

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: P930972

Luminaire Tested: DFN2DS-SQ3F0-070DS940-RLL

Issue Date: 11/20/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P930972  
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-SQ3F0-070DS940-RLL  
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

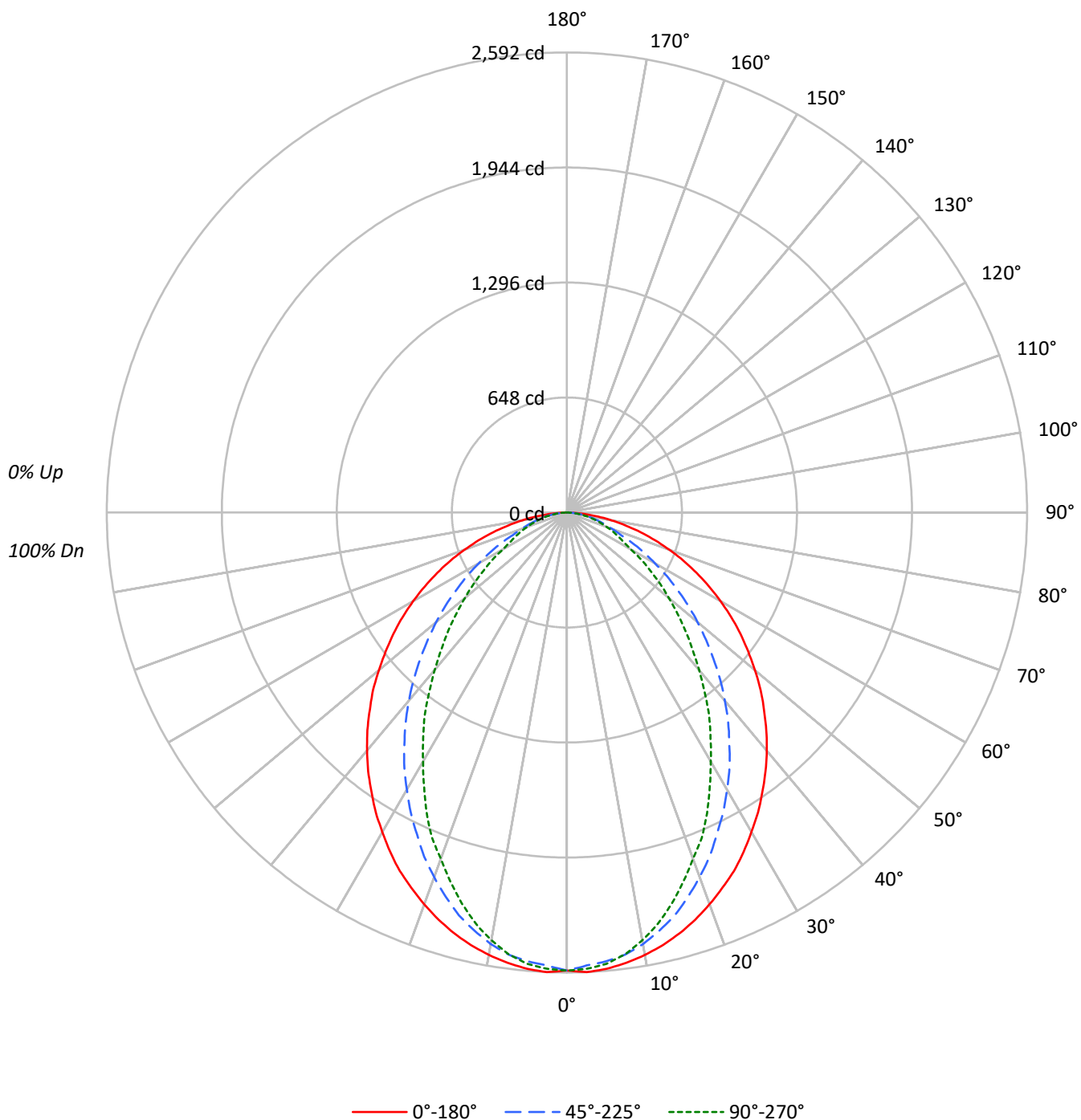
Lumens per Lamp: N/A  
Luminaire Lumens: 5307.4 lumens  
Efficiency: N/A  
Efficacy: 74.3 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular (W 3.06' x L: 3.06' x H: 0')  
CIE Type: Direct

Input Watts (W): 71.4  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9963  
Total Harmonic Distortion (THDi): 0.065  
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°  | 2957 | 2957 | 2957 |
| 5°  | 2968 | 2920 | 2936 |
| 10° | 2945 | 2872 | 2848 |
| 15° | 2912 | 2787 | 2707 |
| 20° | 2865 | 2665 | 2531 |
| 25° | 2817 | 2527 | 2362 |
| 30° | 2750 | 2385 | 2144 |
| 35° | 2685 | 2231 | 1953 |
| 40° | 2620 | 2071 | 1733 |
| 45° | 2543 | 1892 | 1533 |
| 50° | 2465 | 1711 | 1337 |
| 55° | 2384 | 1516 | 1148 |
| 60° | 2291 | 1311 | 953  |
| 65° | 2184 | 1102 | 867  |
| 70° | 2058 | 907  | 798  |
| 75° | 1902 | 827  | 745  |
| 80° | 1679 | 739  | 678  |
| 85° | 1320 | 582  | 582  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
Vertical Angle: 45°  
Luminance: 2543 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 241.9  | 4.6       |
| 10°-20°   | 664.0  | 12.5      |
| 20°-30°   | 932.2  | 17.6      |
| 30°-40°   | 1016.1 | 19.1      |
| 40°-50°   | 933.9  | 17.6      |
| 50°-60°   | 733.5  | 13.8      |
| 60°-70°   | 477.4  | 9.0       |
| 70°-80°   | 245.7  | 4.6       |
| 80°-90°   | 62.7   | 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°    | 1838.0 | 34.6      |
| 0°-40°    | 2854.1 | 53.8      |
| 0°-60°    | 4521.5 | 85.2      |
| 0°-90°    | 5307.4 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 5307.4 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 2581 | 2581  | 2581 | 2581  | 2581 |      |
| 5°  | 2581 | 2569  | 2538 | 2560  | 2553 | 245  |
| 15° | 2454 | 2429  | 2349 | 2305  | 2282 | 692  |
| 25° | 2228 | 2153  | 1999 | 1903  | 1868 | 1025 |
| 35° | 1920 | 1801  | 1595 | 1448  | 1396 | 1202 |
| 45° | 1570 | 1413  | 1168 | 1002  | 946  | 1212 |
| 55° | 1193 | 1011  | 759  | 619   | 575  | 1066 |
| 65° | 806  | 616   | 406  | 327   | 320  | 799  |
| 75° | 430  | 266   | 187  | 170   | 168  | 454  |
| 85° | 100  | 51    | 44   | 44    | 44   | 120  |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 2580.6 | 2580.6 | 2580.6 | 2580.6 | 2580.6 |
| 2.5°  | 2592.2 | 2580.6 | 2554.9 | 2578.4 | 2573.7 |
| 5°    | 2580.6 | 2569.0 | 2538.5 | 2559.6 | 2552.6 |
| 7.5°  | 2559.6 | 2545.7 | 2513.0 | 2522.1 | 2510.5 |
| 10°   | 2531.6 | 2515.3 | 2468.6 | 2461.5 | 2447.6 |
| 12.5° | 2496.6 | 2475.6 | 2412.4 | 2398.5 | 2372.7 |
| 15°   | 2454.5 | 2428.7 | 2349.4 | 2305.1 | 2281.8 |
| 17.5° | 2405.5 | 2368.1 | 2270.0 | 2218.6 | 2181.2 |
| 20°   | 2349.4 | 2302.6 | 2185.9 | 2127.7 | 2076.1 |
| 22.5° | 2288.8 | 2235.0 | 2099.4 | 2020.1 | 1985.2 |
| 25°   | 2228.0 | 2153.2 | 1999.1 | 1903.4 | 1868.3 |
| 27.5° | 2155.7 | 2076.1 | 1905.7 | 1796.0 | 1742.2 |
| 30°   | 2078.6 | 1989.7 | 1802.8 | 1683.9 | 1620.8 |
| 32.5° | 2003.8 | 1896.3 | 1705.0 | 1564.7 | 1506.2 |
| 35°   | 1919.8 | 1800.6 | 1595.3 | 1448.1 | 1396.5 |
| 37.5° | 1838.1 | 1709.4 | 1492.4 | 1331.0 | 1272.9 |
| 40°   | 1751.5 | 1611.6 | 1384.8 | 1219.1 | 1158.4 |
| 42.5° | 1662.9 | 1513.5 | 1277.5 | 1104.6 | 1046.4 |
| 45°   | 1569.5 | 1412.8 | 1167.8 | 1001.8 | 945.8  |
| 47.5° | 1480.7 | 1315.0 | 1062.7 | 896.7  | 845.4  |
| 50°   | 1382.6 | 1216.9 | 959.9  | 798.6  | 749.8  |
| 52.5° | 1286.7 | 1111.5 | 861.8  | 707.6  | 663.3  |
| 55°   | 1193.3 | 1011.2 | 758.9  | 619.0  | 574.6  |
| 57.5° | 1097.7 | 910.8  | 668.0  | 537.2  | 499.8  |
| 60°   | 999.6  | 812.7  | 572.1  | 453.2  | 415.8  |
| 62.5° | 903.9  | 717.1  | 490.3  | 378.4  | 359.7  |
| 65°   | 805.7  | 616.5  | 406.4  | 327.1  | 319.9  |
| 67.5° | 712.4  | 523.1  | 327.1  | 287.1  | 280.3  |
| 70°   | 614.2  | 432.1  | 270.8  | 247.5  | 238.1  |
| 72.5° | 520.8  | 347.9  | 226.5  | 207.9  | 203.2  |
| 75°   | 429.7  | 266.1  | 186.8  | 170.5  | 168.2  |
| 77.5° | 338.7  | 189.0  | 147.2  | 137.7  | 133.1  |
| 80°   | 254.5  | 135.5  | 112.0  | 102.8  | 102.8  |
| 82.5° | 177.4  | 91.2   | 77.1   | 72.3   | 72.3   |
| 85°   | 100.4  | 51.3   | 44.3   | 44.3   | 44.3   |
| 87.5° | 37.4   | 18.6   | 18.6   | 16.3   | 16.3   |
| 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 | 15.00            | 16.52 | 15.37 | 16.84 | 17.15 | 10.96          | 12.48 | 11.33 | 12.80 | 13.11 |
|                 | 3H   | 16.77            | 18.13 | 17.14 | 18.46 | 18.82 | 12.23          | 13.59 | 12.60 | 13.92 | 14.28 |
|                 | 4H   | 17.43            | 18.71 | 17.83 | 19.06 | 19.44 | 12.73          | 14.01 | 13.13 | 14.36 | 14.74 |
|                 | 6H   | 17.92            | 19.10 | 18.33 | 19.47 | 19.86 | 13.11          | 14.29 | 13.52 | 14.66 | 15.05 |
|                 | 8H   | 18.09            | 19.21 | 18.51 | 19.60 | 20.00 | 13.23          | 14.36 | 13.66 | 14.75 | 15.15 |
|                 | 12H  | 18.19            | 19.27 | 18.62 | 19.65 | 20.08 | 13.32          | 14.39 | 13.75 | 14.78 | 15.20 |
| 4H              | 2H   | 15.11            | 16.39 | 15.50 | 16.73 | 17.11 | 11.66          | 12.94 | 12.06 | 13.29 | 13.67 |
|                 | 3H   | 17.04            | 18.10 | 17.45 | 18.50 | 18.90 | 13.10          | 14.16 | 13.51 | 14.56 | 14.96 |
|                 | 4H   | 17.79            | 18.74 | 18.22 | 19.16 | 19.60 | 13.70          | 14.66 | 14.13 | 15.07 | 15.51 |
|                 | 6H   | 18.38            | 19.21 | 18.84 | 19.65 | 20.11 | 14.19          | 15.02 | 14.65 | 15.46 | 15.92 |
|                 | 8H   | 18.59            | 19.37 | 19.06 | 19.82 | 20.28 | 14.35          | 15.13 | 14.81 | 15.57 | 16.04 |
|                 | 12H  | 18.75            | 19.44 | 19.23 | 19.92 | 20.39 | 14.47          | 15.16 | 14.95 | 15.64 | 16.11 |
| 8H              | 4H   | 17.81            | 18.59 | 18.28 | 19.03 | 19.50 | 14.05          | 14.83 | 14.52 | 15.28 | 15.74 |
|                 | 6H   | 18.45            | 19.09 | 18.95 | 19.58 | 20.06 | 14.64          | 15.28 | 15.14 | 15.77 | 16.25 |
|                 | 8H   | 18.70            | 19.28 | 19.21 | 19.79 | 20.27 | 14.86          | 15.44 | 15.37 | 15.95 | 16.44 |
|                 | 12H  | 18.90            | 19.41 | 19.41 | 19.91 | 20.47 | 15.04          | 15.55 | 15.55 | 16.04 | 16.61 |
| 12H             | 4H   | 17.80            | 18.49 | 18.28 | 18.97 | 19.44 | 14.10          | 14.79 | 14.58 | 15.27 | 15.74 |
|                 | 6H   | 18.43            | 19.01 | 18.94 | 19.52 | 20.01 | 14.70          | 15.28 | 15.22 | 15.79 | 16.28 |
|                 | 8H   | 18.71            | 19.22 | 19.22 | 19.72 | 20.28 | 14.98          | 15.49 | 15.49 | 15.98 | 16.54 |