

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: P929820

Luminaire Tested: DFN2DS-4P2F0-030DS940-RLL

Issue Date: 11/20/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P929820  
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-4P2F0-030DS940-RLL  
Description: 2 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

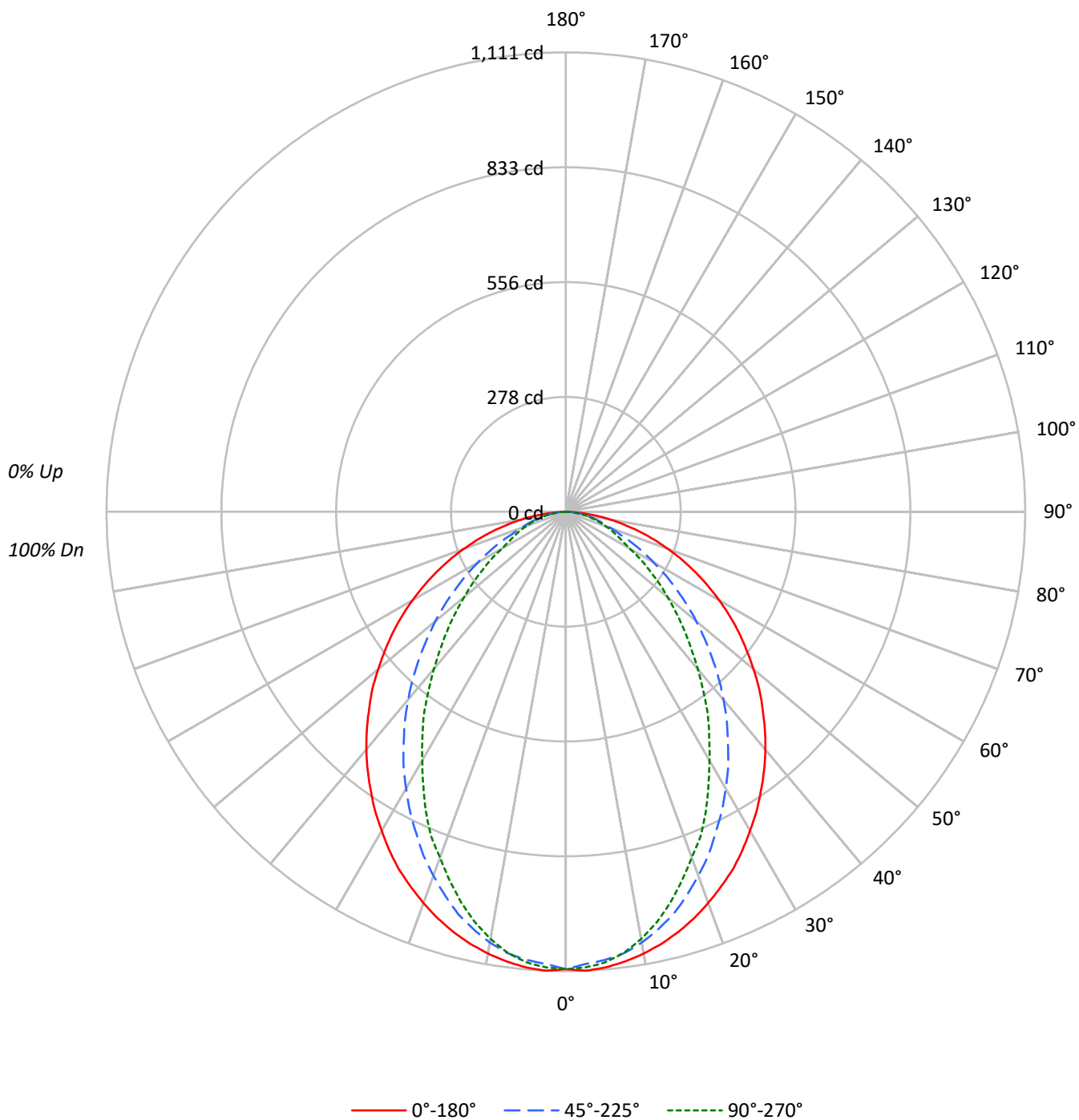
Lumens per Lamp: N/A  
Luminaire Lumens: 2274.6 lumens  
Efficiency: N/A  
Efficacy: 75.1 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular (W 2.07' x L: 2.07' x H: 0')  
CIE Type: Direct

Input Watts (W): 30.3  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9954  
Total Harmonic Distortion (THDi): 0.076  
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°  | 2769 | 2769 | 2769 |
| 5°  | 2780 | 2735 | 2750 |
| 10° | 2758 | 2690 | 2667 |
| 15° | 2727 | 2610 | 2535 |
| 20° | 2683 | 2496 | 2371 |
| 25° | 2638 | 2367 | 2212 |
| 30° | 2576 | 2234 | 2008 |
| 35° | 2515 | 2090 | 1829 |
| 40° | 2454 | 1940 | 1623 |
| 45° | 2382 | 1772 | 1435 |
| 50° | 2308 | 1603 | 1252 |
| 55° | 2233 | 1420 | 1075 |
| 60° | 2145 | 1228 | 892  |
| 65° | 2046 | 1032 | 812  |
| 70° | 1927 | 849  | 747  |
| 75° | 1781 | 775  | 698  |
| 80° | 1573 | 692  | 636  |
| 85° | 1235 | 546  | 546  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2382 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 103.7  | 4.6       |
| 10°-20°   | 284.6  | 12.5      |
| 20°-30°   | 399.5  | 17.6      |
| 30°-40°   | 435.5  | 19.1      |
| 40°-50°   | 400.3  | 17.6      |
| 50°-60°   | 314.3  | 13.8      |
| 60°-70°   | 204.6  | 9.0       |
| 70°-80°   | 105.3  | 4.6       |
| 80°-90°   | 26.9   | 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°    | 787.7  | 34.6      |
| 0°-40°    | 1223.2 | 53.8      |
| 0°-60°    | 1937.8 | 85.2      |
| 0°-90°    | 2274.6 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2274.6 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1106 | 1106  | 1106 | 1106  | 1106 |      |
| 5°  | 1106 | 1101  | 1088 | 1097  | 1094 | 105  |
| 15° | 1052 | 1041  | 1007 | 988   | 978  | 296  |
| 25° | 955  | 923   | 857  | 816   | 801  | 439  |
| 35° | 823  | 772   | 684  | 621   | 598  | 515  |
| 45° | 673  | 606   | 500  | 429   | 405  | 519  |
| 55° | 511  | 433   | 325  | 265   | 246  | 457  |
| 65° | 345  | 264   | 174  | 140   | 137  | 342  |
| 75° | 184  | 114   | 80   | 73    | 72   | 195  |
| 85° | 43   | 22    | 19   | 19    | 19   | 52   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1106.0 | 1106.0 | 1106.0 | 1106.0 | 1106.0 |
| 2.5°  | 1111.0 | 1106.0 | 1094.9 | 1105.0 | 1103.0 |
| 5°    | 1106.0 | 1101.0 | 1088.0 | 1097.0 | 1093.9 |
| 7.5°  | 1097.0 | 1091.0 | 1077.0 | 1080.9 | 1075.9 |
| 10°   | 1084.9 | 1078.0 | 1058.0 | 1054.9 | 1049.0 |
| 12.5° | 1070.0 | 1060.9 | 1033.9 | 1027.9 | 1016.9 |
| 15°   | 1051.9 | 1040.9 | 1006.9 | 987.9  | 977.9  |
| 17.5° | 1030.9 | 1014.9 | 972.8  | 950.9  | 934.8  |
| 20°   | 1006.9 | 986.8  | 936.8  | 911.9  | 889.8  |
| 22.5° | 980.9  | 957.8  | 899.8  | 865.8  | 850.8  |
| 25°   | 954.9  | 922.8  | 856.8  | 815.7  | 800.7  |
| 27.5° | 923.8  | 889.8  | 816.7  | 769.7  | 746.6  |
| 30°   | 890.8  | 852.8  | 772.7  | 721.7  | 694.6  |
| 32.5° | 858.7  | 812.7  | 730.7  | 670.6  | 645.5  |
| 35°   | 822.8  | 771.7  | 683.6  | 620.6  | 598.5  |
| 37.5° | 787.7  | 732.6  | 639.6  | 570.4  | 545.5  |
| 40°   | 750.7  | 690.7  | 593.5  | 522.4  | 496.5  |
| 42.5° | 712.6  | 648.7  | 547.5  | 473.4  | 448.4  |
| 45°   | 672.7  | 605.5  | 500.5  | 429.3  | 405.3  |
| 47.5° | 634.6  | 563.6  | 455.5  | 384.3  | 362.3  |
| 50°   | 592.6  | 521.5  | 411.4  | 342.3  | 321.3  |
| 52.5° | 551.4  | 476.4  | 369.4  | 303.3  | 284.3  |
| 55°   | 511.4  | 433.3  | 325.2  | 265.3  | 246.3  |
| 57.5° | 470.4  | 390.3  | 286.3  | 230.2  | 214.2  |
| 60°   | 428.3  | 348.3  | 245.2  | 194.2  | 178.2  |
| 62.5° | 387.4  | 307.3  | 210.2  | 162.2  | 154.2  |
| 65°   | 345.3  | 264.2  | 174.1  | 140.1  | 137.1  |
| 67.5° | 305.3  | 224.2  | 140.1  | 123.1  | 120.1  |
| 70°   | 263.2  | 185.2  | 116.0  | 106.1  | 102.0  |
| 72.5° | 223.2  | 149.1  | 97.0   | 89.1   | 87.1   |
| 75°   | 184.1  | 114.1  | 80.1   | 73.1   | 72.1   |
| 77.5° | 145.1  | 81.0   | 63.1   | 59.1   | 57.0   |
| 80°   | 109.1  | 58.1   | 48.0   | 44.1   | 44.1   |
| 82.5° | 76.0   | 39.1   | 33.0   | 31.0   | 31.0   |
| 85°   | 43.0   | 21.9   | 19.0   | 19.0   | 19.0   |
| 87.5° | 16.1   | 7.9    | 7.9    | 7.0    | 7.0    |
| 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 | 14.77            | 16.29 | 15.14 | 16.61 | 16.92 | 10.73          | 12.26 | 11.10 | 12.57 | 12.88 |
|                 | 3H   | 16.54            | 17.90 | 16.92 | 18.23 | 18.59 | 12.00          | 13.36 | 12.38 | 13.69 | 14.05 |
|                 | 4H   | 17.20            | 18.49 | 17.60 | 18.83 | 19.21 | 12.50          | 13.78 | 12.90 | 14.13 | 14.51 |
|                 | 6H   | 17.69            | 18.88 | 18.11 | 19.24 | 19.64 | 12.88          | 14.07 | 13.29 | 14.43 | 14.82 |
|                 | 8H   | 17.86            | 18.99 | 18.29 | 19.38 | 19.78 | 13.01          | 14.13 | 13.43 | 14.52 | 14.92 |
|                 | 12H  | 17.96            | 19.04 | 18.39 | 19.42 | 19.85 | 13.09          | 14.17 | 13.52 | 14.55 | 14.98 |
| 4H              | 2H   | 14.88            | 16.16 | 15.28 | 16.51 | 16.88 | 11.43          | 12.71 | 11.83 | 13.06 | 13.44 |
|                 | 3H   | 16.81            | 17.87 | 17.22 | 18.27 | 18.67 | 12.87          | 13.94 | 13.28 | 14.33 | 14.74 |
|                 | 4H   | 17.56            | 18.52 | 17.99 | 18.93 | 19.37 | 13.47          | 14.43 | 13.90 | 14.84 | 15.28 |
|                 | 6H   | 18.15            | 18.98 | 18.61 | 19.43 | 19.89 | 13.96          | 14.79 | 14.42 | 15.24 | 15.70 |
|                 | 8H   | 18.37            | 19.14 | 18.83 | 19.59 | 20.06 | 14.12          | 14.90 | 14.59 | 15.34 | 15.81 |
|                 | 12H  | 18.52            | 19.21 | 19.00 | 19.69 | 20.16 | 14.24          | 14.93 | 14.72 | 15.41 | 15.88 |
| 8H              | 4H   | 17.58            | 18.36 | 18.05 | 18.81 | 19.27 | 13.83          | 14.60 | 14.29 | 15.05 | 15.52 |
|                 | 6H   | 18.22            | 18.86 | 18.72 | 19.36 | 19.83 | 14.41          | 15.06 | 14.91 | 15.55 | 16.02 |
|                 | 8H   | 18.47            | 19.05 | 18.99 | 19.56 | 20.05 | 14.63          | 15.21 | 15.15 | 15.72 | 16.21 |
|                 | 12H  | 18.68            | 19.19 | 19.19 | 19.68 | 20.24 | 14.81          | 15.32 | 15.32 | 15.82 | 16.38 |
| 12H             | 4H   | 17.57            | 18.26 | 18.05 | 18.74 | 19.21 | 13.87          | 14.56 | 14.35 | 15.04 | 15.51 |
|                 | 6H   | 18.20            | 18.78 | 18.72 | 19.29 | 19.78 | 14.48          | 15.05 | 14.99 | 15.56 | 16.05 |
|                 | 8H   | 18.49            | 19.00 | 19.00 | 19.49 | 20.05 | 14.75          | 15.26 | 15.26 | 15.75 | 16.32 |