

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: P931560

Luminaire Tested: DFN2DS-TR4F0-100DS927-RLL

Issue Date: 11/20/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P931560  
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-TR4F0-100DS927-RLL  
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

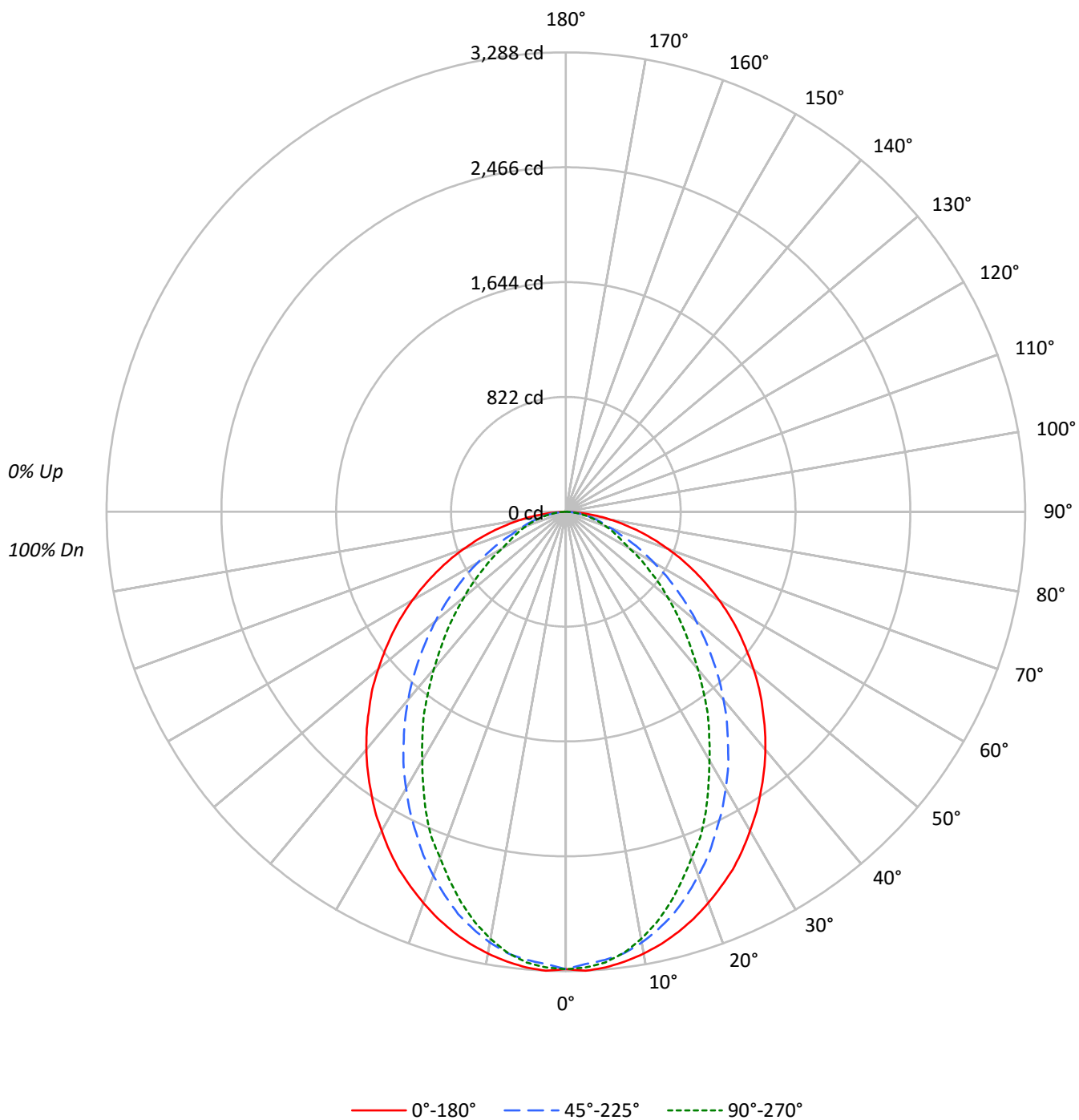
Lumens per Lamp: N/A  
Luminaire Lumens: 6732.0 lumens  
Efficiency: N/A  
Efficacy: 62.7 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular (W 3.96' x L: 3.43' x H: 0')  
CIE Type: Direct

Input Watts (W): 107.3  
Input Voltage (V):  
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   | 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°  | 2600 | 2600 | 2600 |
| 5°  | 2610 | 2568 | 2582 |
| 10° | 2590 | 2526 | 2504 |
| 15° | 2561 | 2451 | 2380 |
| 20° | 2519 | 2344 | 2226 |
| 25° | 2477 | 2223 | 2077 |
| 30° | 2419 | 2098 | 1886 |
| 35° | 2362 | 1962 | 1718 |
| 40° | 2304 | 1822 | 1524 |
| 45° | 2237 | 1664 | 1348 |
| 50° | 2167 | 1505 | 1175 |
| 55° | 2096 | 1333 | 1009 |
| 60° | 2014 | 1153 | 838  |
| 65° | 1921 | 969  | 763  |
| 70° | 1810 | 798  | 702  |
| 75° | 1673 | 727  | 655  |
| 80° | 1476 | 650  | 597  |
| 85° | 1160 | 512  | 512  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2237 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 306.8  | 4.6       |
| 10°-20°   | 842.2  | 12.5      |
| 20°-30°   | 1182.4 | 17.6      |
| 30°-40°   | 1288.9 | 19.1      |
| 40°-50°   | 1184.6 | 17.6      |
| 50°-60°   | 930.3  | 13.8      |
| 60°-70°   | 605.5  | 9.0       |
| 70°-80°   | 311.7  | 4.6       |
| 80°-90°   | 79.6   | 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°    | 2331.3 | 34.6      |
| 0°-40°    | 3620.2 | 53.8      |
| 0°-60°    | 5735.1 | 85.2      |
| 0°-90°    | 6732.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 6732.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 3273 | 3273  | 3273 | 3273  | 3273 |      |
| 5°  | 3273 | 3258  | 3220 | 3247  | 3238 | 310  |
| 15° | 3113 | 3081  | 2980 | 2924  | 2894 | 877  |
| 25° | 2826 | 2731  | 2536 | 2414  | 2370 | 1300 |
| 35° | 2435 | 2284  | 2023 | 1837  | 1771 | 1524 |
| 45° | 1991 | 1792  | 1481 | 1271  | 1200 | 1537 |
| 55° | 1514 | 1283  | 963  | 785   | 729  | 1353 |
| 65° | 1022 | 782   | 515  | 415   | 406  | 1013 |
| 75° | 545  | 338   | 237  | 216   | 213  | 576  |
| 85° | 127  | 65    | 56   | 56    | 56   | 153  |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 3273.3 | 3273.3 | 3273.3 | 3273.3 | 3273.3 |
| 2.5°  | 3288.1 | 3273.3 | 3240.6 | 3270.5 | 3264.5 |
| 5°    | 3273.3 | 3258.5 | 3219.9 | 3246.6 | 3237.8 |
| 7.5°  | 3246.6 | 3229.0 | 3187.5 | 3199.1 | 3184.4 |
| 10°   | 3211.1 | 3190.3 | 3131.3 | 3122.1 | 3104.6 |
| 12.5° | 3166.8 | 3140.0 | 3059.9 | 3042.3 | 3009.6 |
| 15°   | 3113.4 | 3080.6 | 2980.1 | 2923.8 | 2894.3 |
| 17.5° | 3051.1 | 3003.7 | 2879.2 | 2814.1 | 2766.7 |
| 20°   | 2980.1 | 2920.7 | 2772.6 | 2698.8 | 2633.4 |
| 22.5° | 2903.1 | 2834.9 | 2662.9 | 2562.4 | 2518.1 |
| 25°   | 2826.1 | 2731.2 | 2535.7 | 2414.3 | 2369.7 |
| 27.5° | 2734.3 | 2633.4 | 2417.2 | 2278.0 | 2209.8 |
| 30°   | 2636.6 | 2523.7 | 2286.7 | 2135.9 | 2055.8 |
| 32.5° | 2541.7 | 2405.2 | 2162.6 | 1984.8 | 1910.5 |
| 35°   | 2435.1 | 2284.0 | 2023.4 | 1836.7 | 1771.3 |
| 37.5° | 2331.4 | 2168.3 | 1893.0 | 1688.4 | 1614.5 |
| 40°   | 2221.7 | 2044.2 | 1756.6 | 1546.3 | 1469.3 |
| 42.5° | 2109.2 | 1919.6 | 1620.5 | 1401.1 | 1327.2 |
| 45°   | 1990.7 | 1792.1 | 1481.3 | 1270.7 | 1199.6 |
| 47.5° | 1878.2 | 1668.0 | 1348.0 | 1137.4 | 1072.4 |
| 50°   | 1753.7 | 1543.4 | 1217.5 | 1013.0 | 951.0  |
| 52.5° | 1632.1 | 1409.9 | 1093.1 | 897.6  | 841.3  |
| 55°   | 1513.6 | 1282.6 | 962.7  | 785.1  | 728.8  |
| 57.5° | 1392.3 | 1155.3 | 847.4  | 681.4  | 633.9  |
| 60°   | 1267.8 | 1030.9 | 725.7  | 574.8  | 527.4  |
| 62.5° | 1146.5 | 909.5  | 622.0  | 480.0  | 456.4  |
| 65°   | 1022.1 | 781.9  | 515.4  | 414.8  | 405.7  |
| 67.5° | 903.6  | 663.5  | 414.8  | 364.2  | 355.4  |
| 70°   | 779.1  | 548.1  | 343.5  | 313.9  | 302.1  |
| 72.5° | 660.6  | 441.2  | 287.3  | 263.7  | 257.7  |
| 75°   | 545.0  | 337.6  | 237.0  | 216.2  | 213.4  |
| 77.5° | 429.7  | 239.8  | 186.7  | 174.7  | 168.8  |
| 80°   | 322.7  | 171.9  | 142.1  | 130.4  | 130.4  |
| 82.5° | 225.0  | 115.6  | 97.7   | 91.8   | 91.8   |
| 85°   | 127.3  | 65.0   | 56.2   | 56.2   | 56.2   |
| 87.5° | 47.4   | 23.6   | 23.6   | 20.8   | 20.8   |
| 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 | 14.55            | 16.08 | 14.92 | 16.39 | 16.70 | 10.52          | 12.04 | 10.88 | 12.35 | 12.67 |
|                 | 3H   | 16.32            | 17.69 | 16.70 | 18.01 | 18.38 | 11.78          | 13.15 | 12.16 | 13.47 | 13.84 |
|                 | 4H   | 16.99            | 18.27 | 17.39 | 18.62 | 18.99 | 12.28          | 13.56 | 12.68 | 13.91 | 14.29 |
|                 | 6H   | 17.48            | 18.66 | 17.89 | 19.03 | 19.42 | 12.66          | 13.85 | 13.08 | 14.21 | 14.60 |
|                 | 8H   | 17.64            | 18.77 | 18.07 | 19.16 | 19.56 | 12.79          | 13.91 | 13.21 | 14.30 | 14.71 |
|                 | 12H  | 17.74            | 18.82 | 18.17 | 19.20 | 19.63 | 12.87          | 13.95 | 13.30 | 14.33 | 14.76 |
| 4H              | 2H   | 14.66            | 15.94 | 15.06 | 16.29 | 16.67 | 11.21          | 12.49 | 11.61 | 12.84 | 13.22 |
|                 | 3H   | 16.59            | 17.66 | 17.00 | 18.05 | 18.46 | 12.65          | 13.72 | 13.06 | 14.12 | 14.52 |
|                 | 4H   | 17.34            | 18.30 | 17.77 | 18.71 | 19.15 | 13.25          | 14.21 | 13.69 | 14.63 | 15.06 |
|                 | 6H   | 17.93            | 18.77 | 18.39 | 19.21 | 19.67 | 13.74          | 14.57 | 14.20 | 15.02 | 15.48 |
|                 | 8H   | 18.15            | 18.93 | 18.61 | 19.37 | 19.84 | 13.90          | 14.68 | 14.37 | 15.12 | 15.59 |
|                 | 12H  | 18.30            | 19.00 | 18.78 | 19.47 | 19.95 | 14.02          | 14.72 | 14.50 | 15.19 | 15.66 |
| 8H              | 4H   | 17.37            | 18.14 | 17.83 | 18.59 | 19.05 | 13.61          | 14.38 | 14.07 | 14.83 | 15.30 |
|                 | 6H   | 18.00            | 18.65 | 18.50 | 19.14 | 19.61 | 14.19          | 14.84 | 14.69 | 15.33 | 15.80 |
|                 | 8H   | 18.25            | 18.83 | 18.77 | 19.34 | 19.83 | 14.41          | 14.99 | 14.93 | 15.50 | 15.99 |
|                 | 12H  | 18.46            | 18.97 | 18.97 | 19.46 | 20.02 | 14.59          | 15.10 | 15.10 | 15.60 | 16.16 |
| 12H             | 4H   | 17.35            | 18.05 | 17.83 | 18.52 | 18.99 | 13.65          | 14.35 | 14.13 | 14.82 | 15.29 |
|                 | 6H   | 17.98            | 18.56 | 18.50 | 19.07 | 19.56 | 14.26          | 14.83 | 14.77 | 15.34 | 15.83 |
|                 | 8H   | 18.27            | 18.78 | 18.78 | 19.27 | 19.84 | 14.53          | 15.04 | 15.04 | 15.53 | 16.10 |