.27 | 16.83 | 17.15 | 14.47          | 16.08 | 14.83 | 16.39 | 16.70 |
|                 | 3H   | 16.66            | 18.11 | 17.04 | 18.44 | 18.80 | 16.17          | 17.62 | 16.55 | 17.95 | 18.31 |
|                 | 4H   | 17.31            | 18.67 | 17.70 | 19.02 | 19.40 | 16.81          | 18.18 | 17.21 | 18.53 | 18.90 |
|                 | 6H   | 17.78            | 19.04 | 18.19 | 19.41 | 19.80 | 17.27          | 18.54 | 17.68 | 18.91 | 19.30 |
|                 | 8H   | 17.92            | 19.13 | 18.34 | 19.52 | 19.92 | 17.42          | 18.63 | 17.84 | 19.02 | 19.41 |
|                 | 12H  | 18.01            | 19.17 | 18.44 | 19.55 | 19.98 | 17.50          | 18.66 | 17.93 | 19.04 | 19.47 |
| 4H              | 2H   | 15.47            | 16.84 | 15.87 | 17.19 | 17.56 | 15.12          | 16.49 | 15.52 | 16.83 | 17.21 |
|                 | 3H   | 17.45            | 18.59 | 17.85 | 18.99 | 19.39 | 17.04          | 18.18 | 17.45 | 18.58 | 18.98 |
|                 | 4H   | 18.22            | 19.26 | 18.65 | 19.67 | 20.11 | 17.80          | 18.83 | 18.23 | 19.25 | 19.68 |
|                 | 6H   | 18.82            | 19.72 | 19.27 | 20.16 | 20.62 | 18.39          | 19.29 | 18.84 | 19.73 | 20.19 |
|                 | 8H   | 19.01            | 19.85 | 19.47 | 20.30 | 20.76 | 18.57          | 19.42 | 19.03 | 19.86 | 20.32 |
|                 | 12H  | 19.14            | 19.90 | 19.62 | 20.38 | 20.84 | 18.69          | 19.45 | 19.17 | 19.92 | 20.39 |
| 8H              | 4H   | 18.49            | 19.34 | 18.96 | 19.78 | 20.25 | 18.12          | 18.97 | 18.58 | 19.41 | 19.88 |
|                 | 6H   | 19.21            | 19.91 | 19.70 | 20.40 | 20.88 | 18.83          | 19.53 | 19.32 | 20.02 | 20.49 |
|                 | 8H   | 19.47            | 20.10 | 19.98 | 20.61 | 21.09 | 19.08          | 19.71 | 19.59 | 20.21 | 20.70 |
|                 | 12H  | 19.67            | 20.23 | 20.18 | 20.72 | 21.28 | 19.26          | 19.81 | 19.76 | 20.30 | 20.86 |
| 12H             | 4H   | 18.52            | 19.28 | 19.00 | 19.76 | 20.23 | 18.16          | 18.92 | 18.64 | 19.39 | 19.86 |
|                 | 6H   | 19.25            | 19.89 | 19.76 | 20.39 | 20.88 | 18.89          | 19.52 | 19.40 | 20.02 | 20.51 |
|                 | 8H   | 19.57            | 20.13 | 20.08 | 20.62 | 21.18 | 19.19          | 19.75 | 19.70 | 20.24 | 20.80 |