

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: P930506

Luminaire Tested: DFN2DS-PN2F0-060DS950-RLL

Issue Date: 11/20/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P930506  
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-PN2F0-060DS950-RLL  
Description: 2 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

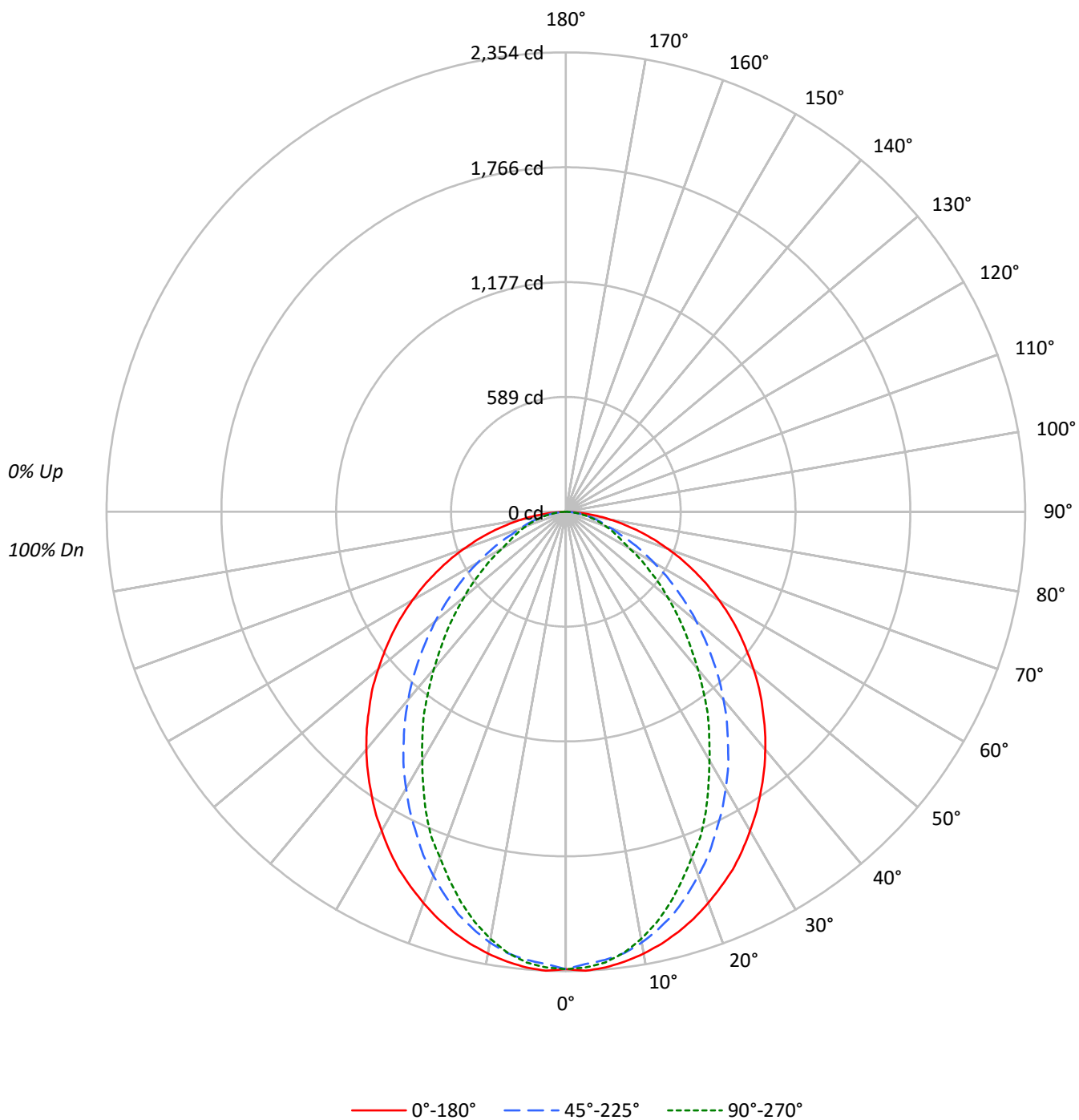
Lumens per Lamp: N/A  
Luminaire Lumens: 4819.5 lumens  
Efficiency: N/A  
Efficacy: 71.3 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular (W 2.29' x L: 2.17' x H: 0')  
CIE Type: Direct

Input Watts (W): 67.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.946  
Total Harmonic Distortion (THDi): 0.132  
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°  | 5076 | 5076 | 5076 |
| 5°  | 5095 | 5012 | 5040 |
| 10° | 5056 | 4930 | 4888 |
| 15° | 4998 | 4784 | 4646 |
| 20° | 4917 | 4575 | 4345 |
| 25° | 4835 | 4338 | 4054 |
| 30° | 4721 | 4094 | 3681 |
| 35° | 4609 | 3830 | 3353 |
| 40° | 4497 | 3555 | 2974 |
| 45° | 4365 | 3248 | 2631 |
| 50° | 4230 | 2937 | 2294 |
| 55° | 4092 | 2602 | 1970 |
| 60° | 3932 | 2251 | 1635 |
| 65° | 3750 | 1891 | 1489 |
| 70° | 3532 | 1557 | 1369 |
| 75° | 3265 | 1419 | 1279 |
| 80° | 2882 | 1268 | 1165 |
| 85° | 2264 | 1001 | 1001 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 4365 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 219.6  | 4.6       |
| 10°-20°   | 602.9  | 12.5      |
| 20°-30°   | 846.5  | 17.6      |
| 30°-40°   | 922.7  | 19.1      |
| 40°-50°   | 848.1  | 17.6      |
| 50°-60°   | 666.0  | 13.8      |
| 60°-70°   | 433.5  | 9.0       |
| 70°-80°   | 223.2  | 4.6       |
| 80°-90°   | 57.0   | 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°    | 1669.0 | 34.6      |
| 0°-40°    | 2591.7 | 53.8      |
| 0°-60°    | 4105.8 | 85.2      |
| 0°-90°    | 4819.5 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 4819.5 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 2343 | 2343  | 2343 | 2343  | 2343 |      |
| 5°  | 2343 | 2333  | 2305 | 2324  | 2318 | 222  |
| 15° | 2229 | 2205  | 2133 | 2093  | 2072 | 628  |
| 25° | 2023 | 1955  | 1815 | 1728  | 1697 | 930  |
| 35° | 1743 | 1635  | 1449 | 1315  | 1268 | 1091 |
| 45° | 1425 | 1283  | 1060 | 910   | 859  | 1101 |
| 55° | 1084 | 918   | 689  | 562   | 522  | 968  |
| 65° | 732  | 560   | 369  | 297   | 290  | 725  |
| 75° | 390  | 242   | 170  | 155   | 153  | 413  |
| 85° | 91   | 47    | 40   | 40    | 40   | 109  |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 2343.4 | 2343.4 | 2343.4 | 2343.4 | 2343.4 |
| 2.5°  | 2354.0 | 2343.4 | 2320.0 | 2341.3 | 2337.1 |
| 5°    | 2343.4 | 2332.8 | 2305.1 | 2324.3 | 2318.0 |
| 7.5°  | 2324.3 | 2311.7 | 2282.0 | 2290.3 | 2279.7 |
| 10°   | 2298.8 | 2284.0 | 2241.7 | 2235.2 | 2222.5 |
| 12.5° | 2267.1 | 2248.0 | 2190.6 | 2178.0 | 2154.6 |
| 15°   | 2228.9 | 2205.4 | 2133.4 | 2093.2 | 2072.0 |
| 17.5° | 2184.4 | 2150.3 | 2061.2 | 2014.6 | 1980.7 |
| 20°   | 2133.4 | 2090.9 | 1985.0 | 1932.1 | 1885.3 |
| 22.5° | 2078.3 | 2029.5 | 1906.4 | 1834.4 | 1802.7 |
| 25°   | 2023.2 | 1955.3 | 1815.3 | 1728.5 | 1696.6 |
| 27.5° | 1957.6 | 1885.3 | 1730.5 | 1630.8 | 1582.0 |
| 30°   | 1887.5 | 1806.7 | 1637.1 | 1529.1 | 1471.7 |
| 32.5° | 1819.6 | 1722.0 | 1548.3 | 1420.9 | 1367.8 |
| 35°   | 1743.3 | 1635.1 | 1448.6 | 1314.9 | 1268.1 |
| 37.5° | 1669.1 | 1552.3 | 1355.2 | 1208.7 | 1155.8 |
| 40°   | 1590.5 | 1463.4 | 1257.5 | 1107.0 | 1051.9 |
| 42.5° | 1510.0 | 1374.3 | 1160.1 | 1003.0 | 950.2  |
| 45°   | 1425.2 | 1282.9 | 1060.5 | 909.7  | 858.8  |
| 47.5° | 1344.6 | 1194.1 | 965.0  | 814.3  | 767.7  |
| 50°   | 1255.5 | 1105.0 | 871.7  | 725.2  | 680.9  |
| 52.5° | 1168.4 | 1009.4 | 782.6  | 642.6  | 602.3  |
| 55°   | 1083.6 | 918.3  | 689.2  | 562.1  | 521.7  |
| 57.5° | 996.8  | 827.1  | 606.6  | 487.8  | 453.8  |
| 60°   | 907.7  | 738.0  | 519.6  | 411.5  | 377.5  |
| 62.5° | 820.8  | 651.2  | 445.3  | 343.6  | 326.7  |
| 65°   | 731.7  | 559.8  | 369.0  | 297.0  | 290.5  |
| 67.5° | 646.9  | 475.0  | 297.0  | 260.8  | 254.5  |
| 70°   | 557.7  | 392.4  | 245.9  | 224.8  | 216.2  |
| 72.5° | 473.0  | 315.9  | 205.6  | 188.8  | 184.5  |
| 75°   | 390.2  | 241.6  | 169.6  | 154.8  | 152.8  |
| 77.5° | 307.6  | 171.7  | 133.6  | 125.1  | 120.9  |
| 80°   | 231.1  | 123.0  | 101.7  | 93.4   | 93.4   |
| 82.5° | 161.1  | 82.8   | 69.9   | 65.7   | 65.7   |
| 85°   | 91.1   | 46.6   | 40.3   | 40.3   | 40.3   |
| 87.5° | 34.0   | 16.9   | 16.9   | 14.8   | 14.8   |
| 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 | 16.88            | 18.40 | 17.24 | 18.71 | 19.03 | 12.84          | 14.36 | 13.20 | 14.67 | 14.99 |
|                 | 3H   | 18.64            | 20.01 | 19.02 | 20.34 | 20.70 | 14.10          | 15.47 | 14.48 | 15.80 | 16.16 |
|                 | 4H   | 19.31            | 20.59 | 19.71 | 20.94 | 21.32 | 14.61          | 15.89 | 15.01 | 16.24 | 16.61 |
|                 | 6H   | 19.80            | 20.98 | 20.21 | 21.35 | 21.74 | 14.99          | 16.17 | 15.40 | 16.54 | 16.93 |
|                 | 8H   | 19.96            | 21.09 | 20.39 | 21.48 | 21.88 | 15.11          | 16.24 | 15.54 | 16.63 | 17.03 |
|                 | 12H  | 20.07            | 21.15 | 20.50 | 21.53 | 21.96 | 15.19          | 16.27 | 15.62 | 16.65 | 17.08 |
| 4H              | 2H   | 16.98            | 18.26 | 17.38 | 18.61 | 18.99 | 13.53          | 14.82 | 13.93 | 15.16 | 15.54 |
|                 | 3H   | 18.92            | 19.98 | 19.33 | 20.38 | 20.78 | 14.98          | 16.04 | 15.39 | 16.44 | 16.84 |
|                 | 4H   | 19.67            | 20.62 | 20.10 | 21.04 | 21.48 | 15.58          | 16.53 | 16.01 | 16.95 | 17.39 |
|                 | 6H   | 20.26            | 21.09 | 20.71 | 21.53 | 21.99 | 16.07          | 16.90 | 16.52 | 17.34 | 17.80 |
|                 | 8H   | 20.47            | 21.25 | 20.93 | 21.69 | 22.16 | 16.23          | 17.01 | 16.69 | 17.45 | 17.92 |
|                 | 12H  | 20.62            | 21.32 | 21.11 | 21.80 | 22.27 | 16.34          | 17.04 | 16.83 | 17.52 | 17.99 |
| 8H              | 4H   | 19.69            | 20.47 | 20.15 | 20.91 | 21.38 | 15.93          | 16.71 | 16.39 | 17.15 | 17.62 |
|                 | 6H   | 20.33            | 20.97 | 20.82 | 21.46 | 21.94 | 16.52          | 17.16 | 17.01 | 17.65 | 18.13 |
|                 | 8H   | 20.58            | 21.15 | 21.09 | 21.66 | 22.15 | 16.74          | 17.32 | 17.25 | 17.83 | 18.31 |
|                 | 12H  | 20.78            | 21.29 | 21.29 | 21.78 | 22.35 | 16.92          | 17.43 | 17.43 | 17.92 | 18.48 |
| 12H             | 4H   | 19.67            | 20.37 | 20.16 | 20.85 | 21.32 | 15.97          | 16.67 | 16.46 | 17.15 | 17.62 |
|                 | 6H   | 20.31            | 20.89 | 20.82 | 21.39 | 21.88 | 16.58          | 17.16 | 17.09 | 17.67 | 18.16 |
|                 | 8H   | 20.59            | 21.10 | 21.10 | 21.59 | 22.16 | 16.85          | 17.36 | 17.36 | 17.86 | 18.42 |