

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: P931296

Luminaire Tested: DFN2DS-TR2F0-050DS940-RLL

Issue Date: 11/20/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P931296  
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-TR2F0-050DS940-RLL  
Description: 2 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

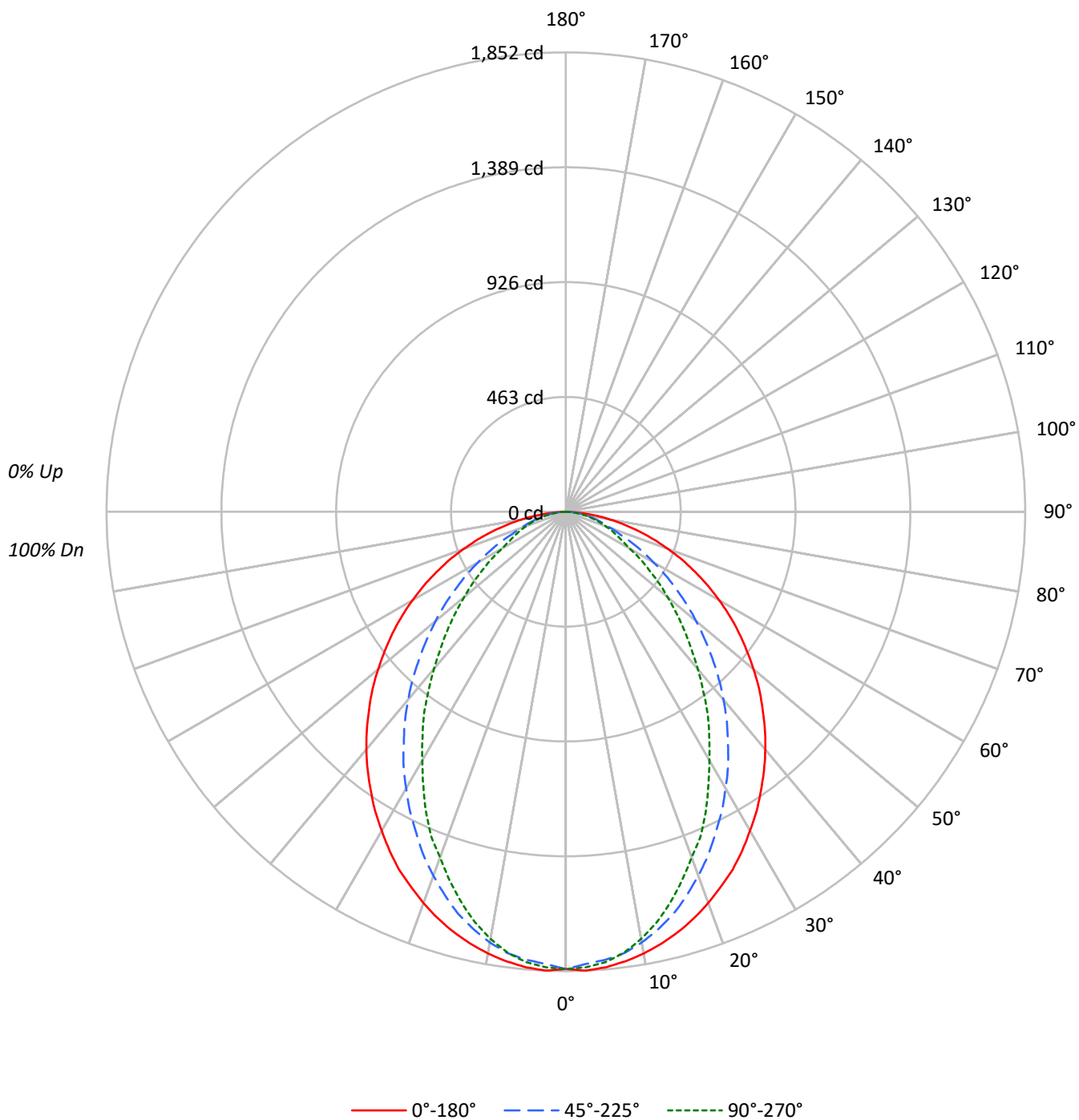
Lumens per Lamp: N/A  
Luminaire Lumens: 3791.0 lumens  
Efficiency: N/A  
Efficacy: 76.0 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular (W 2.36' x L: 2.04' x H: 0')  
CIE Type: Direct

Input Watts (W): 49.9  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9789  
Total Harmonic Distortion (THDi): 0.074  
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°  | 4111 | 4111 | 4111 |
| 5°  | 4127 | 4060 | 4082 |
| 10° | 4096 | 3994 | 3959 |
| 15° | 4048 | 3875 | 3764 |
| 20° | 3983 | 3706 | 3520 |
| 25° | 3916 | 3514 | 3284 |
| 30° | 3824 | 3317 | 2981 |
| 35° | 3734 | 3102 | 2716 |
| 40° | 3643 | 2880 | 2409 |
| 45° | 3536 | 2631 | 2131 |
| 50° | 3427 | 2379 | 1858 |
| 55° | 3315 | 2108 | 1596 |
| 60° | 3185 | 1823 | 1324 |
| 65° | 3037 | 1532 | 1206 |
| 70° | 2862 | 1262 | 1109 |
| 75° | 2645 | 1150 | 1036 |
| 80° | 2335 | 1028 | 943  |
| 85° | 1835 | 811  | 811  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3536 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 172.8  | 4.6       |
| 10°-20°   | 474.3  | 12.5      |
| 20°-30°   | 665.8  | 17.6      |
| 30°-40°   | 725.8  | 19.1      |
| 40°-50°   | 667.1  | 17.6      |
| 50°-60°   | 523.9  | 13.8      |
| 60°-70°   | 341.0  | 9.0       |
| 70°-80°   | 175.5  | 4.6       |
| 80°-90°   | 44.8   | 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°    | 1312.9 | 34.6      |
| 0°-40°    | 2038.7 | 53.8      |
| 0°-60°    | 3229.7 | 85.2      |
| 0°-90°    | 3791.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 3791.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1843 | 1843  | 1843 | 1843  | 1843 |      |
| 5°  | 1843 | 1835  | 1813 | 1828  | 1823 | 175  |
| 15° | 1753 | 1735  | 1678 | 1646  | 1630 | 494  |
| 25° | 1591 | 1538  | 1428 | 1360  | 1334 | 732  |
| 35° | 1371 | 1286  | 1139 | 1034  | 998  | 858  |
| 45° | 1121 | 1009  | 834  | 716   | 676  | 866  |
| 55° | 852  | 722   | 542  | 442   | 410  | 762  |
| 65° | 576  | 440   | 290  | 234   | 228  | 571  |
| 75° | 307  | 190   | 133  | 122   | 120  | 325  |
| 85° | 72   | 37    | 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°    | 1843.3 | 1843.3 | 1843.3 | 1843.3 | 1843.3 |
| 2.5°  | 1851.6 | 1843.3 | 1824.9 | 1841.7 | 1838.3 |
| 5°    | 1843.3 | 1835.0 | 1813.3 | 1828.2 | 1823.3 |
| 7.5°  | 1828.2 | 1818.3 | 1795.0 | 1801.6 | 1793.2 |
| 10°   | 1808.3 | 1796.6 | 1763.3 | 1758.2 | 1748.2 |
| 12.5° | 1783.3 | 1768.3 | 1723.2 | 1713.3 | 1694.8 |
| 15°   | 1753.2 | 1734.9 | 1678.2 | 1646.5 | 1629.9 |
| 17.5° | 1718.2 | 1691.5 | 1621.4 | 1584.7 | 1558.0 |
| 20°   | 1678.2 | 1644.8 | 1561.4 | 1519.8 | 1483.0 |
| 22.5° | 1634.9 | 1596.4 | 1499.6 | 1443.0 | 1418.0 |
| 25°   | 1591.4 | 1538.0 | 1427.9 | 1359.6 | 1334.4 |
| 27.5° | 1539.8 | 1483.0 | 1361.2 | 1282.8 | 1244.4 |
| 30°   | 1484.7 | 1421.2 | 1287.8 | 1202.8 | 1157.6 |
| 32.5° | 1431.3 | 1354.5 | 1217.8 | 1117.7 | 1075.9 |
| 35°   | 1371.3 | 1286.2 | 1139.4 | 1034.3 | 997.5  |
| 37.5° | 1312.8 | 1221.1 | 1066.0 | 950.8  | 909.2  |
| 40°   | 1251.1 | 1151.1 | 989.1  | 870.8  | 827.4  |
| 42.5° | 1187.8 | 1081.0 | 912.5  | 789.0  | 747.4  |
| 45°   | 1121.1 | 1009.2 | 834.1  | 715.6  | 675.5  |
| 47.5° | 1057.6 | 939.3  | 759.1  | 640.5  | 603.9  |
| 50°   | 987.6  | 869.2  | 685.7  | 570.4  | 535.6  |
| 52.5° | 919.1  | 794.0  | 615.6  | 505.5  | 473.8  |
| 55°   | 852.4  | 722.3  | 542.1  | 442.1  | 410.4  |
| 57.5° | 784.1  | 650.6  | 477.1  | 383.7  | 357.0  |
| 60°   | 714.0  | 580.5  | 408.6  | 323.7  | 296.9  |
| 62.5° | 645.6  | 512.2  | 350.3  | 270.3  | 257.0  |
| 65°   | 575.5  | 440.4  | 290.3  | 233.6  | 228.5  |
| 67.5° | 508.8  | 373.7  | 233.6  | 205.2  | 200.2  |
| 70°   | 438.8  | 308.6  | 193.5  | 176.8  | 170.1  |
| 72.5° | 372.1  | 248.5  | 161.8  | 148.5  | 145.1  |
| 75°   | 306.9  | 190.1  | 133.4  | 121.8  | 120.2  |
| 77.5° | 241.9  | 135.0  | 105.2  | 98.4   | 95.0   |
| 80°   | 181.8  | 96.8   | 80.0   | 73.4   | 73.4   |
| 82.5° | 126.8  | 65.1   | 55.0   | 51.6   | 51.6   |
| 85°   | 71.7   | 36.7   | 31.7   | 31.7   | 31.7   |
| 87.5° | 26.8   | 13.3   | 13.3   | 11.7   | 11.7   |
| 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 | 16.15            | 17.67 | 16.51 | 17.98 | 18.30 | 12.11          | 13.63 | 12.47 | 13.94 | 14.26 |
|                 | 3H   | 17.91            | 19.28 | 18.29 | 19.60 | 19.97 | 13.37          | 14.74 | 13.75 | 15.07 | 15.43 |
|                 | 4H   | 18.58            | 19.86 | 18.98 | 20.21 | 20.59 | 13.87          | 15.16 | 14.27 | 15.50 | 15.88 |
|                 | 6H   | 19.07            | 20.25 | 19.48 | 20.62 | 21.01 | 14.25          | 15.44 | 14.67 | 15.80 | 16.20 |
|                 | 8H   | 19.23            | 20.36 | 19.66 | 20.75 | 21.15 | 14.38          | 15.51 | 14.81 | 15.90 | 16.30 |
|                 | 12H  | 19.34            | 20.41 | 19.77 | 20.80 | 21.23 | 14.46          | 15.54 | 14.89 | 15.92 | 16.35 |
| 4H              | 2H   | 16.25            | 17.53 | 16.65 | 17.88 | 18.26 | 12.80          | 14.08 | 13.20 | 14.43 | 14.81 |
|                 | 3H   | 18.18            | 19.25 | 18.59 | 19.65 | 20.05 | 14.25          | 15.31 | 14.66 | 15.71 | 16.11 |
|                 | 4H   | 18.93            | 19.89 | 19.37 | 20.31 | 20.74 | 14.85          | 15.80 | 15.28 | 16.22 | 16.66 |
|                 | 6H   | 19.53            | 20.36 | 19.98 | 20.80 | 21.26 | 15.33          | 16.17 | 15.79 | 16.61 | 17.07 |
|                 | 8H   | 19.74            | 20.52 | 20.20 | 20.96 | 21.43 | 15.49          | 16.27 | 15.96 | 16.72 | 17.18 |
|                 | 12H  | 19.89            | 20.59 | 20.38 | 21.07 | 21.54 | 15.61          | 16.31 | 16.09 | 16.78 | 17.26 |
| 8H              | 4H   | 18.96            | 19.74 | 19.42 | 20.18 | 20.65 | 15.20          | 15.98 | 15.66 | 16.42 | 16.89 |
|                 | 6H   | 19.60            | 20.24 | 20.09 | 20.73 | 21.21 | 15.79          | 16.43 | 16.28 | 16.92 | 17.40 |
|                 | 8H   | 19.85            | 20.42 | 20.36 | 20.93 | 21.42 | 16.01          | 16.58 | 16.52 | 17.09 | 17.58 |
|                 | 12H  | 20.05            | 20.56 | 20.56 | 21.05 | 21.62 | 16.19          | 16.69 | 16.69 | 17.19 | 17.75 |
| 12H             | 4H   | 18.94            | 19.64 | 19.42 | 20.12 | 20.59 | 15.24          | 15.94 | 15.73 | 16.42 | 16.89 |
|                 | 6H   | 19.58            | 20.15 | 20.09 | 20.66 | 21.15 | 15.85          | 16.43 | 16.36 | 16.94 | 17.42 |
|                 | 8H   | 19.86            | 20.37 | 20.37 | 20.86 | 21.43 | 16.12          | 16.63 | 16.63 | 17.12 | 17.69 |