

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: P930432

Luminaire Tested: DFN2DS-PN2F0-020DS940-RLL

Issue Date: 11/20/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P930432  
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-PN2F0-020DS940-RLL  
Description: 2 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens  
Light Source: -  
Ballast/Driver: -

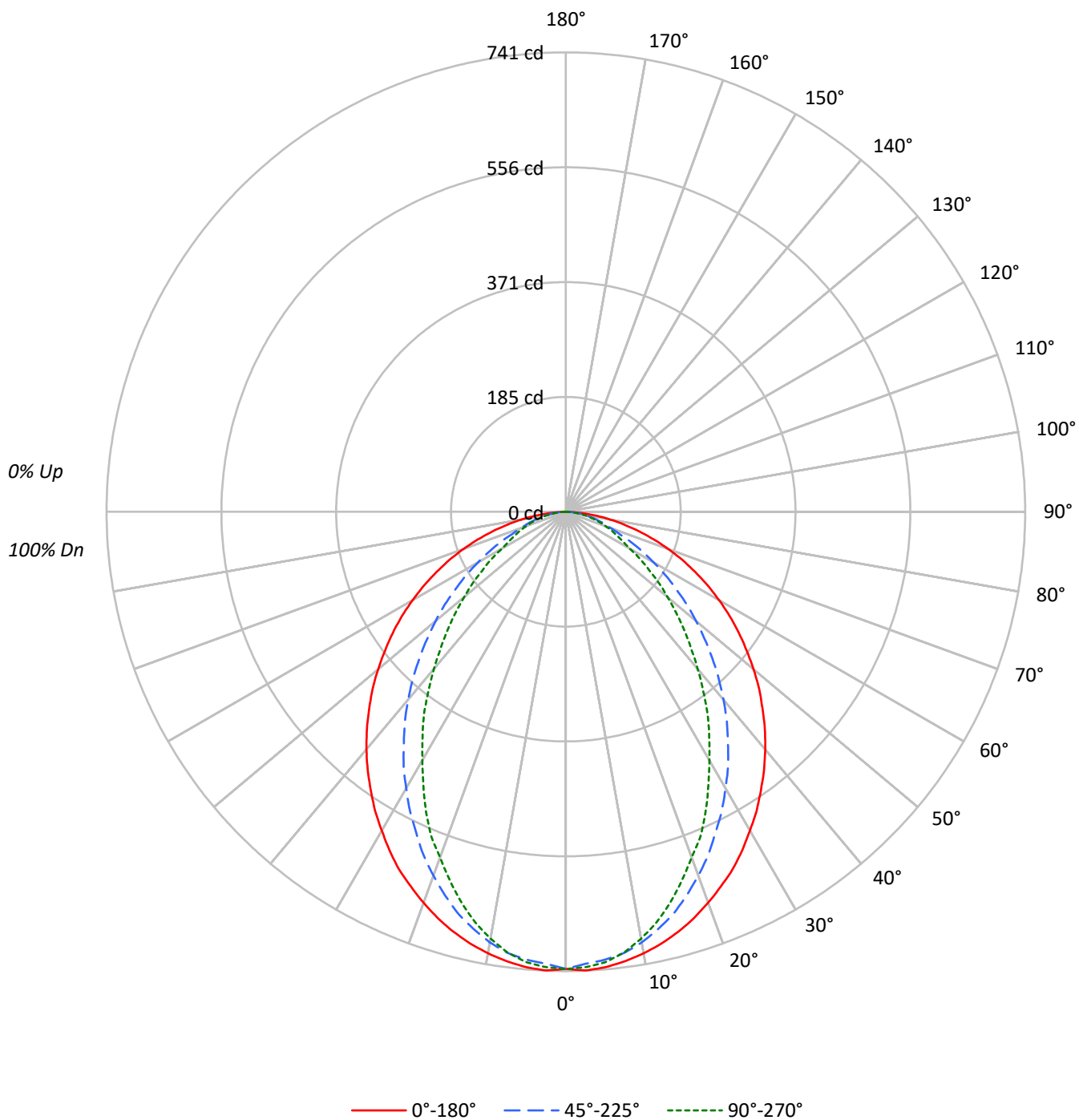
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1516.4 lumens  
Efficiency: N/A  
Efficacy: 78.6 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular (W 2.29' x L: 2.17' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 19.3  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.099  
Total Harmonic Distortion (THDi): 0.979  
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°  | 1597 | 1597 | 1597 |
| 5°  | 1603 | 1577 | 1586 |
| 10° | 1591 | 1551 | 1538 |
| 15° | 1573 | 1505 | 1462 |
| 20° | 1547 | 1440 | 1367 |
| 25° | 1521 | 1365 | 1276 |
| 30° | 1485 | 1288 | 1158 |
| 35° | 1450 | 1205 | 1055 |
| 40° | 1415 | 1119 | 936  |
| 45° | 1373 | 1022 | 828  |
| 50° | 1331 | 924  | 722  |
| 55° | 1287 | 819  | 620  |
| 60° | 1237 | 708  | 515  |
| 65° | 1180 | 595  | 468  |
| 70° | 1111 | 490  | 431  |
| 75° | 1027 | 446  | 403  |
| 80° | 907  | 399  | 365  |
| 85° | 711  | 316  | 316  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1373 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 69.1   | 4.6       |
| 10°-20°   | 189.7  | 12.5      |
| 20°-30°   | 266.3  | 17.6      |
| 30°-40°   | 290.3  | 19.1      |
| 40°-50°   | 266.8  | 17.6      |
| 50°-60°   | 209.6  | 13.8      |
| 60°-70°   | 136.4  | 9.0       |
| 70°-80°   | 70.2   | 4.6       |
| 80°-90°   | 17.9   | 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       |
| <hr/>     |        |           |
| 0°-30°    | 525.1  | 34.6      |
| 0°-40°    | 815.5  | 53.8      |
| 0°-60°    | 1291.9 | 85.2      |
| 0°-90°    | 1516.4 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1516.4 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 737 | 737   | 737 | 737   | 737 |      |
| 5°  | 737 | 734   | 725 | 731   | 729 | 70   |
| 15° | 701 | 694   | 671 | 659   | 652 | 198  |
| 25° | 637 | 615   | 571 | 544   | 534 | 293  |
| 35° | 548 | 514   | 456 | 414   | 399 | 343  |
| 45° | 448 | 404   | 334 | 286   | 270 | 346  |
| 55° | 341 | 289   | 217 | 177   | 164 | 305  |
| 65° | 230 | 176   | 116 | 94    | 91  | 228  |
| 75° | 123 | 76    | 53  | 49    | 48  | 130  |
| 85° | 29  | 15    | 13  | 13    | 13  | 34   |
| 90° | 0   | 0     | 0   | 0     | 0   |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 737.3 | 737.3 | 737.3 | 737.3 | 737.3 |
| 2.5°  | 740.6 | 737.3 | 729.9 | 736.7 | 735.4 |
| 5°    | 737.3 | 734.0 | 725.3 | 731.4 | 729.3 |
| 7.5°  | 731.4 | 727.3 | 718.0 | 720.6 | 717.3 |
| 10°   | 723.3 | 718.6 | 705.3 | 703.3 | 699.3 |
| 12.5° | 713.3 | 707.3 | 689.2 | 685.3 | 677.9 |
| 15°   | 701.3 | 693.9 | 671.2 | 658.6 | 652.0 |
| 17.5° | 687.3 | 676.6 | 648.6 | 633.9 | 623.2 |
| 20°   | 671.2 | 657.8 | 624.6 | 607.9 | 593.2 |
| 22.5° | 653.9 | 638.6 | 599.9 | 577.2 | 567.2 |
| 25°   | 636.6 | 615.2 | 571.1 | 543.9 | 533.8 |
| 27.5° | 615.9 | 593.2 | 544.5 | 513.1 | 497.7 |
| 30°   | 593.9 | 568.5 | 515.1 | 481.1 | 463.0 |
| 32.5° | 572.5 | 541.8 | 487.1 | 447.1 | 430.4 |
| 35°   | 548.5 | 514.5 | 455.8 | 413.7 | 399.0 |
| 37.5° | 525.1 | 488.4 | 426.4 | 380.3 | 363.7 |
| 40°   | 500.4 | 460.5 | 395.7 | 348.3 | 330.9 |
| 42.5° | 475.1 | 432.4 | 365.0 | 315.6 | 299.0 |
| 45°   | 448.4 | 403.6 | 333.7 | 286.2 | 270.2 |
| 47.5° | 423.1 | 375.7 | 303.6 | 256.2 | 241.6 |
| 50°   | 395.1 | 347.7 | 274.3 | 228.2 | 214.3 |
| 52.5° | 367.6 | 317.6 | 246.2 | 202.2 | 189.6 |
| 55°   | 340.9 | 288.9 | 216.8 | 176.9 | 164.1 |
| 57.5° | 313.6 | 260.2 | 190.9 | 153.5 | 142.8 |
| 60°   | 285.6 | 232.2 | 163.5 | 129.5 | 118.8 |
| 62.5° | 258.2 | 204.9 | 140.1 | 108.1 | 102.8 |
| 65°   | 230.2 | 176.2 | 116.1 | 93.5  | 91.4  |
| 67.5° | 203.6 | 149.4 | 93.5  | 82.1  | 80.1  |
| 70°   | 175.5 | 123.5 | 77.3  | 70.7  | 68.1  |
| 72.5° | 148.8 | 99.4  | 64.7  | 59.4  | 58.1  |
| 75°   | 122.7 | 76.0  | 53.3  | 48.7  | 48.1  |
| 77.5° | 96.8  | 54.1  | 42.0  | 39.3  | 38.0  |
| 80°   | 72.7  | 38.7  | 32.0  | 29.3  | 29.3  |
| 82.5° | 50.7  | 26.0  | 22.0  | 20.7  | 20.7  |
| 85°   | 28.6  | 14.6  | 12.7  | 12.7  | 12.7  |
| 87.5° | 10.7  | 5.4   | 5.4   | 4.6   | 4.6   |
| 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 | 12.86            | 14.38 | 13.23 | 14.70 | 15.01 | 8.82           | 10.34 | 9.19  | 10.66 | 10.97 |
|                 | 3H   | 14.63            | 15.99 | 15.00 | 16.32 | 16.68 | 10.09          | 11.45 | 10.47 | 11.78 | 12.14 |
|                 | 4H   | 15.29            | 16.57 | 15.69 | 16.92 | 17.30 | 10.59          | 11.87 | 10.99 | 12.22 | 12.60 |
|                 | 6H   | 15.78            | 16.96 | 16.19 | 17.33 | 17.72 | 10.97          | 12.15 | 11.38 | 12.52 | 12.91 |
|                 | 8H   | 15.95            | 17.07 | 16.37 | 17.46 | 17.86 | 11.09          | 12.22 | 11.52 | 12.61 | 13.01 |
|                 | 12H  | 16.05            | 17.13 | 16.48 | 17.51 | 17.94 | 11.18          | 12.25 | 11.61 | 12.64 | 13.07 |
| 4H              | 2H   | 12.96            | 14.24 | 13.36 | 14.59 | 14.97 | 9.52           | 10.80 | 9.92  | 11.15 | 11.53 |
|                 | 3H   | 14.90            | 15.96 | 15.31 | 16.36 | 16.76 | 10.96          | 12.02 | 11.37 | 12.42 | 12.82 |
|                 | 4H   | 15.65            | 16.60 | 16.08 | 17.02 | 17.46 | 11.56          | 12.52 | 11.99 | 12.93 | 13.37 |
|                 | 6H   | 16.24            | 17.07 | 16.70 | 17.51 | 17.97 | 12.05          | 12.88 | 12.50 | 13.32 | 13.78 |
|                 | 8H   | 16.45            | 17.23 | 16.92 | 17.68 | 18.14 | 12.21          | 12.99 | 12.67 | 13.43 | 13.90 |
|                 | 12H  | 16.61            | 17.30 | 17.09 | 17.78 | 18.25 | 12.33          | 13.02 | 12.81 | 13.50 | 13.97 |
| 8H              | 4H   | 15.67            | 16.45 | 16.13 | 16.89 | 17.36 | 11.91          | 12.69 | 12.38 | 13.14 | 13.60 |
|                 | 6H   | 16.31            | 16.95 | 16.81 | 17.44 | 17.92 | 12.50          | 13.14 | 12.99 | 13.63 | 14.11 |
|                 | 8H   | 16.56            | 17.14 | 17.07 | 17.65 | 18.13 | 12.72          | 13.30 | 13.23 | 13.81 | 14.29 |
|                 | 12H  | 16.76            | 17.27 | 17.27 | 17.76 | 18.33 | 12.90          | 13.41 | 13.41 | 13.90 | 14.47 |
| 12H             | 4H   | 15.66            | 16.35 | 16.14 | 16.83 | 17.30 | 11.96          | 12.65 | 12.44 | 13.13 | 13.60 |
|                 | 6H   | 16.29            | 16.87 | 16.80 | 17.38 | 17.87 | 12.56          | 13.14 | 13.08 | 13.65 | 14.14 |
|                 | 8H   | 16.57            | 17.08 | 17.08 | 17.58 | 18.14 | 12.84          | 13.35 | 13.34 | 13.84 | 14.40 |