

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: P930445

Luminaire Tested: DFN2DS-PN2F0-030DS930-FLL

Issue Date: 11/20/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P930445  
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-PN2F0-030DS930-FLL  
Description: 2 foot, Pentagon Define Geo, with Direct Frosted Lens  
Light Source: -  
Ballast/Driver: -

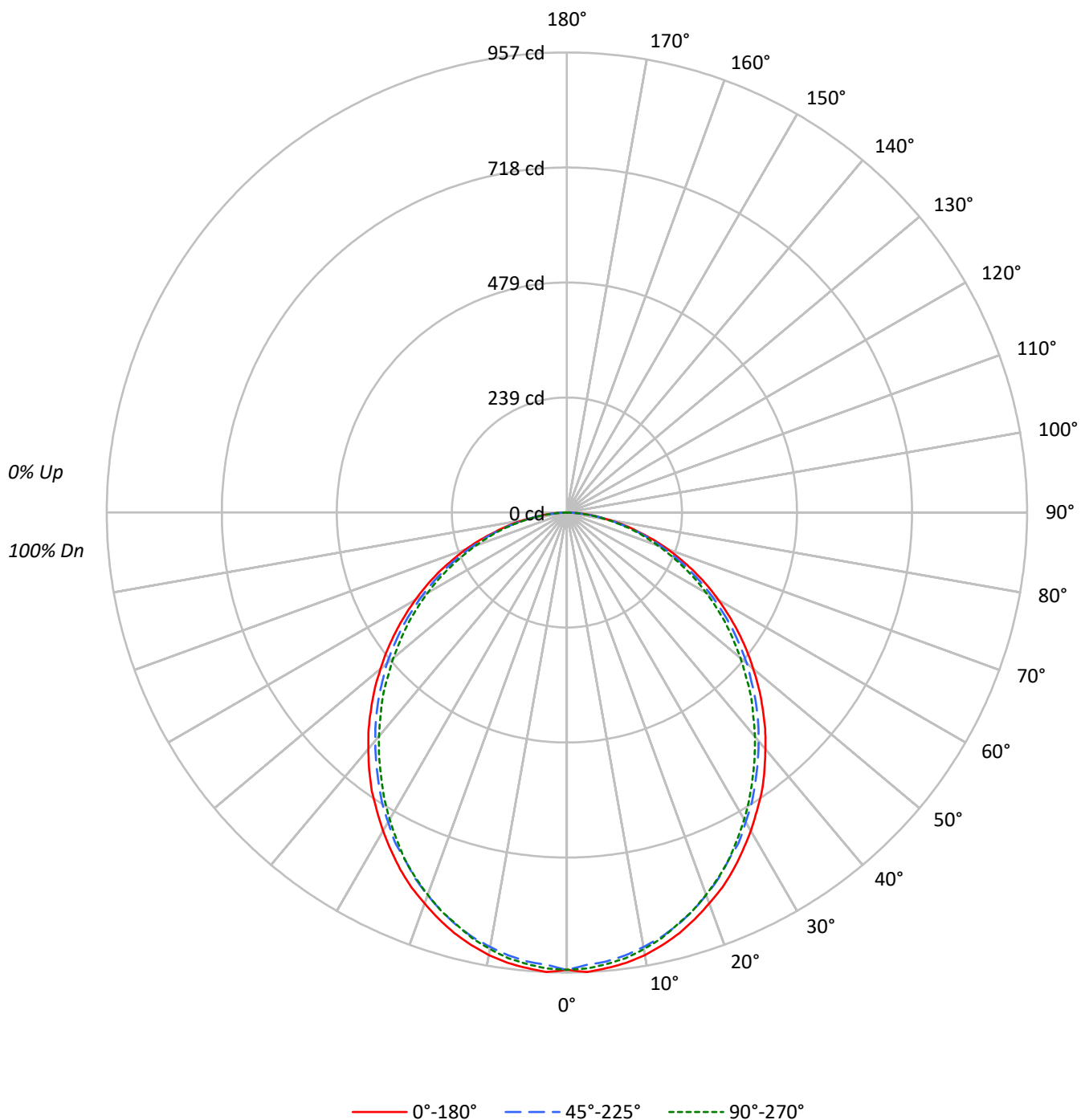
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2420.6 lumens  
Efficiency: N/A  
Efficacy: 78.6 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular (W 2.29' x L: 2.17' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 30.8  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9972  
Total Harmonic Distortion (THDi): 0.128  
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°  | 2060 | 2060 | 2060 |
| 5°  | 2068 | 2039 | 2051 |
| 10° | 2056 | 2018 | 2028 |
| 15° | 2031 | 1992 | 1990 |
| 20° | 1995 | 1952 | 1950 |
| 25° | 1959 | 1904 | 1904 |
| 30° | 1913 | 1860 | 1844 |
| 35° | 1870 | 1807 | 1780 |
| 40° | 1816 | 1754 | 1720 |
| 45° | 1763 | 1701 | 1659 |
| 50° | 1705 | 1646 | 1588 |
| 55° | 1644 | 1582 | 1524 |
| 60° | 1577 | 1506 | 1451 |
| 65° | 1505 | 1430 | 1365 |
| 70° | 1413 | 1338 | 1275 |
| 75° | 1285 | 1233 | 1203 |
| 80° | 1141 | 1106 | 1050 |
| 85° | 932  | 887  | 795  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
Vertical Angle: 45°  
Luminance: 1763 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 89.5   | 3.7       |
| 10°-20°   | 251.9  | 10.4      |
| 20°-30°   | 370.2  | 15.3      |
| 30°-40°   | 430.0  | 17.8      |
| 40°-50°   | 429.5  | 17.7      |
| 50°-60°   | 374.5  | 15.5      |
| 60°-70°   | 276.9  | 11.4      |
| 70°-80°   | 156.6  | 6.5       |
| 80°-90°   | 41.3   | 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°    | 711.7  | 29.4      |
| 0°-40°    | 1141.7 | 47.2      |
| 0°-60°    | 1945.8 | 80.4      |
| 0°-90°    | 2420.6 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2420.6 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 951 | 951   | 951 | 951   | 951 |      |
| 5°  | 951 | 948   | 938 | 945   | 943 | 90   |
| 15° | 906 | 900   | 888 | 892   | 887 | 255  |
| 25° | 820 | 812   | 797 | 799   | 797 | 377  |
| 35° | 707 | 698   | 683 | 678   | 673 | 442  |
| 45° | 576 | 569   | 555 | 545   | 542 | 444  |
| 55° | 436 | 430   | 419 | 408   | 404 | 389  |
| 65° | 294 | 288   | 279 | 271   | 266 | 290  |
| 75° | 154 | 152   | 147 | 142   | 144 | 164  |
| 85° | 38  | 37    | 36  | 33    | 32  | 44   |
| 90° | 0   | 0     | 0   | 0     | 0   |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 951.3 | 951.3 | 951.3 | 951.3 | 951.3 |
| 2.5°  | 956.9 | 952.3 | 942.2 | 951.3 | 949.6 |
| 5°    | 951.3 | 947.8 | 937.7 | 945.0 | 943.2 |
| 7.5°  | 945.0 | 939.5 | 929.4 | 936.8 | 935.0 |
| 10°   | 935.0 | 928.5 | 917.6 | 924.9 | 922.2 |
| 12.5° | 921.2 | 915.7 | 904.8 | 909.3 | 907.5 |
| 15°   | 905.6 | 900.2 | 888.3 | 891.9 | 887.4 |
| 17.5° | 886.4 | 881.0 | 869.0 | 873.6 | 869.0 |
| 20°   | 865.4 | 859.9 | 847.1 | 849.8 | 846.2 |
| 22.5° | 844.4 | 836.2 | 824.2 | 824.2 | 822.3 |
| 25°   | 819.6 | 812.4 | 796.8 | 798.6 | 796.8 |
| 27.5° | 792.2 | 785.7 | 773.9 | 771.2 | 766.7 |
| 30°   | 764.8 | 757.5 | 743.8 | 741.0 | 737.3 |
| 32.5° | 735.5 | 730.1 | 715.4 | 709.9 | 706.2 |
| 35°   | 707.2 | 698.0 | 683.4 | 677.8 | 673.3 |
| 37.5° | 675.1 | 666.9 | 652.2 | 645.8 | 641.2 |
| 40°   | 642.2 | 634.9 | 620.2 | 612.1 | 608.4 |
| 42.5° | 610.2 | 602.9 | 588.3 | 579.1 | 573.6 |
| 45°   | 575.5 | 569.0 | 555.3 | 545.2 | 541.6 |
| 47.5° | 541.6 | 535.2 | 520.5 | 510.4 | 505.0 |
| 50°   | 505.9 | 501.3 | 488.5 | 475.7 | 471.2 |
| 52.5° | 471.2 | 464.7 | 452.9 | 442.8 | 436.4 |
| 55°   | 435.5 | 430.0 | 419.0 | 408.1 | 403.5 |
| 57.5° | 399.8 | 395.2 | 383.3 | 372.3 | 368.6 |
| 60°   | 364.1 | 360.5 | 347.7 | 337.6 | 334.9 |
| 62.5° | 329.3 | 322.9 | 313.8 | 304.6 | 301.0 |
| 65°   | 293.7 | 288.2 | 279.1 | 270.8 | 266.3 |
| 67.5° | 257.1 | 252.5 | 244.3 | 237.9 | 234.2 |
| 70°   | 223.2 | 219.6 | 211.3 | 204.9 | 201.3 |
| 72.5° | 188.5 | 184.8 | 180.2 | 173.8 | 171.1 |
| 75°   | 153.6 | 151.9 | 147.3 | 141.8 | 143.7 |
| 77.5° | 122.6 | 118.9 | 117.0 | 114.3 | 111.7 |
| 80°   | 91.5  | 90.5  | 88.7  | 86.0  | 84.2  |
| 82.5° | 62.2  | 62.2  | 61.4  | 57.6  | 57.6  |
| 85°   | 37.5  | 36.6  | 35.7  | 32.9  | 32.0  |
| 87.5° | 16.5  | 14.7  | 12.8  | 10.1  | 9.1   |
| 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 | 13.79            | 15.40 | 14.16 | 15.72 | 16.03 | 13.35          | 14.96 | 13.71 | 15.27 | 15.59 |
|                 | 3H   | 15.54            | 17.00 | 15.92 | 17.33 | 17.69 | 15.05          | 16.51 | 15.43 | 16.83 | 17.19 |
|                 | 4H   | 16.19            | 17.56 | 16.59 | 17.91 | 18.28 | 15.70          | 17.07 | 16.09 | 17.41 | 17.79 |
|                 | 6H   | 16.66            | 17.93 | 17.07 | 18.29 | 18.68 | 16.16          | 17.43 | 16.57 | 17.79 | 18.18 |
|                 | 8H   | 16.80            | 18.01 | 17.23 | 18.40 | 18.80 | 16.30          | 17.51 | 16.73 | 17.90 | 18.30 |
|                 | 12H  | 16.89            | 18.05 | 17.32 | 18.43 | 18.86 | 16.38          | 17.54 | 16.81 | 17.92 | 18.35 |
| 4H              | 2H   | 14.35            | 15.72 | 14.75 | 16.07 | 16.45 | 14.00          | 15.37 | 14.40 | 15.72 | 16.09 |
|                 | 3H   | 16.33            | 17.48 | 16.74 | 17.87 | 18.27 | 15.92          | 17.07 | 16.33 | 17.47 | 17.87 |
|                 | 4H   | 17.11            | 18.14 | 17.54 | 18.56 | 18.99 | 16.68          | 17.72 | 17.11 | 18.13 | 18.57 |
|                 | 6H   | 17.70            | 18.61 | 18.16 | 19.05 | 19.50 | 17.27          | 18.18 | 17.73 | 18.62 | 19.07 |
|                 | 8H   | 17.89            | 18.74 | 18.35 | 19.18 | 19.65 | 17.45          | 18.30 | 17.92 | 18.74 | 19.21 |
|                 | 12H  | 18.02            | 18.78 | 18.50 | 19.26 | 19.73 | 17.57          | 18.33 | 18.05 | 18.81 | 19.28 |
| 8H              | 4H   | 17.38            | 18.23 | 17.84 | 18.67 | 19.13 | 17.01          | 17.85 | 17.47 | 18.29 | 18.76 |
|                 | 6H   | 18.09            | 18.80 | 18.59 | 19.29 | 19.76 | 17.71          | 18.42 | 18.21 | 18.90 | 19.38 |
|                 | 8H   | 18.35            | 18.98 | 18.86 | 19.49 | 19.98 | 17.96          | 18.59 | 18.47 | 19.10 | 19.59 |
|                 | 12H  | 18.55            | 19.11 | 19.06 | 19.60 | 20.16 | 18.14          | 18.70 | 18.65 | 19.19 | 19.75 |
| 12H             | 4H   | 17.41            | 18.17 | 17.89 | 18.64 | 19.11 | 17.04          | 17.80 | 17.52 | 18.28 | 18.75 |
|                 | 6H   | 18.14            | 18.77 | 18.65 | 19.28 | 19.76 | 17.77          | 18.40 | 18.28 | 18.91 | 19.40 |
|                 | 8H   | 18.45            | 19.01 | 18.96 | 19.50 | 20.06 | 18.08          | 18.63 | 18.58 | 19.12 | 19.68 |