

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: P930704

Luminaire Tested: DFN2DS-PN4F0-070DS950-RLL

Issue Date: 11/20/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P930704  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P333882)  
Test Lab: INNOVATION CENTER  
Issue Date: 11/20/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DS-PN4F0-070DS950-RLL  
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

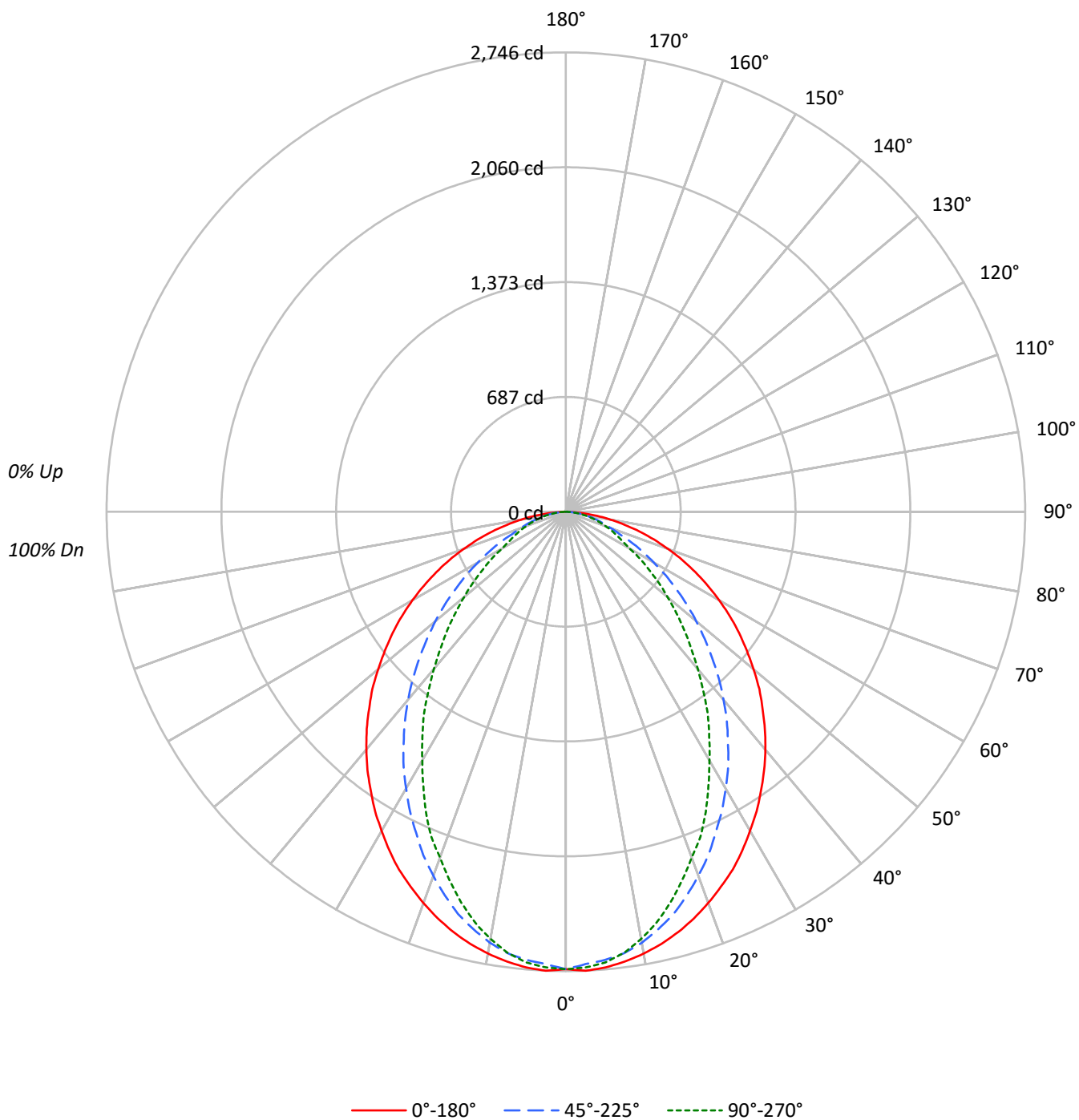
Lumens per Lamp: N/A  
Luminaire Lumens: 5622.7 lumens  
Efficiency: N/A  
Efficacy: 78.7 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular (W 3.94' x L: 3.74' x H: 0')  
CIE Type: Direct

Input Watts (W): 71.4  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9789  
Total Harmonic Distortion (THDi): 0.074  
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   | 110 | 106 | 102 | 98  | 107 | 103 | 100 | 97  | 99  | 96  | 94  |  | 95  | 93  | 91  |  | 92  |
| 2   | 101 | 94  | 87  | 82  | 98  | 92  | 86  | 81  | 88  | 83  | 79  |  | 85  | 81  | 78  |  | 82  |
| 3   | 93  | 83  | 76  | 70  | 90  | 82  | 75  | 69  | 79  | 73  | 68  |  | 76  | 71  | 67  |  | 74  |
| 4   | 86  | 75  | 66  | 60  | 83  | 73  | 66  | 60  | 71  | 64  | 59  |  | 69  | 63  | 58  |  | 66  |
| 5   | 79  | 67  | 59  | 53  | 77  | 66  | 58  | 52  | 64  | 57  | 52  |  | 62  | 56  | 51  |  | 60  |
| 6   | 74  | 61  | 53  | 47  | 72  | 60  | 52  | 46  | 58  | 51  | 46  |  | 57  | 50  | 46  |  | 55  |
| 7   | 68  | 56  | 47  | 42  | 67  | 55  | 47  | 42  | 53  | 46  | 41  |  | 52  | 46  | 41  |  | 51  |
| 8   | 64  | 51  | 43  | 38  | 62  | 51  | 43  | 37  | 49  | 42  | 37  |  | 48  | 42  | 37  |  | 47  |
| 9   | 60  | 47  | 39  | 34  | 59  | 47  | 39  | 34  | 46  | 39  | 34  |  | 44  | 38  | 34  |  | 44  |
| 10  | 56  | 44  | 36  | 31  | 55  | 43  | 36  | 31  | 42  | 36  | 31  |  | 41  | 35  | 31  |  | 41  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 1996 | 1996 | 1996 |
| 5°  | 2003 | 1971 | 1982 |
| 10° | 1988 | 1939 | 1922 |
| 15° | 1965 | 1881 | 1827 |
| 20° | 1933 | 1799 | 1709 |
| 25° | 1901 | 1706 | 1594 |
| 30° | 1856 | 1610 | 1447 |
| 35° | 1812 | 1506 | 1318 |
| 40° | 1768 | 1398 | 1169 |
| 45° | 1716 | 1277 | 1034 |
| 50° | 1663 | 1155 | 902  |
| 55° | 1609 | 1023 | 775  |
| 60° | 1546 | 885  | 643  |
| 65° | 1474 | 744  | 585  |
| 70° | 1389 | 612  | 538  |
| 75° | 1284 | 558  | 503  |
| 80° | 1133 | 499  | 458  |
| 85° | 890  | 394  | 394  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
Vertical Angle: 45°  
Luminance: 1716 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 256.2  | 4.6       |
| 10°-20°   | 703.4  | 12.5      |
| 20°-30°   | 987.6  | 17.6      |
| 30°-40°   | 1076.5 | 19.1      |
| 40°-50°   | 989.4  | 17.6      |
| 50°-60°   | 777.0  | 13.8      |
| 60°-70°   | 505.8  | 9.0       |
| 70°-80°   | 260.3  | 4.6       |
| 80°-90°   | 66.5   | 1.2       |
| 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°    | 1947.2 | 34.6      |
| 0°-40°    | 3023.7 | 53.8      |
| 0°-60°    | 4790.2 | 85.2      |
| 0°-90°    | 5622.7 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 5622.7 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 2734 | 2734  | 2734 | 2734  | 2734 |      |
| 5°  | 2734 | 2722  | 2689 | 2712  | 2704 | 259  |
| 15° | 2600 | 2573  | 2489 | 2442  | 2417 | 733  |
| 25° | 2360 | 2281  | 2118 | 2016  | 1979 | 1086 |
| 35° | 2034 | 1908  | 1690 | 1534  | 1480 | 1273 |
| 45° | 1663 | 1497  | 1237 | 1061  | 1002 | 1284 |
| 55° | 1264 | 1071  | 804  | 656   | 609  | 1130 |
| 65° | 854  | 653   | 430  | 346   | 339  | 846  |
| 75° | 455  | 282   | 198  | 181   | 178  | 481  |
| 85° | 106  | 54    | 47   | 47    | 47   | 127  |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 2734.0 | 2734.0 | 2734.0 | 2734.0 | 2734.0 |
| 2.5°  | 2746.3 | 2734.0 | 2706.7 | 2731.6 | 2726.6 |
| 5°    | 2734.0 | 2721.6 | 2689.4 | 2711.7 | 2704.3 |
| 7.5°  | 2711.7 | 2696.9 | 2662.3 | 2672.0 | 2659.7 |
| 10°   | 2682.0 | 2664.7 | 2615.3 | 2607.7 | 2593.0 |
| 12.5° | 2645.0 | 2622.7 | 2555.8 | 2541.0 | 2513.7 |
| 15°   | 2600.4 | 2573.0 | 2489.0 | 2442.1 | 2417.4 |
| 17.5° | 2548.4 | 2508.8 | 2404.8 | 2350.4 | 2310.8 |
| 20°   | 2489.0 | 2439.4 | 2315.8 | 2254.1 | 2199.5 |
| 22.5° | 2424.8 | 2367.8 | 2224.2 | 2140.1 | 2103.2 |
| 25°   | 2360.4 | 2281.1 | 2117.8 | 2016.5 | 1979.3 |
| 27.5° | 2283.8 | 2199.5 | 2018.9 | 1902.7 | 1845.7 |
| 30°   | 2202.1 | 2107.9 | 1909.9 | 1784.0 | 1717.1 |
| 32.5° | 2122.8 | 2009.0 | 1806.3 | 1657.7 | 1595.7 |
| 35°   | 2033.8 | 1907.6 | 1690.0 | 1534.1 | 1479.5 |
| 37.5° | 1947.3 | 1811.0 | 1581.1 | 1410.1 | 1348.5 |
| 40°   | 1855.6 | 1707.3 | 1467.1 | 1291.5 | 1227.2 |
| 42.5° | 1761.7 | 1603.4 | 1353.4 | 1170.2 | 1108.6 |
| 45°   | 1662.7 | 1496.8 | 1237.2 | 1061.3 | 1002.0 |
| 47.5° | 1568.7 | 1393.1 | 1125.9 | 950.0  | 895.7  |
| 50°   | 1464.8 | 1289.2 | 1016.9 | 846.1  | 794.4  |
| 52.5° | 1363.2 | 1177.6 | 913.0  | 749.7  | 702.7  |
| 55°   | 1264.2 | 1071.3 | 804.0  | 655.7  | 608.8  |
| 57.5° | 1162.9 | 964.9  | 707.7  | 569.1  | 529.5  |
| 60°   | 1059.0 | 861.0  | 606.1  | 480.2  | 440.5  |
| 62.5° | 957.6  | 759.7  | 519.5  | 400.9  | 381.1  |
| 65°   | 853.6  | 653.1  | 430.5  | 346.5  | 338.9  |
| 67.5° | 754.7  | 554.1  | 346.5  | 304.2  | 296.9  |
| 70°   | 650.7  | 457.8  | 286.9  | 262.2  | 252.2  |
| 72.5° | 551.8  | 368.5  | 239.9  | 220.3  | 215.3  |
| 75°   | 455.2  | 281.9  | 197.9  | 180.6  | 178.2  |
| 77.5° | 358.8  | 200.2  | 155.9  | 145.9  | 141.0  |
| 80°   | 269.6  | 143.5  | 118.7  | 109.0  | 109.0  |
| 82.5° | 188.0  | 96.6   | 81.6   | 76.6   | 76.6   |
| 85°   | 106.3  | 54.3   | 47.0   | 47.0   | 47.0   |
| 87.5° | 39.6   | 19.7   | 19.7   | 17.3   | 17.3   |
| 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 | 13.64            | 15.16 | 14.00 | 15.47 | 15.78 | 9.60           | 11.12 | 9.96  | 11.43 | 11.75 |
|                 | 3H   | 15.40            | 16.77 | 15.78 | 17.09 | 17.46 | 10.86          | 12.23 | 11.24 | 12.55 | 12.92 |
|                 | 4H   | 16.07            | 17.35 | 16.47 | 17.70 | 18.07 | 11.36          | 12.64 | 11.76 | 12.99 | 13.37 |
|                 | 6H   | 16.56            | 17.74 | 16.97 | 18.11 | 18.50 | 11.74          | 12.93 | 12.16 | 13.29 | 13.69 |
|                 | 8H   | 16.72            | 17.85 | 17.15 | 18.24 | 18.64 | 11.87          | 12.99 | 12.29 | 13.38 | 13.79 |
|                 | 12H  | 16.82            | 17.90 | 17.25 | 18.28 | 18.71 | 11.95          | 13.03 | 12.38 | 13.41 | 13.84 |
| 4H              | 2H   | 13.74            | 15.02 | 14.14 | 15.37 | 15.75 | 10.29          | 11.57 | 10.69 | 11.92 | 12.30 |
|                 | 3H   | 15.67            | 16.74 | 16.08 | 17.14 | 17.54 | 11.73          | 12.80 | 12.15 | 13.20 | 13.60 |
|                 | 4H   | 16.42            | 17.38 | 16.85 | 17.79 | 18.23 | 12.33          | 13.29 | 12.77 | 13.71 | 14.14 |
|                 | 6H   | 17.01            | 17.85 | 17.47 | 18.29 | 18.75 | 12.82          | 13.65 | 13.28 | 14.10 | 14.56 |
|                 | 8H   | 17.23            | 18.01 | 17.69 | 18.45 | 18.92 | 12.98          | 13.76 | 13.45 | 14.21 | 14.67 |
|                 | 12H  | 17.38            | 18.08 | 17.86 | 18.55 | 19.03 | 13.10          | 13.80 | 13.58 | 14.27 | 14.75 |
| 8H              | 4H   | 16.45            | 17.22 | 16.91 | 17.67 | 18.13 | 12.69          | 13.47 | 13.15 | 13.91 | 14.38 |
|                 | 6H   | 17.08            | 17.73 | 17.58 | 18.22 | 18.69 | 13.27          | 13.92 | 13.77 | 14.41 | 14.89 |
|                 | 8H   | 17.33            | 17.91 | 17.85 | 18.42 | 18.91 | 13.50          | 14.07 | 14.01 | 14.58 | 15.07 |
|                 | 12H  | 17.54            | 18.05 | 18.05 | 18.54 | 19.10 | 13.67          | 14.18 | 14.18 | 14.68 | 15.24 |
| 12H             | 4H   | 16.43            | 17.13 | 16.91 | 17.60 | 18.07 | 12.73          | 13.43 | 13.21 | 13.90 | 14.37 |
|                 | 6H   | 17.06            | 17.64 | 17.58 | 18.15 | 18.64 | 13.34          | 13.92 | 13.85 | 14.43 | 14.91 |
|                 | 8H   | 17.35            | 17.86 | 17.86 | 18.35 | 18.92 | 13.61          | 14.12 | 14.12 | 14.61 | 15.18 |