

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: P931423

Luminaire Tested: DFN2DS-TR3F0-080DS950-FLL

Issue Date: 11/20/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P931423  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P333812)  
Test Lab: INNOVATION CENTER  
Issue Date: 11/20/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DS-TR3F0-080DS950-FLL  
Description: 3 foot, Triangle Define Geo, with Direct Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

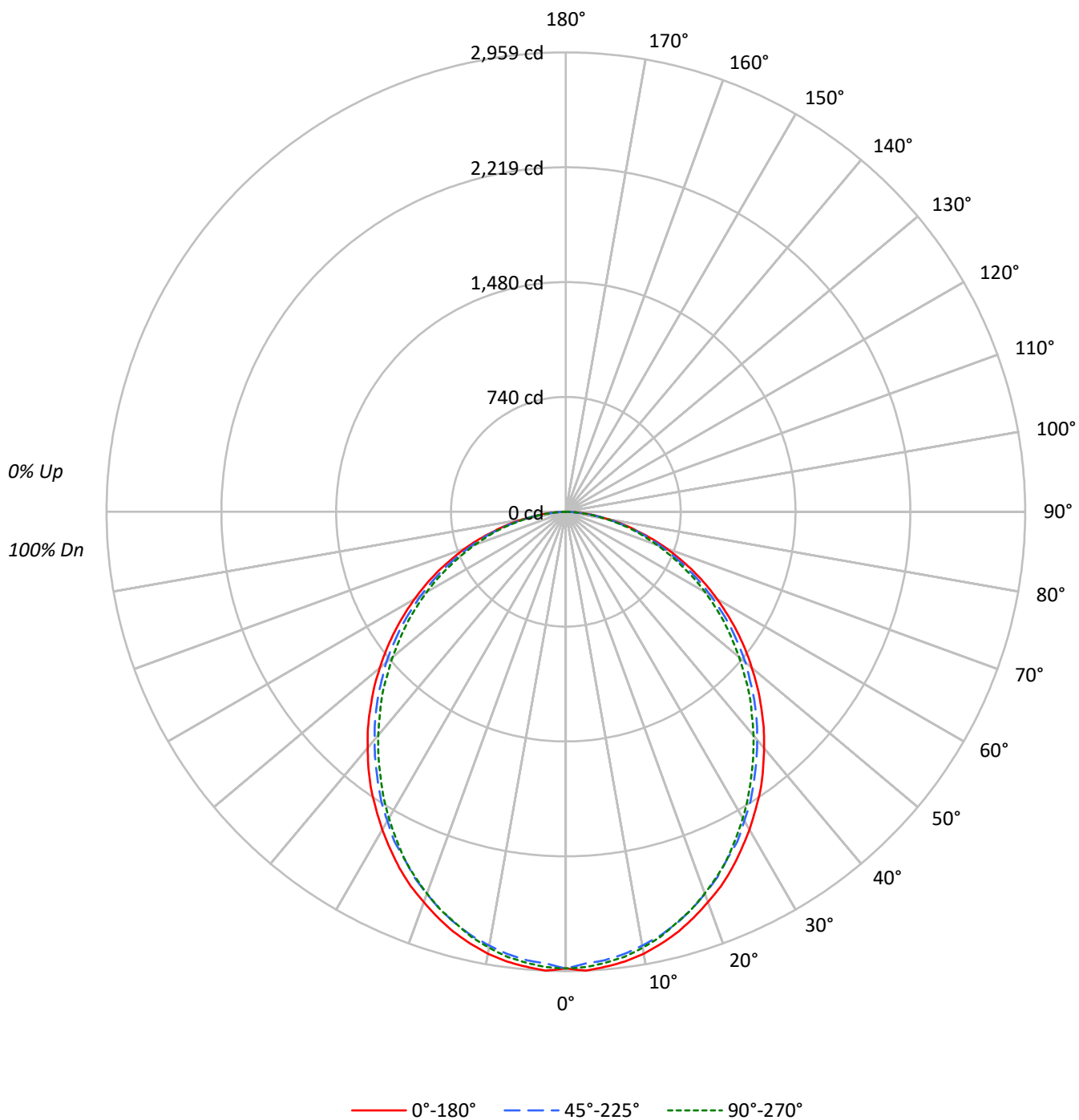
Lumens per Lamp: N/A  
Luminaire Lumens: 7484.4 lumens  
Efficiency: N/A  
Efficacy: 87.9 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular (W 3.16' x L: 2.74' x H: 0')  
CIE Type: Direct

Input Watts (W): 85.1  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9968  
Total Harmonic Distortion (THDi): 0.064  
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   | 109 | 104 | 100 | 96  | 106 | 102 | 98  | 95  | 98  | 95  | 92  |  | 94  | 91  | 89  |  | 90  |
| 2   | 99  | 91  | 85  | 79  | 97  | 89  | 83  | 78  | 86  | 81  | 76  |  | 83  | 78  | 74  |  | 80  |
| 3   | 91  | 80  | 72  | 66  | 88  | 79  | 71  | 65  | 76  | 69  | 64  |  | 73  | 68  | 63  |  | 71  |
| 4   | 83  | 71  | 63  | 56  | 81  | 70  | 62  | 56  | 68  | 61  | 55  |  | 65  | 59  | 54  |  | 63  |
| 5   | 77  | 64  | 55  | 49  | 75  | 63  | 55  | 48  | 61  | 53  | 48  |  | 59  | 52  | 47  |  | 57  |
| 6   | 71  | 58  | 49  | 43  | 69  | 57  | 48  | 42  | 55  | 48  | 42  |  | 53  | 47  | 42  |  | 52  |
| 7   | 66  | 52  | 44  | 38  | 64  | 52  | 43  | 38  | 50  | 43  | 37  |  | 49  | 42  | 37  |  | 47  |
| 8   | 61  | 48  | 40  | 34  | 60  | 47  | 39  | 34  | 46  | 39  | 33  |  | 45  | 38  | 33  |  | 44  |
| 9   | 57  | 44  | 36  | 30  | 56  | 43  | 36  | 30  | 42  | 35  | 30  |  | 41  | 35  | 30  |  | 40  |
| 10  | 54  | 41  | 33  | 28  | 53  | 40  | 33  | 28  | 39  | 32  | 27  |  | 38  | 32  | 27  |  | 37  |

**AVERAGE LUMINANCE (cd/sqm):**

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3666 | 3666 | 3666 |
| 5°  | 3680 | 3627 | 3648 |
| 10° | 3658 | 3590 | 3608 |
| 15° | 3613 | 3543 | 3540 |
| 20° | 3548 | 3474 | 3470 |
| 25° | 3485 | 3388 | 3388 |
| 30° | 3403 | 3309 | 3281 |
| 35° | 3326 | 3214 | 3167 |
| 40° | 3230 | 3119 | 3060 |
| 45° | 3136 | 3026 | 2951 |
| 50° | 3032 | 2928 | 2824 |
| 55° | 2925 | 2815 | 2710 |
| 60° | 2805 | 2679 | 2580 |
| 65° | 2678 | 2544 | 2427 |
| 70° | 2515 | 2381 | 2268 |
| 75° | 2287 | 2192 | 2139 |
| 80° | 2031 | 1968 | 1867 |
| 85° | 1657 | 1580 | 1415 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3136 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 276.9  | 3.7       |
| 10°-20°   | 779.0  | 10.4      |
| 20°-30°   | 1144.8 | 15.3      |
| 30°-40°   | 1329.6 | 17.8      |
| 40°-50°   | 1328.0 | 17.7      |
| 50°-60°   | 1158.0 | 15.5      |
| 60°-70°   | 856.0  | 11.4      |
| 70°-80°   | 484.3  | 6.5       |
| 80°-90°   | 127.8  | 1.7       |
| 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°    | 2200.7 | 29.4      |
| 0°-40°    | 3530.3 | 47.2      |
| 0°-60°    | 6016.3 | 80.4      |
| 0°-90°    | 7484.4 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 7484.4 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 2942 | 2942  | 2942 | 2942  | 2942 |      |
| 5°  | 2942 | 2930  | 2899 | 2922  | 2916 | 279  |
| 15° | 2800 | 2784  | 2746 | 2758  | 2744 | 789  |
| 25° | 2534 | 2512  | 2464 | 2469  | 2464 | 1166 |
| 35° | 2186 | 2158  | 2113 | 2096  | 2082 | 1365 |
| 45° | 1779 | 1760  | 1717 | 1686  | 1675 | 1373 |
| 55° | 1346 | 1329  | 1296 | 1262  | 1248 | 1204 |
| 65° | 908  | 891   | 863  | 837   | 823  | 898  |
| 75° | 475  | 470   | 455  | 438   | 444  | 507  |
| 85° | 116  | 113   | 110  | 102   | 99   | 136  |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 2941.6 | 2941.6 | 2941.6 | 2941.6 | 2941.6 |
| 2.5°  | 2958.7 | 2944.6 | 2913.4 | 2941.6 | 2936.2 |
| 5°    | 2941.6 | 2930.5 | 2899.4 | 2921.8 | 2916.5 |
| 7.5°  | 2921.8 | 2905.0 | 2873.8 | 2896.6 | 2890.9 |
| 10°   | 2890.9 | 2871.1 | 2837.2 | 2859.7 | 2851.3 |
| 12.5° | 2848.3 | 2831.5 | 2797.6 | 2811.7 | 2806.0 |
| 15°   | 2800.3 | 2783.5 | 2746.5 | 2758.0 | 2743.9 |
| 17.5° | 2740.9 | 2724.1 | 2687.1 | 2701.3 | 2687.1 |
| 20°   | 2675.8 | 2658.9 | 2619.4 | 2627.8 | 2616.6 |
| 22.5° | 2610.9 | 2585.4 | 2548.5 | 2548.5 | 2542.8 |
| 25°   | 2534.4 | 2511.9 | 2463.9 | 2469.3 | 2463.9 |
| 27.5° | 2449.4 | 2429.7 | 2393.0 | 2384.6 | 2370.5 |
| 30°   | 2364.9 | 2342.0 | 2299.8 | 2291.3 | 2279.9 |
| 32.5° | 2274.2 | 2257.4 | 2212.1 | 2195.0 | 2183.6 |
| 35°   | 2186.5 | 2158.4 | 2113.0 | 2095.9 | 2081.8 |
| 37.5° | 2087.5 | 2062.0 | 2016.7 | 1996.9 | 1982.8 |
| 40°   | 1985.8 | 1963.0 | 1917.7 | 1892.5 | 1881.0 |
| 42.5° | 1886.8 | 1863.9 | 1818.9 | 1790.4 | 1773.7 |
| 45°   | 1779.3 | 1759.5 | 1716.9 | 1686.0 | 1674.6 |
| 47.5° | 1674.6 | 1654.8 | 1609.4 | 1578.2 | 1561.4 |
| 50°   | 1564.2 | 1550.1 | 1510.4 | 1470.8 | 1456.7 |
| 52.5° | 1456.7 | 1436.9 | 1400.3 | 1369.1 | 1349.3 |
| 55°   | 1346.5 | 1329.4 | 1295.6 | 1261.7 | 1247.5 |
| 57.5° | 1236.2 | 1222.1 | 1185.1 | 1151.2 | 1139.8 |
| 60°   | 1125.7 | 1114.6 | 1074.9 | 1043.8 | 1035.3 |
| 62.5° | 1018.2 | 998.5  | 970.2  | 942.1  | 930.6  |
| 65°   | 908.1  | 891.0  | 862.8  | 837.3  | 823.2  |
| 67.5° | 794.9  | 780.6  | 755.3  | 735.6  | 724.2  |
| 70°   | 690.2  | 678.8  | 653.4  | 633.5  | 622.4  |
| 72.5° | 582.8  | 571.4  | 557.3  | 537.5  | 529.1  |
| 75°   | 475.1  | 469.7  | 455.3  | 438.5  | 444.2  |
| 77.5° | 379.0  | 367.6  | 361.9  | 353.5  | 345.1  |
| 80°   | 283.0  | 280.0  | 274.3  | 265.9  | 260.2  |
| 82.5° | 192.4  | 192.4  | 189.7  | 178.2  | 178.2  |
| 85°   | 115.9  | 113.1  | 110.5  | 101.8  | 99.0   |
| 87.5° | 51.0   | 45.4   | 39.6   | 31.2   | 28.3   |
| 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 | 15.80            | 17.41 | 16.16 | 17.72 | 18.04 | 15.35          | 16.96 | 15.72 | 17.28 | 17.59 |
|                 | 3H   | 17.55            | 19.00 | 17.92 | 19.33 | 19.69 | 17.05          | 18.51 | 17.43 | 18.84 | 19.20 |
|                 | 4H   | 18.19            | 19.56 | 18.59 | 19.91 | 20.29 | 17.70          | 19.07 | 18.10 | 19.41 | 19.79 |
|                 | 6H   | 18.66            | 19.93 | 19.07 | 20.29 | 20.69 | 18.16          | 19.43 | 18.57 | 19.79 | 20.18 |
|                 | 8H   | 18.80            | 20.02 | 19.23 | 20.40 | 20.80 | 18.30          | 19.51 | 18.73 | 19.90 | 20.30 |
|                 | 12H  | 18.89            | 20.05 | 19.32 | 20.44 | 20.87 | 18.38          | 19.54 | 18.81 | 19.92 | 20.35 |
| 4H              | 2H   | 16.36            | 17.73 | 16.75 | 18.07 | 18.45 | 16.00          | 17.37 | 16.40 | 17.72 | 18.10 |
|                 | 3H   | 18.33            | 19.48 | 18.74 | 19.88 | 20.28 | 17.92          | 19.07 | 18.33 | 19.47 | 19.87 |
|                 | 4H   | 19.11            | 20.14 | 19.54 | 20.56 | 20.99 | 18.68          | 19.72 | 19.12 | 20.13 | 20.57 |
|                 | 6H   | 19.70            | 20.61 | 20.16 | 21.05 | 21.51 | 19.27          | 20.18 | 19.73 | 20.62 | 21.07 |
|                 | 8H   | 19.89            | 20.74 | 20.35 | 21.18 | 21.65 | 19.46          | 20.30 | 19.92 | 20.74 | 21.21 |
|                 | 12H  | 20.03            | 20.79 | 20.51 | 21.26 | 21.73 | 19.57          | 20.33 | 20.05 | 20.81 | 21.28 |
| 8H              | 4H   | 19.38            | 20.23 | 19.84 | 20.67 | 21.14 | 19.01          | 19.85 | 19.47 | 20.30 | 20.76 |
|                 | 6H   | 20.10            | 20.80 | 20.59 | 21.29 | 21.76 | 19.71          | 20.42 | 20.21 | 20.91 | 21.38 |
|                 | 8H   | 20.35            | 20.99 | 20.86 | 21.49 | 21.98 | 19.96          | 20.59 | 20.47 | 21.10 | 21.59 |
|                 | 12H  | 20.55            | 21.11 | 21.06 | 21.60 | 22.16 | 20.14          | 20.70 | 20.65 | 21.19 | 21.75 |
| 12H             | 4H   | 19.41            | 20.17 | 19.89 | 20.64 | 21.11 | 19.04          | 19.80 | 19.52 | 20.28 | 20.75 |
|                 | 6H   | 20.14            | 20.77 | 20.65 | 21.28 | 21.77 | 19.77          | 20.40 | 20.28 | 20.91 | 21.40 |
|                 | 8H   | 20.45            | 21.01 | 20.96 | 21.50 | 22.06 | 20.08          | 20.63 | 20.58 | 21.13 | 21.69 |