

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: P930910

Luminaire Tested: DFN2DS-SQ3F0-040DS850-RLL

Issue Date: 11/20/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P930910  
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-SQ3F0-040DS850-RLL  
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

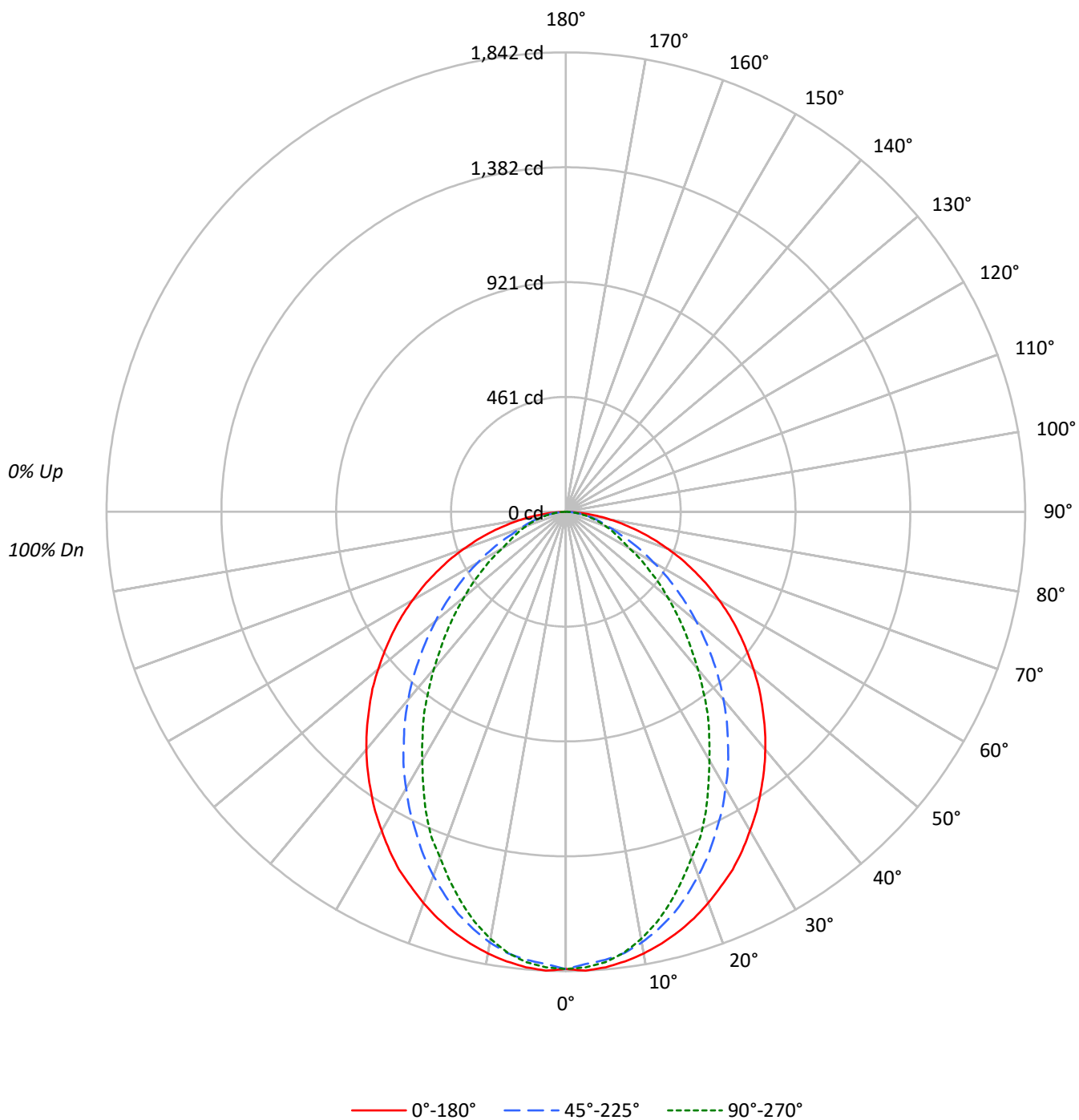
Lumens per Lamp: N/A  
Luminaire Lumens: 3770.6 lumens  
Efficiency: N/A  
Efficacy: 99.0 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular (W 3.06' x L: 3.06' x H: 0')  
CIE Type: Direct

Input Watts (W): 38.1  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9933  
Total Harmonic Distortion (THDi): 0.066  
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°  | 2101 | 2101 | 2101 |
| 5°  | 2109 | 2074 | 2086 |
| 10° | 2093 | 2041 | 2023 |
| 15° | 2069 | 1980 | 1923 |
| 20° | 2035 | 1894 | 1799 |
| 25° | 2001 | 1795 | 1678 |
| 30° | 1954 | 1695 | 1524 |
| 35° | 1908 | 1585 | 1388 |
| 40° | 1861 | 1472 | 1231 |
| 45° | 1807 | 1344 | 1089 |
| 50° | 1751 | 1216 | 950  |
| 55° | 1694 | 1077 | 815  |
| 60° | 1627 | 931  | 677  |
| 65° | 1552 | 783  | 616  |
| 70° | 1462 | 645  | 567  |
| 75° | 1351 | 587  | 529  |
| 80° | 1193 | 525  | 482  |
| 85° | 937  | 414  | 414  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
Vertical Angle: 45°  
Luminance: 1807 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 171.8  | 4.6       |
| 10°-20°   | 471.7  | 12.5      |
| 20°-30°   | 662.3  | 17.6      |
| 30°-40°   | 721.9  | 19.1      |
| 40°-50°   | 663.5  | 17.6      |
| 50°-60°   | 521.1  | 13.8      |
| 60°-70°   | 339.2  | 9.0       |
| 70°-80°   | 174.6  | 4.6       |
| 80°-90°   | 44.6   | 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°    | 1305.8 | 34.6      |
| 0°-40°    | 2027.7 | 53.8      |
| 0°-60°    | 3212.2 | 85.2      |
| 0°-90°    | 3770.6 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 3770.6 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1833 | 1833  | 1833 | 1833  | 1833 |      |
| 5°  | 1833 | 1825  | 1804 | 1818  | 1814 | 174  |
| 15° | 1744 | 1726  | 1669 | 1638  | 1621 | 491  |
| 25° | 1583 | 1530  | 1420 | 1352  | 1327 | 728  |
| 35° | 1364 | 1279  | 1133 | 1029  | 992  | 854  |
| 45° | 1115 | 1004  | 830  | 712   | 672  | 861  |
| 55° | 848  | 718   | 539  | 440   | 408  | 758  |
| 65° | 572  | 438   | 289  | 232   | 227  | 568  |
| 75° | 305  | 189   | 133  | 121   | 120  | 323  |
| 85° | 71   | 36    | 32   | 32    | 32   | 86   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1833.4 | 1833.4 | 1833.4 | 1833.4 | 1833.4 |
| 2.5°  | 1841.7 | 1833.4 | 1815.1 | 1831.8 | 1828.4 |
| 5°    | 1833.4 | 1825.1 | 1803.5 | 1818.4 | 1813.5 |
| 7.5°  | 1818.4 | 1808.6 | 1785.4 | 1791.8 | 1783.6 |
| 10°   | 1798.6 | 1786.9 | 1753.8 | 1748.7 | 1738.9 |
| 12.5° | 1773.7 | 1758.8 | 1713.8 | 1704.0 | 1685.7 |
| 15°   | 1743.8 | 1725.5 | 1669.2 | 1637.7 | 1621.1 |
| 17.5° | 1709.0 | 1682.4 | 1612.6 | 1576.2 | 1549.6 |
| 20°   | 1669.2 | 1635.9 | 1552.9 | 1511.6 | 1475.0 |
| 22.5° | 1626.0 | 1587.9 | 1491.5 | 1435.2 | 1410.4 |
| 25°   | 1582.9 | 1529.8 | 1420.2 | 1352.3 | 1327.3 |
| 27.5° | 1531.5 | 1475.0 | 1353.9 | 1275.9 | 1237.6 |
| 30°   | 1476.7 | 1413.5 | 1280.8 | 1196.3 | 1151.5 |
| 32.5° | 1423.6 | 1347.2 | 1211.2 | 1111.7 | 1070.1 |
| 35°   | 1364.0 | 1279.2 | 1133.3 | 1028.7 | 992.1  |
| 37.5° | 1305.8 | 1214.5 | 1060.2 | 945.6  | 904.3  |
| 40°   | 1244.4 | 1144.9 | 983.9  | 866.1  | 823.0  |
| 42.5° | 1181.3 | 1075.2 | 907.6  | 784.7  | 743.4  |
| 45°   | 1115.0 | 1003.8 | 829.6  | 711.8  | 671.9  |
| 47.5° | 1052.0 | 934.2  | 755.0  | 637.1  | 600.6  |
| 50°   | 982.2  | 864.5  | 681.9  | 567.4  | 532.7  |
| 52.5° | 914.1  | 789.7  | 612.3  | 502.7  | 471.2  |
| 55°   | 847.8  | 718.4  | 539.2  | 439.7  | 408.2  |
| 57.5° | 779.8  | 647.1  | 474.5  | 381.6  | 355.1  |
| 60°   | 710.1  | 577.3  | 406.4  | 321.9  | 295.4  |
| 62.5° | 642.2  | 509.5  | 348.3  | 268.8  | 255.6  |
| 65°   | 572.5  | 437.9  | 288.7  | 232.3  | 227.2  |
| 67.5° | 506.1  | 371.6  | 232.3  | 204.1  | 199.1  |
| 70°   | 436.4  | 307.0  | 192.4  | 175.9  | 169.1  |
| 72.5° | 370.1  | 247.2  | 160.9  | 147.7  | 144.4  |
| 75°   | 305.2  | 189.1  | 132.7  | 121.1  | 119.6  |
| 77.5° | 240.7  | 134.3  | 104.6  | 97.9   | 94.5   |
| 80°   | 180.8  | 96.3   | 79.5   | 73.1   | 73.1   |
| 82.5° | 126.1  | 64.8   | 54.8   | 51.3   | 51.3   |
| 85°   | 71.3   | 36.5   | 31.5   | 31.5   | 31.5   |
| 87.5° | 26.6   | 13.2   | 13.2   | 11.6   | 11.6   |
| 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 | 13.81            | 15.34 | 14.18 | 15.65 | 15.96 | 9.77           | 11.30 | 10.14 | 11.61 | 11.92 |
|                 | 3H   | 15.58            | 16.94 | 15.96 | 17.27 | 17.63 | 11.04          | 12.40 | 11.42 | 12.73 | 13.09 |
|                 | 4H   | 16.25            | 17.53 | 16.64 | 17.87 | 18.25 | 11.54          | 12.82 | 11.94 | 13.17 | 13.55 |
|                 | 6H   | 16.73            | 17.92 | 17.15 | 18.28 | 18.68 | 11.92          | 13.11 | 12.33 | 13.47 | 13.86 |
|                 | 8H   | 16.90            | 18.03 | 17.33 | 18.42 | 18.82 | 12.05          | 13.17 | 12.47 | 13.56 | 13.96 |
|                 | 12H  | 17.00            | 18.08 | 17.43 | 18.46 | 18.89 | 12.13          | 13.21 | 12.56 | 13.59 | 14.02 |
| 4H              | 2H   | 13.92            | 15.20 | 14.32 | 15.55 | 15.93 | 10.47          | 11.75 | 10.87 | 12.10 | 12.48 |
|                 | 3H   | 15.85            | 16.91 | 16.26 | 17.31 | 17.71 | 11.91          | 12.98 | 12.32 | 13.38 | 13.78 |
|                 | 4H   | 16.60            | 17.56 | 17.03 | 17.97 | 18.41 | 12.51          | 13.47 | 12.94 | 13.88 | 14.32 |
|                 | 6H   | 17.19            | 18.02 | 17.65 | 18.47 | 18.93 | 13.00          | 13.83 | 13.46 | 14.28 | 14.74 |
|                 | 8H   | 17.41            | 18.18 | 17.87 | 18.63 | 19.10 | 13.16          | 13.94 | 13.63 | 14.38 | 14.85 |
|                 | 12H  | 17.56            | 18.26 | 18.04 | 18.73 | 19.20 | 13.28          | 13.97 | 13.76 | 14.45 | 14.92 |
| 8H              | 4H   | 16.62            | 17.40 | 17.09 | 17.85 | 18.31 | 12.87          | 13.64 | 13.33 | 14.09 | 14.56 |
|                 | 6H   | 17.26            | 17.90 | 17.76 | 18.40 | 18.87 | 13.45          | 14.10 | 13.95 | 14.59 | 15.06 |
|                 | 8H   | 17.51            | 18.09 | 18.03 | 18.60 | 19.09 | 13.67          | 14.25 | 14.19 | 14.76 | 15.25 |
|                 | 12H  | 17.72            | 18.23 | 18.23 | 18.72 | 19.28 | 13.85          | 14.36 | 14.36 | 14.85 | 15.42 |
| 12H             | 4H   | 16.61            | 17.30 | 17.09 | 17.78 | 18.25 | 12.91          | 13.60 | 13.39 | 14.08 | 14.55 |
|                 | 6H   | 17.24            | 17.82 | 17.76 | 18.33 | 18.82 | 13.52          | 14.09 | 14.03 | 14.60 | 15.09 |
|                 | 8H   | 17.53            | 18.04 | 18.04 | 18.53 | 19.09 | 13.79          | 14.30 | 14.30 | 14.79 | 15.36 |